ComPASSION:

A Screening Tool for Type 1 Diabetes and Disordered Eating (T1DE)

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What is T1DE and the ComPASSION Project?

Type 1 Diabetes and Disordered Eating (T1DE) refers to an eating disorder whereby a person with Type 1 diabetes (PWD) purposefully restricts or omits insulin to control their weight. This behaviour may be found in combination with other behaviours typical of disordered eating including; food restriction, self-induced vomiting, laxative abuse and/or excessive exercise.

The consequences of T1DE can often lead to acute medical admissions with patients presenting in diabetic ketoacidosis (DKA), other consequences include increased risk from long-term diabetic complications and significant psychological distress associated with living with Type 1 diabetes. Despite growing recognition of the risks associated with an eating disorder and type 1 diabetes, current screening tools are often too cumbersome to be used in routine diabetic clinics.

In 2018, NHS England funded a one-year project of a combined approach for physical and mental health services to support those with type 1 diabetes and eating disorders- ComPASSION Project. This project combined teams from Royal Bournemouth Hospital and Dorset Eating Disorders Service. Part of this project looked to develop a questionnaire screening tool to improve early recognition of those at risk of T1DE.

Aims

The questionnaire was designed not to be a diagnostic tool, but to aid in identifying patients at risk of T1DE in a routine diabetes clinic. To this end, we focussed on assessing the effectiveness of two main aspects of the questionnaire:

- 1. Discussion around weight and body image- patient discussion topic
- 2. Diabetes distress score (DDS-2)

Method

The data was collected retrospectively during the ComPASSION pilot study in routine Type 1 diabetes clinicsincluding young persons clinic and insulin pump clinic. The questionnaire has been used routinely in the diabetes clinic at Royal Bournemouth Hospital since 2015 and was adjusted for the pilot. Data was collected anonymously between July 2019-March 2020 across two hospital sites with a total study size of 300 patients:

- Royal Bournemouth Hospital (242 patients)
- Queen Alexandra Hospital- Portsmouth (58 patients)

Questionnaires were provided to PWDs on arrival to their clinic appointments and were completed before discussion with the healthcare professional. A short-guide was provided to healthcare professionals to support language and communication skills, to help establish a therapeutic relationship with the person with diabetes.

Data from the questionnaires was then compared retrospectively with patients who were then identified as having T1DE. A points based system was appointed to the results of the questionnaire, the sum of which "Total score" assessed the effectiveness of discussing weight/body image and DDS-2.

The need for ethics was discussed with the ethics and research committee, formal approval was not required.

Questionnaire Screening Tool

The proforma focussed on three main topics:

1. Patient discussion topics:

This raised questions around weight and body image concerns, as well as general questions regarding their diabetic management and lifestyle. It also provided an opportunity for patient initiated topics.



2. Hypoglycaemia:

Discussed the patients ability to recognise hypoglycaemic episodes.

3. Diabetes distress

Diabetes distress score (DDS-2) is a 2-item screening tool developed by Fisher et.al 2008, which asks patients to rate the value of distress on a 6-point scale. The items include:

1) Feeling overwhelmed

I want to think about planning for having a baby

I feel I am constantly worried about my weight

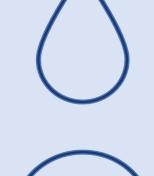
I really struggle with my diabetes whilst at work

