Research article Ερευνητική εργασία

Reliability and validity of the Diabetes Eating Problem Survey in Greek adults with type 1 diabetes mellitus

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In the management of type 1 diabetes mellitus (T1DM), dietary therapy and the maintenance of a healthy body weight (in conjunction with insulin therapy) are significantly associated with good glycemic control and complication reduction. However, a diabetic patient's increased focus on diet and weight control, although necessary, can lead to disturbed eating habits, medical complications, and "resistance" to treatment. The term "diabulimia" refers to the eating disorder in which patients with T1DM take less insulin in order to control their weight. Currently there is no valid questionnaire in the Greek language for the detection of eating disorders in T1DM. This study examines the psychometric properties of the Greek version of the Diabetes Eating Problem Survey-Revised (DEPS-R), a questionnaire that assesses the risk of "diabulimia" in patients with T1DM. 100 outpatients with a T1DM diagnosis of over one year –71 women and 35 users of a continuous insulin infusion pump– were asked to complete the DEPS-R questionnaire translated into Greek (0–80 score range, >20 indicating high risk of disorders) along with the EAT-26 (0–78 score range, >20 indicating high risk of pathological eating behaviours or eating disorder) and the Beck Depression Inventory (BDI-II) (0–63 score range, >14 indicating high risk of major depressive disorder). The Greek version of the DEPS-R showed strong internal consistency and construct validity (Cronbach's alpha=0,89 in total, 0,90 in females and 0,85 in males). Factorial analysis revealed 4 factors (diet, weight loss, insulin use and compensatory behaviors) accounting for 65.68% of the total variance (19.90%, 18.50%, 15.64% and 11.65% of the total variance respectively). In addition, 35% of the sample scored above 20 on the EAT-26, 26% rated above 14 on the BDI-II and 40% had a score above 20 on the DEPS-R, while the average score was 19.22. The sound psychometric properties of the DEPS-R scale were confirmed for a Greek sample with T1DM suggesting that it could be used as a reliable tool for the detection of diabulimia. In addition, we found that Greek patients with T1DM appear to have an increased risk of developing eating disorders and depression.

Key words: Diabulimia, eating disorders, diabetes mellitus, depression.

Introduction

Eating disorders (EDs) contribute to major health problems for many adults and patients suffering from chronic diseases. Such patients can present with a wide range of symptoms including disordered eating habits and clinical EDs. Low self-esteem, negative body image, intense fear of weight gain, refusal to maintain normal weight and wiping out unwanted calories are clinical features of most EDs.¹

In type 1 diabetes mellitus (T1DM), the maintenance of healthy nutrition and body weight, in conjunction with pharmacological treatment, plays a significant role in the management of the disease.² Consequently, patients with T1DM need to pay constant attention to their nutrition, continuously referring to food labels and diet tables, counting carbohydrates, weighing their food and controlling the way their meals are prepared in order to match their carbohydrate intake to their insulin dosage. Although nutritional education in T1DM management is crucial, constant preoccupation with weight control and food intake can place diabetic patients at increased risk of developing EDs. Previous research has shown that T1DM patients with disordered eating attempt to control their body weight and shape through dangerous behaviours such as restrictive food consumption or alternating between overeating and indulging in compensatory behaviors like vomiting, overuse of diabetes medications and intense exercise.³ Specifically, misuse of insulin in T1DM was reported for the first time in 1983 and it is listed as a compensatory behavior in the DSM-IV.⁴ Diabulimia is defined by many authors as a type of ED in which patients with insulin-controlled diabetes deliberately fail to administer prescribed doses of insulin, or handle the prescribed dose with the intention to lose weight or prevent weight gain.⁵ An untreated ED in a diabetic patient can lead to diabetes complications significantly earlier, and the correlation of diabetes with EDs significantly increases morbidity and mortality, raising the risk of microvascular complications such as retinopathies and nephropathies or even of premature death.⁶⁻⁹

However, the diagnosis of EDs among chronic disease patients such as in T1DM may be more difficult than in healthy populations. Distinguishing between a healthy eating regime associated with T1DM management and disordered eating behaviour or depression can prove to be a confusing task, even for a multi-disciplinary team of health professionals.^{3,10,11} To make matters worse, conventional tools for the detection of ED may not be sensitive enough to differentiate symptoms of EDs from the behaviours associated with T1DM management.^{3,9-11} Consequently, specialized tools are needed to detect EDs within a diabetic population.

