

Diet management, lifestyle factors and education needs by target attainment in Italian youth with type 1 diabetes from the Global TEENs study

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Background and aims: TEENs is an international, cross-sectional observational study, conducted in 20 countries in order to assess T1D management and psychosocial parameters in 8-25-year-olds (y/o). Data on diet management, lifestyle factors and education needs by target HbA1c attainment from the Italian cohort are reported.

Materials and methods: Data were collected at 23 centres by participant interview, medical record review and participant/parent survey from 1,009 Italian youth (46% female) in three age groups: 8-12 y/o (n=330), 13-18 y/o (n=490), and 19-25 y/o (n=189). HbA1c was measured uniformly using A1cNow™ with target HbA1c defined as <7.5% (58 mmol/mol) for ≤18 y/o (ISPAD) and <7% (53 mmol/mol) for >18 y/o (ADA).

Results: Overall, 40% of participants met HbA1c targets. Measuring food intake based on experience was the most common method used by all age groups, followed by carbohydrate counting (Table). Of the participants who used carbohydrate counting, a higher percentage met target HbA1c than did not in all age groups, with a significant effect on target attainment due to carbohydrate counting compared with other methods observed in 13-18 y/o (p=0.035). Avoiding sugars was the least common method used in all age groups. Across all age groups, participants who did not undertake any exercise were numerically less likely to reach HbA1c target; on the contrary, participants who exercised 1-2 days/week were numerically more likely to reach HbA1c target (Table). Performing exercise had a significant effect on target HbA1c attainment in 8-12 y/o (p=0.012). The majority of participants were in the underweight/normal body mass index (BMI) category in all age groups, with no clear pattern between BMI class and the proportion of patients reaching HbA1c target. Participants of all ages commonly requested education on diet, carbohydrate counting, how to manage T1D during illness, and how to manage blood glucose levels with exercise.

Conclusion: Carbohydrate counting and exercising at least twice per week help to attain HbA1c target across all age groups. Assessment of lifestyle factors suggests that efforts targeting carbohydrate counting and exercise could promote successful health outcomes and help more patients with T1D to reach the recommended HbA1c target.

Table: Diet management and lifestyle factors by age and HbA1c target attainment

	8-12 y/o		13-18 y/o		19-25 y/o	
	HbA1c target met n=139 (42%)	HbA1c target not met n=191 (58%)	HbA1c target met n=203 (41%)	HbA1c target not met n=287 (59%)	HbA1c target met n=59 (31%)	HbA1c target not met n=130 (69%)
<i>Method used to measure food intake*, %</i>						
Carbohydrate counting	32	24	28	21	19	15
Carbohydrate exchanges	7.2	7.9	11	9.8	3.4	5.4
Weighing/measuring	6.5	9.9	4.9	6.6	5.1	6.2
Based on experience	50	52	48	58	70	70
Avoiding sugars	0.7	1.0	0.0	1.0	0.0	0.0
<i>Number of days per week spent exercising†, %</i>						
0	5.9	12	13	18	21	27
1-2	42	34	34	27	33	28
3-4	44	36	35	34	25	25
5-7	8.1	17	18	20	21	19
<i>Body mass index, %</i>						
Overweight/obese‡	37	34	26	28	41	35

*Columns may not add up to 100% due to missing responses; only one response per participant was allowed

†At least 30 minutes doing any physical activity or exercise

‡BMI-for-age Z-score in classes were used for 8-18 y/o: overweight, >+1 SD to ≤+2 SD; obese, >+2 SD. BMI in classes was used for 19-25 y/o: overweight, >25 kg/m² to ≤20 kg/m²; obese, >30 kg/m²

BMI, body mass index; SD, standard deviation

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