I think I could do with talking about sex and contraception

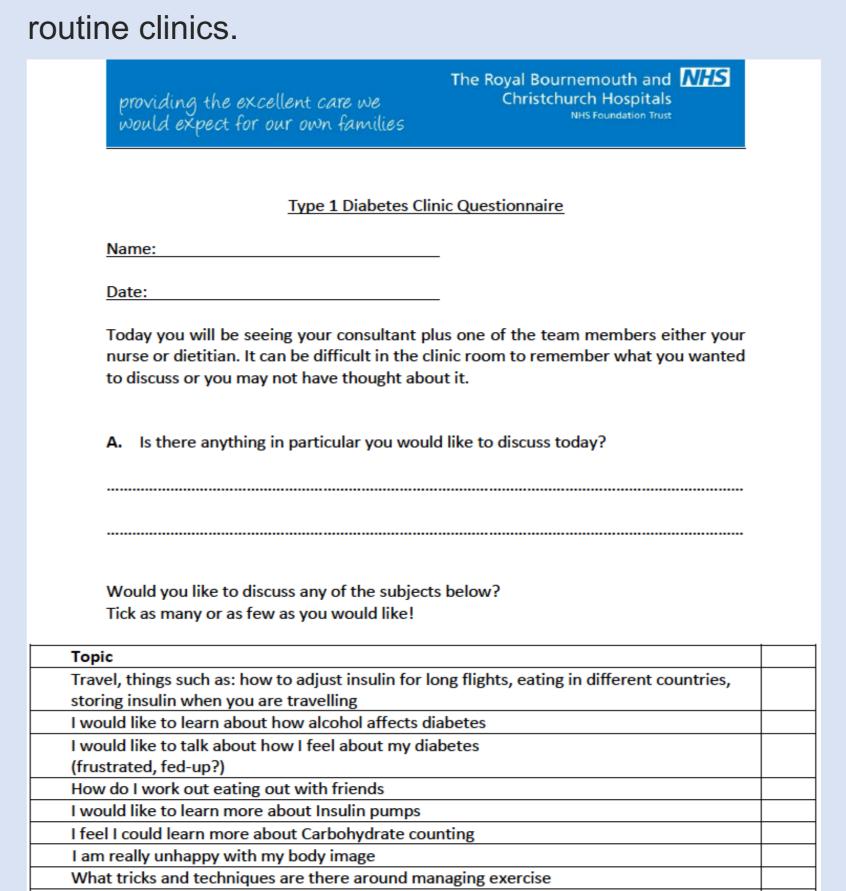
What do I need to think about when starting college or University/ moving house

How do I deal with snacks

2) Feelings of failing their diabetic regimen



These topics were included following recommendations from NICE guidelines (NG17 and NG69) advising HCPs to be alert to PWDs who have; over concern with body shape and weight, low BMI, hypoglycaemia and suboptimal overall blood glucose control. NICE require HCPs to observe for psychological distress and markers of hypo-awareness in



1. Do	(Circ	le 1 if yo	u are alv	ways aw		if you c		r feel them s awareness o	starting or son	newhere
	1	2	3	4	5	6	7			
			-						ow blood su	
Less	tnan2.2	2mmol/L	2.2-	3.3mmol	I/L 3	3.3-3.8 m	nmoi/L	4-7 mm	DI/L /-1.	2mmol/L

	Not a problem	A slight problem	A moderate problem	Somewhat serious problem	A serious problem	A very serious problem
Feeling overwhelmed by the demands of living with diabetes	1	2	3	4	5	6
2. Feeling that I am often failing with my diabetes routine	1	2	3	4	5	6

Results

Patients with T1DE were more likely to raise concerns regarding weight and/or body image

Our findings support NICE recommendations for eating disorders and displays the importance of providing a non-judgemental environment for PWDs to share their concerns, emotions and thoughts.

Our findings suggest that the questionnaire provides a suitable environment for patients at risk of T1DE to voice concerns regarding weight and/or body image.

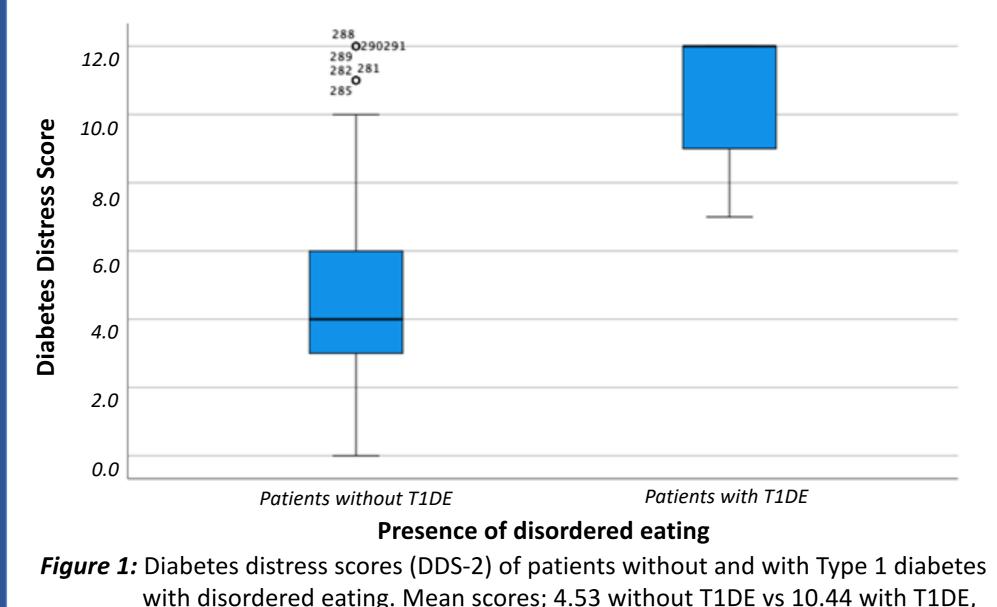
	Patients without T1DE	Patients with T1DE
Weight	19.6%	66.7%
Body image	13.4%	77.8%
Both	9.3%	66.7%

Table 1: Percentage of patient without and with Type 1 diabetes and disordered eating who want to discuss concerns about their weight, body image or both.