The DEPS-R questionnaire is a short, self-administered, screening tool especially created for the assessment of ED risk within a pediatric T1DM population.¹² It is currently recognized as an adequate instrument to evaluate the risk of developing diabulimia in adults and children with T1DM.¹²⁻¹⁹

Currently there is no valid screening tool in Greek for the detection of EDs in T1DM patients. The purpose of the current study was to translate and adapt the DEPS-R questionnaire into the Greek language so that it can be used as a short, specific, self-administered screening tool for the detection of eating disorders within the special population of T1DM patients.

Material and method

Participants

This study was conducted at the outpatient diabetes clinics of the "Attikon" and "Laiko" general hospitals. In this cross-sectional study, 140 T1DM outpatients aged over 18 years, with a formal diagnosis of T1DM for more than one year, were approached and 100 of them consented to participate in the study during their regularly scheduled clinical appointments. According to the golden rule of Nunnally and Bernstein,²⁰ when the ratio between the number of variables (that is, the questions of a questionnaire) and participants is 1:10, it is sufficient to give stable results. Translation and questionnaire surveys have shown that even smaller ratios could provide reliable results. Consequently, the number of 100 participants was considered to be sufficient.

Greek version of the DEPS-R

The original DEPS, comprised of 28 items, was revised and shortened into the 16-item DEPS-R by Markowitz et al.¹² A recommended cut-off score of ≥ 20 has been empirically established as a threshold indicating the need for further clinical assessment of eating pathology.¹² For the present study, full permission to use the DEPS-R questionnaire was granted by Lori Laffel, MD, MPH (Department of Clinical, Behavioral and Outcomes Research, Joslin Diabetes Center, Professor of Pediatrics, Harvard Medical School). The questionnaire was translated into Greek in line with the standardized procedure suggested by Brislin.²¹ Specifically, the questionnaire was first translated into Greek by an experienced translator and professor of the English language. Subsequently, a second independent native speaker of English and experienced translator back-translated the questionnaire. Finally, a third independent professor compared the original version of the English questionnaire to the English translation and assessed the similarity between the two versions (Appendix). The DEPS-R questionnaire was evaluated on the basis of the Eating Attitudes Test (EAT-26), a questionnaire already translated and validated in Greek, particularly effective in detecting possible EDs, and commonly used by Greek health-care professionals.²²

Procedures

The research protocols were submitted and approved by the Ethics Committee of the "Attikon" hospital (approval code: ΒΠΠΚ ΕΒΔ245/ 20/04/2018), and all the procedures followed were in accordance with the Declaration of Helsinki (1964) and GDPR. The study's questionnaire was initially tested on three diabetic volunteers, during which it was assessed for clarity and required completion time, which was judged to be at approximately fifteen minutes per volunteer. The first time (T1), all participants were asked to fill out the study's questionnaire after signing the consent and GDPR form. This was done during their regularly scheduled clinical appointment. Additionally, the questionnaire was sent electronically via email to be completed at home by fifty T1DM patients, who were approached and

informed, and who signed the consent and GDPR form, but were unable to fill out the survey on-site at the hospital due to time restrictions. The order of the questionnaire's subsections was: demographics, EAT-26, DEPS-R, and finally, Beck's Depression Inventory (BDI-II). Biochemical examinations and prescribed treatment data were collected from the patients' medical records. Height was measured to the nearest centimeter using a rigid stadiometer, and weight was measured (lightly dressed) to the nearest 0.1 kg using a calibrated balance scale. For the online questionnaires, weight and height were self-reported. Body mass index (BMI) was calculated using the equation: weight (kg)/height (m²). During the follow-ups, the DEPS-R test was administered for a second time (T2) to be completed by fifteen volunteers at the "Laiko" hospital, and five volunteers via the Internet. The retest was conducted after a 2-3-week period to avoid recall bias.

Other measurements

The EAT-26 was developed by Garner et al (1982)^{23,24} and is widely used as a standardized, self-report measure of disordered eating behaviors. The EAT-26 consists of three sub-scales: Diet, Bulimia and Food Control. In the Greek version of the questionnaire, a score equal to or greater than 20 is considered to be a high-risk manifestation for the occurrence of disordered eating.²²

The Beck Depression Inventory (BDI, BDI-1A, BDI-II), created by Aaron T. Beck, is a self-reported, 21-item questionnaire that is widely used as a psychometric test for measuring the severity of depression.²⁵ According to previous studies in Greek T1DM patients, we designated the cut-off point of elevated depressive symptoms at a total score of equal to or more than 14 points.^{26,27}

Statistical analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (IBM SPSS Statistics) version 26.0. The normality of distribution of variables was determined by the Shapiro-Wilk test and histograms. The internal consistency was assessed with the Cronbach's alpha coefficient. For construct validity of the DEPS-R, an Exploratory Factor Analysis (EFA) was performed. Convergent

validity was tested by correlating the DEPS-R and the EAT-26. Test-retest reliability of the DEPS-R was assessed using the Intraclass Correlation Coefficient (ICC). Pearson's correlation coefficients were calculated to explore the relationships between DEPS-R scores and HbA1c (%), BMI and BDI. Level of significance was determined at $p < 0.05$.

Results

The demographic and clinical characteristics of the sample are displayed in table 1.

Table 1. Sample characteristics (n=100)

	Mean	SD	(%)
Age (years)	35.9	10.7	
Males (%)			29.0
BMI (kg/m ²)	24.6	5.0	
Education status (years)	14.7	2.5	
T1DM Duration (years)	17.0	10.0	
HbA1c (%)	7.6	1.7	
Insulin Pump Users (%)			35.0
Mean units of insulin (units · kg ⁻¹ · day ⁻¹)	0.5	0.2	
CGM users			56.0
SMBG frequency (checks/day)	5.4	3.2	
Mean number of hypoglycemia events (episodes/week)	2.1	3.1	
Dieting currently			36.0
Under Dietitian Supervision			20.0
EAT-26 score	17.3	10.4	
EAT-26 score over 20 (%)			35.0
BDI-II	10.9	10.0	
BDI-II score over 14 (%)			26.0
DEPS-R	19.2	14.7	
DEPS-R score over 20 (%)			40.0

S.D: Standard Deviation, BMI: Body Mass Index, HbA1c%: Hemoglobin A1c, CGM: Continuous Glucose Monitor, SMBG: Blood glucose monitoring, EAT-26: Eating Attitudes Test, BDI-II: Beck Depression Inventory-II, DEPS-R: Diabetes Eating Problem Survey-Revised

Internal consistency

The Cronbach alpha was 0.89 for the total sample: 0.90 in females and 0.85 in males at T1. Cronbach's alpha if item deleted varied from 0,67 for Q6 to 0,81 for Q3.

Factor analysis

After the suitability of data for factor analysis was assessed, exploratory factor analysis was performed on the 16 items of the Greek version of the DEPS-R. Four factors were extracted with Varimax rotation (see figure 1). The first factor focuses on diet, the second on weight loss, the third on insulin use and the fourth on the need for compensatory behaviors. The first and by far biggest factor (diet), accounted for 19.90% of the total variance. It was followed by the third factor (insulin use), the second factor (weight loss) and the fourth factor (compensatory behaviors), accounting for 18.50%, 15.64% and 11.65% respectively (table 2). Overall, 65.68% of the total variance is accounted for by these four factors.

Test-retest reliability

At T2, all responses in Q8 were 0. Cronbach alpha at T2 was 0,88 (after removing Q8). The ex-

Figure 1. Scree plot showing the eigenvalues for each component factor extracted with Varimax rotation of data provided from DEPS-R (n=100). Four factors, each respectively with eigenvalues of 6.43, 1.65, 1.34, 1.09 (all greater than 1) were retained, cumulatively accounted for of the total variance 65.68% (19.90%, 15.64%, 18.50% and 11.65% respectively).

Table 2. Exploratory Factor Analysis on DEPS-R.