Diabetes distress scores were significantly greater in T1DE patients

Patients withT1DE were found to have a greater mean DDS score (10.44) compared to those without T1DE (4.53) with a p-value <0.01 (see Figure 1).

Our findings support those of Fisher et.al 2008. They highlight the importance of including questions regarding diabetes distress when developing a screening questionnaire. In addition, it identifies the simple use of DDS-2 in a screening questionnaire.



with disordered eating. Mean scores; 4.53 without T1DE vs 10.44 with T1DE, p-value < 0.01.

The questionnaire is an effective screening tool identifying Type 1 diabetic patients at risk of disordered eating

Mean total scores were greater in those with T1DE (11.88) vs without T1DE (4.86), with a p-value of <0.01.

Our findings suggest that the questionnaire used in the ComPASSION study is an effective screening tool when identifying PWD at risk of T1DE. In addition, they provide evidence that allowing patients to discuss concerns with clinician regarding their weight and/or body image, can be a useful screening tool in combination with DDS-2.

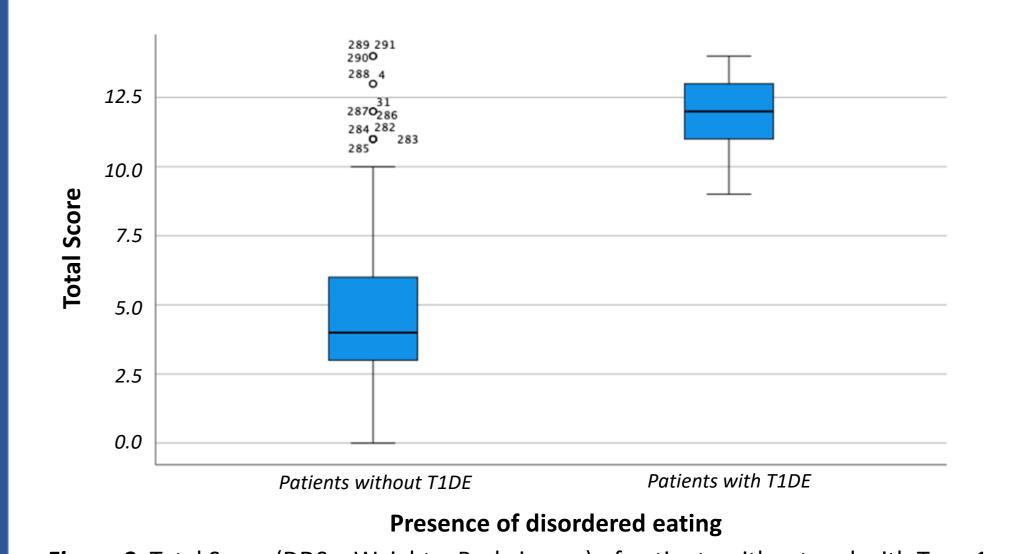


Figure 2: Total Score (DDS + Weight + Body image) of patients without and with Type 1 diabetes with disordered eating. Mean scores; 4.86 without T1DE vs 11.88 with T1DE, p-value < 0.01.

Conclusions

Healthcare professionals should be alert to patients with Type 1 diabetes at risk of disordered eating

This study supports NICE recommendations around eating disorders, evidencing how discussion around weight and body image as well as including questions from DDS-2 can help with early identification of T1DE.

Early identification of patients with T1DE when including patient discussion topics and diabetes distress score

Results from the study showed statistical significance (p<0.01) when identifying patients with T1DE using both patient discussion topics and DDS-2. Results from this study supported those of Fisher et. al 2008, with DDS-2 being significantly greater in patients with T1DE.

A screening tool can be a simple and effective approach at identifying patients with T1DE

The questionnaires have been routinely used in clinics with minimal training required for HCPs. This approach could easily be replicated in similar clinical environments with minimal training. The questionnaires allowed patients the opportunity to discuss concerns around weight and body image, with the study showing increased concerns in patients with T1DE

Further studies are needed to assess the effectiveness of this screening tool on a larger population

A total of 300 patient-filled questionnaires across two hospital sites in the South West of England (Royal Bournemouth Hospital and Queen Alexandra Hospital- Portsmouth). The majority of the questionnaires were collected from Royal Bournemouth Hospital (242). To build on the results from this study, a larger study size across various NHS trusts within England is needed.

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