Factor	Eigenvalues	(%) of variance	Mean	SD	Cronbach alpha	Average inter- item correlation
All Factors	NA	65.68	19.22	14.65	0.89	0.36
Factor 1: Diet	6.43	19.90	5.52	5.024	0.83	0.57
Factor 2: Weight Loss	1.65	15.64	7.18	5.30	0.80	0.50
Factor 3: Insulin use	1.34	18.50	5.67	5.96	0.81	0.44
Factor 4: Compensatory behaviors	1.09	11.65	0.85	1.88	0.56	0.47

Factors were extracted with Varimax rotation of data provided from 16-item DEPS-R answered by n=100 people. NA: non applicable SD: Standard Deviation, DEPS-R: Diabetes Eating Problem Survey-Revised

ploratory analysis (after removing Q8) revealed that three factors could explain 73.1% of the total variance (40.08%, 18.22%, 14.08% respectively). The Pearson Correlation Coefficient (T1-T2) ranged from -0.32 (Q-5) to 0.22 (Q4). The Intraclass Correlation Coefficient (ICC) criterion was used to measure the test-retest reliability of the DEPS-R questionnaire at three to four-week intervals where there appeared to be no significant correlation being less than 0.5 (ICC value=0.17, ICC value factor 1=0.20, ICC value factor 2=0.19, ICC value factor 3=0.18, ICC value factor 4=0.18).

Convergent validity

The DEPS-R score was positively correlated with the EAT-26 factor for diet, the EAT-26 factor for bulimia and the EAT-26 total score. The DEPS-R factor 1 (diet) was positively correlated with the EAT-26 factor for bulimia. The DEPS-R factor 2 (weight loss) was positively correlated with the EAT-26 factor for diet and the EAT-26 factor for bulimia. The DEPS-R factor 3 (insulin use) was positively correlated with the EAT-26 factor for food control and the DEPS-R factor 4 (compensatory behaviors) was positively correlated with the EAT-26 factor for diet and the EAT-26 factor bulimia (table 3).

Associations with HbA1c, BMI and BDI

Findings of the present study indicate that the DEPS-R score was positively associated with HbA1c and the BDI score. The value of HbA1c% was positively correlated with the BDI score, the DEPS-R Factor 1 and DEPS-R Factor 3. There was no correla-

tion between HbA1c% and BMI, or the EAT-26. BMI was negatively correlated with the EAT-26 factor for control and positively correlated with DEPS-R Factor 2. We found no correlation between BMI and BDI (table 4).

Discussion

This was the first study to validate an assessment tool for Eds in a Greek T1DM population. A validated screening tool such as the DEPS-R is an easily implemented, timesaving, helpful tool for clinicians to determine whether a patient should undergo more extensive assessment. The Greek version of the DEPS-R showed excellent internal consistency. Factor analysis revealed that four factors (diet, weight loss, insulin use and compensatory behaviors) explain 65.68% of the total variance. In addition, the present study did not find a statistically significant test-retest reliability, although having excellent internal consistency at both times. Finally, in the present study, 35% of the sample scored above 20 on the EAT-26; 26% rated above 14 on the BDI-II, and 40% had a score of above 20 on the DEPS-R with an average score of 19.22. These findings indicate that a large percentage of Greek T1DM patients are at high risk for presenting with EDs and depression.

This study revealed adequate internal consistency and construct validity of the Greek translation of the DEPS-R when administered to adults with T1DM, which is consistent with existing literature on DEPS-R translations administered to

Table 3. Convergent validity of DEPS-R: Correlations with EAT-26.

	EAT-26 Diet		EAT-26 Bulimia		EAT-26 Control		EAT-26 Score		DEPS-R Score	
	r	p	r	p	r	p	r	p	r	p
DEPS-R Factor 1	-0.10	0.333	0.20	0.048	-0.16	0.119	-0.07	0.478	0.57	<0.001
DEPS-R Factor 2	0.57	<0.001	0.36	<0.001	0.17	0.099	0.54	<0.001	0.55	<0.001
DEPS-R Factor 3	-0.00	0.998	0.05	0.599	0.25	0.014	0.09	0.368	0.52	<0.001
DEPS-R Factor 4	0.26	0.009	0.34	0.001	0.15	0.125	0.31	0.002	0.32	<0.001
DEPS-R Score	0.32	0.001	0.44	<0.001	0.17	0.089	0.38	<0.001	NA	NA

r: Pearson's correlation coefficient, EAT-26: Eating Attitudes Test, DEPS-R: Diabetes Eating Problem Survey-Revised, Bold font indicates statistical significance ($p < 0.05$).
 N.A: not applicable

Table 4. Associations of Greek Version of DEPS-R and its Factors with HbA1c%, BMI and BDI Score

	HbA1c%		BMI		BDI Score	
	r	p	r	p	r	p
DEPS-R Factor 1	0.49	<0.001	0.05	0.630	0.37	<0.001
DEPS-R Factor 2	0.06	0.535	0.41	<0.001	0.37	<0.001
DEPS-R Factor 3	0.41	<0.001	-0.10	0.301	0.09	0.377
DEPS-R Factor 4	0.16	0.119	-0.16	0.117	0.19	0.067
DEPS-R Score	0.59	<0.001	0.14	0.174	0.51	<0.001
EAT-26 Score	0.29	0.078	0.50	<0.001	0.95	<0.001
BDI Score	0.38	<0.001	-0.12	0.0225	NA	NA

r: Pearson's correlation coefficient, EAT-26: Eating Attitudes Test, BDI-II: Beck Depression Inventory-II, DEPS-R: Diabetes Eating Problem Survey-Revised
 Bold font indicates statistical significance ($p < 0.05$), NA: not applicable

children, adolescents and adults (Cronbach's $\alpha=0.83-0.89$).¹²⁻¹⁹ Furthermore, this study reports good convergent validity, as the Greek DEPS-R significantly correlated with the EAT-26. This is in line with previous research which employed a variety of validated tools for the detection of EDs depending on their specific use in clinical practice, such as the Eating Disorder Inventory versions 2 and 3 (EDI-2 and EDI-3 respectively), the Body Dissatisfaction subscale and the Eating Disorders Examination Questionnaire (EDE-Q).¹³

In this study, factor analysis yielded four factors that assess different aspects of disordered eating in T1DM. Previous studies conducted on the DEPS-R have found a three-factor model, a four-factor model (in the French version), or a five-factor model (in the Spanish version).¹⁹ The three factors that were found in most adaptations of DEPS-r focused on maladaptive eating habits/dieting, preoccupation with thinness or weight loss, and maintaining high blood glucose levels to lose weight/misuse of insulin. The difference in the number of factors observed across a range of assessment tools could be attributed to cultural factors and is to be expected when a tool is used to evaluate individuals from a population different from the one in which the original instrument was researched. To further evaluate the reported four-factor model we examined factors' correlations with the DEPS-R total score, the EAT-26 and HbA1c. All four factors were strongly correlated with the DEPS-R score. Since factor 4 had the fewest number of items (two items only), its correlation with the total DEPS-R score showed the least strength; however, it was statistically significant, which indicates the importance of considering factor 4 when interpreting the DEPS-R. The Spanish translation of the DEPS-R also had a factor with only one item that was nevertheless important to score interpretation.¹⁹

The initial 16-item DEPS-R by Markowitz et al. did not undergo a test-retest reliability.¹² However, other studies verified its temporal stability.^{13,16} Our study found that the Greek version of the DEPS-R showed significant internal consistency, both at T1 and at T2. The ICC criterion used to measure

test-retest reliability showed no significant correlation with all factors, as well with total questionnaire. This could be due to a difference of measurement of either "trait" or "state", reflecting a temporal variability in T1DM patients regarding their insulin use and eating habits. Also, because T1DM patients were visiting the outpatient clinics where this study was conducted at least at a 6-month basis and no sooner, the volunteers who agreed to retake the test at T2, were the ones most motivated from our total sample at T1. They indeed had a more optimal T1DM management, much better insulin use and probably less disordered eating behaviours, than those who refused to participate. We also have obtained better total scores in DEPS-R from the participants at T2. Due to time restriction, at T2 only the Greek version of the DEPS-R, and not the demographics, EAT-26 and BDI, was administered to participants in order to be completed and compared with their responses at T1. This smaller study questionnaire at T2, consisting only of DEPS-R, could enable them to be more careful and concise with their responses. Furthermore, it is interesting that at T2, all responses to question 8 "I make myself vomit" were scored with "zero" at the Likert scale. The rather small sample size at this point ($n=20$) could be one simple explanation to this observation. Another explanation regarding induction of vomiting may be that patients with T1DM do not use vomiting as an purging method, but other behaviours like misuse of insulin or other drugs taken for T1DM management.^{1,16} Future research should examine the test-retest reliability of the questionnaire into a large sample with more than 20 participants, giving exactly the same questionnaires at both times, ideally under similar circumstances, either at outpatient clinics or via internet, ensuring that the participants have enough time to complete the questionnaires at both intervals. Also, the Greek version of DEPS-R could be tested in patients with type 2 diabetes mellitus to observe any further purging behaviours regarding misuse of other drugs for diabetes management.

The findings of this study verify that the DEPS-R positively correlates with HbA1c and BMI, and this

is an important and often neglected point when diabetes management is unsuccessful.¹² Also, we confirmed that the traditional screening tools for EDs are not sensitive enough for T1DM patients as there was no correlation between HbA1c% and EAT-26 score.²⁸ Specifically, this was most obvious in questions about carbohydrate intake, such as Questions 6 and 15 of the EAT-26, in which most respondents answered that they voluntarily reduce intake for better diabetes control and not because of fear of weight gain. It also appeared as if the majority of T1DM patients do not enjoy tasting new “fattening” foods because they have a negative impact on glycemic control rather than on body weight and image.

Mood and anxiety disorders have been found to be the most common psychiatric comorbidities in chronic disease²⁹ with increased prevalence of depression in individuals with T1DM compared to healthy controls.³⁰ For this reason, our study’s questionnaire included the BDI-II tool which revealed that this sample of Greek patients with T1DM were at a higher risk for depression. Also, we found that DEPS-R positively correlates with the BDI score and with HbA1c. This verifies findings of previous research regarding the detrimental effect of depression on glycemic control in T1DM.^{29,30} It is noteworthy that main reasons for patient refusal to participate in the study were a disinclination to be stigmatized by taking on the labels of having an eating disorder or being depressed. Moreover, the widespread lack of information about EDs and depression may have caused more vulnerable participants to be excluded, thereby skewing the results.

One major limitation of the present study is that it did not include an external validation in the form of a structured clinical interview conducted by a psychiatrist. Another limitation is the relatively small sample size. However, other validations of the DEPS-R had also adapted small sample sizes and had failed to include external validation by a psychiatrist. Furthermore, this study was limited by our inability to implement new laboratory tests,

therefore we were unable to collect enough data to make safe associations. Future research should investigate possible correlations of glycemic or other biochemical indices with the presence of diabulimia. Additionally, most volunteers willing to complete the questionnaire were females (71%), which may have introduced a gender bias. Despite these limitations, we demonstrated that this Greek version of the DEPS-R significantly correlates with the EAT-26 and can be used to screen adults with T1DM.

Conclusion

Because of the high frequency and severity of comorbid T1DM and disordered eating, early detection and intervention play a crucial role in the risk reduction of serious diabetes complications. For this reason, it is necessary to develop and validate a short, self-administered assessment tool especially designed for T1DM patients, which can be easily completed, and whose results can be quickly interpreted within a busy clinical setting. This study was the first attempt to examine the disordered eating practices within a Greek T1DM population and validate a tool for specific use in this population.

The Greek version of the DEPS-R demonstrated an excellent internal consistency and construct validity within the current sample of T1DM adults. It can be used as a short, valid, self-administered, T1DM-specific screening tool for disordered eating behaviors in adults. This study is the departure point for further evaluation of the questionnaire, especially regarding its test-retest reliability, being administered at a larger sample, possible of patients either with T1DM 1 or T2DM. Further research into the phenomenon of diabulimia, should expand the observations in other age groups to identify high-risk patients, ideally having a parallel clinical diagnosis by health professionals so that policies and preventive strategies, as well as early intervention measures can be implemented to reduce the complications of DM and diabulimia comorbidity.

APPENDIX
DIABETES EATING PROBLEM SURVEY-REVISED (DEPS-R)

ΑΞΙΟΛΟΓΗΣΗ ΔΙΑΤΡΟΦΙΚΟΥ ΠΡΟΒΛΗΜΑΤΟΣ ΣΤΟΝ ΣΑΚΧΑΡΩΔΗ ΔΙΑΒΗΤΗ –
ΑΝΑΘΕΩΡΗΜΕΝΗ ΕΚΔΟΧΗ

Η ζωή με τον σακχαρώδη διαβήτη μπορεί μερικές φορές να είναι δύσκολη, ιδιαίτερα όσον αφορά τη διατροφή και τη διαχείριση του. Παρακάτω αναφέρεται μια ποικιλία στάσεων και συμπεριφορών σχετική με τη διαχείριση του διαβήτη. Για κάθε δήλωση, επιλέξτε τη ΜΙΑ απάντηση που αντιπροσωπεύει καλύτερα το πόσο συχνά αυτό ισχύει για εσάς κατά τη διάρκεια του ΤΕΛΕΥΤΑΙΟΥ ΜΗΝΑ.

	Ποτέ	Σπάνια	Μερικές φορές	Συχνά	Συνήθως	Πάντα
1. Η απώλεια βάρους είναι ένας σημαντικός στόχος για μένα	0	1	2	3	4	5
2. Παραλείπω κύρια γεύματα ή/και ενδιάμεσα σνακ	0	1	2	3	4	5
3. Άλλοι άνθρωποι μου έχουν αναφέρει ότι ο τρόπος που τρέφομαι είναι εκτός ελέγχου	0	1	2	3	4	5
4. Όταν τρώω παραπάνω, δεν παίρνω αρκετή ινσουλίνη ώστε να καλυφθεί η πρόσληψη τροφής	0	1	2	3	4	5
5. Τρώω περισσότερο όταν είμαι μόνος από ότι όταν είμαι μαζί με άλλους ανθρώπους	0	1	2	3	4	5
6. Αισθάνομαι ότι είναι δύσκολο να χάσω βάρος και την ίδια στιγμή να ελέγχω τον διαβήτη μου	0	1	2	3	4	5
7. Αποφεύγω να ελέγχω την τιμή του σακχάρου μου (στο αίμα), όταν αισθάνομαι ότι βρίσκεται εκτός των επιθυμητών ορίων	0	1	2	3	4	5
8. Προκαλώ έμετο	0	1	2	3	4	5
9. Προσπαθώ να διατηρώ την τιμή του σακχάρου μου (στο αίμα) σε υψηλό επίπεδο, έτσι ώστε να χάσω βάρος	0	1	2	3	4	5
10. Προσπαθώ να τρώω μέχρι του σημείου να εμφανίζονται κετονικά σώματα στα ούρα μου	0	1	2	3	4	5
11. Αισθάνομαι παχύς/ιά όταν παίρνω όλη την ινσουλίνη μου	0	1	2	3	4	5
12. Άλλοι άνθρωποι μου λένε ότι θα έπρεπε να φροντίζω καλύτερα τη ρύθμιση του διαβήτη μου	0	1	2	3	4	5
13. Μετά την υπερκατανάλωση φαγητού, παραλείπω τη λήψη της επόμενης δόσης της ινσουλίνης μου	0	1	2	3	4	5
14. Αισθάνομαι ότι η διατροφή μου είναι εκτός ελέγχου	0	1	2	3	4	5
15. Έχω εναλλαγές ανάμεσα στο να τρώω πολύ λίγο και να τρώω τεράστιες ποσότητες φαγητού	0	1	2	3	4	5
16. Θα προτιμούσα να είμαι λεπτός/ή παρά να διατηρώ σε έλεγχο το σακχαρώδη διαβήτη μου	0	1	2	3	4	5

Αξιοπιστία και εγκυρότητα της Αξιολόγησης Διατροφικού Προβλήματος στον Σακχαρώδη Διαβήτη σε Έλληνες ενήλικες με σακχαρώδη διαβήτη τύπου Ι

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Στη διαχείριση του σακχαρώδους διαβήτη τύπου 1 (Τ1ΣΔ), παράλληλα με την ινσουλινοθεραπεία η διατροφική θεραπεία και η διατήρηση ενός υγιούς σωματικού βάρους σχετίζονται σημαντικά με την καλή γλυκαιμική ρύθμιση και τη μείωση των επιπλοκών. Μια τέτοια εστίαση στη διατροφή και το βάρος μπορεί να οδηγήσει σε διαταραγμένες συμπεριφορές πρόσληψης τροφής, ιατρικές επιπλοκές και «αντίσταση» στη θεραπεία. Ο όρος «διαβουλίμια» αναφέρεται στη διαταραχή πρόσληψης τροφής κατά την οποία οι ασθενείς με Τ1ΣΔ λαμβάνουν λιγότερη ινσουλίνη, προκειμένου να ελέγξουν το βάρος τους. Επί του παρόντος δεν υπάρχει έγκυρο ερωτηματολόγιο στην ελληνική γλώσσα για την έγκαιρη ανίχνευση διαταραχών πρόσληψης τροφής σε διαβητικούς ασθενείς. Σκοπός της παρούσης εργασίας αποτελεί η εξέταση των ψυχομετρικών ιδιοτήτων της ελληνικής έκδοσης του ερωτηματολογίου «Αξιολόγησης Διατροφικού Προβλήματος στο Σακχαρώδη Διαβήτη» (Diabetes Eating Problem Survey- Revised, DEPS-R), που εκτιμά τον κίνδυνο της «διαβουλιμίας» σε ασθενείς με Τ1ΣΔ. 100 εξωτερικοί ασθενείς με διάγνωση Τ1ΣΔ άνω του έτους, εκ των οποίων 71 γυναίκες και 35 χρήστες αντλίας συνεχούς έγχυσης ινσουλίνης κλήθηκαν να συμπληρώσουν το μεταφρασμένο στα ελληνικά ερωτηματολόγιο DEPS-R (εύρος βαθμολογίας 0-80, σε βαθμολογία >20 υψηλός κίνδυνος διαταραγμένων συμπεριφορών πρόσληψης τροφής σε ασθενείς με Τ1ΣΔ), το EAT-26 (εύρος βαθμολογίας 0-78, σε βαθμολογία >20 υψηλός κίνδυνος διαταραγμένων συμπεριφορών πρόσληψης τροφής ή διαταραχής πρόσληψης τροφής) και την κλίμακα κατάθλιψης Beck (BDI-II) (εύρος βαθμολογίας 0-63, σε βαθμολογία >14 υψηλός κίνδυνος μείζονος καταθλιπτικής διαταραχής). Η ελληνική έκδοση του DEPS-R επέδειξε εξαιρετική εσωτερική συνοχή και συνέπεια σε αυτό το σύγχρονο δείγμα ενήλικων με Τ1ΣΔ (Cronbach $\alpha=0,89$ στο σύνολο, 0,90 στις γυναίκες και 0,85 στους άνδρες). Η παραγοντική ανάλυση αποκάλυψε 4 παράγοντες (δίαιτα, χρήση ινσουλίνης, απώλεια βάρους και αντισταθμιστικές συμπεριφορές) που εξηγούν το 65,68% της συνολικής διακύμανσης (19,90%, 18,50%, 15,64% και 11,65% της συνολικής διακύμανσης, αντίστοιχα). Επιπλέον το 35% του δείγματος βαθμολογήθηκε στο EAT-26 άνω του 20, το 26% βαθμολογήθηκε στο BDI-II (BECK) πάνω από 14 και το 40% είχε σκορ άνω του 20 στο DEPS-R, ενώ το μέσο σκορ ήταν 19,22. Οι καλές ψυχομετρικές ιδιότητες της κλίμακας DEPS-R επιβεβαιώθηκαν για τον ελληνικό πληθυσμό με Τ1ΣΔ, γεγονός που υποδηλώνει ότι θα μπορούσε να χρησιμοποιηθεί ως αξιόπιστο εργαλείο για την ανίχνευση της διαβουλιμίας. Επιπλέον, διαπιστώσαμε ότι οι Έλληνες ασθενείς με Τ1ΣΔ φαίνεται να έχουν αυξημένο κίνδυνο εμφάνισης διαταραχών πρόσληψης τροφής και κατάθλιψης.

Λέξεις ευρετηρίου: Διαβουλίμια, διαταραχές πρόσληψης τροφής, σακχαρώδης διαβήτης, κατάθλιψη.

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