Lifestyles and health behaviours of young adults with type 1 diabetes

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Summary
Adherence to diabetes management and the quality of life of young adults with type 1 diabetes can be affected by the several changes occurring during emerging adulthood: social, occupational, familiar and emotional. This study evaluates the lifestyles, health behaviours, treatment adherence and social support of young adults with type 1 diabetes. A total of 278 young adults, aged 18–35, participated in the study, in which they were required to complete a questionnaire consisting of 63 questions. This was a quantitative research with descriptive and correlational analysis. The participants reported satisfaction with life as 6.6 ±1.7 (scale 0–10). They reported healthy eating habits and one third of them undertake recommended physical activity. Adherence to insulin therapy and glucose monitoring was satisfactory, however, the mean value for HbA1c was 8.7% ±1.6, with the highest HbA1c levels being related to less glucose monitoring and insulin administration. The best representations about diabetes were positively correlated with adherence to nutrition and insulin therapy. These young adults reported good social support and referred to the benefits of group activities with peers. Young adults showed satisfactory social support, health behaviours and satisfaction with life and a reasonable adherence to diabetes treatment, although with a less satisfactory metabolic control of diabetes. Further research with focus groups will help to better understand these discrepancies.

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Key words
young adults; type 1 diabetes; health behaviours; lifestyles; social support; treatment

Introduction
Young adults with type 1 diabetes (T1DM) face daily challenges, related to instability in several levels, such as familiar, social, cultural and economic. Moreover, young adults are in a transition period from pediatric to adult services, with consequences to their diabetes control and quality of life.[1,2,3,4]

Living with T1DM is a complex process and the psychological consequences of continuous glucose monitoring, insulin injections, fear of hypoglycaemia, and pressures from family and health care professionals can generate a lot of stress in a young adults' life.[5,6] Therapeutic patient education is designed to help young adults and their families to understand diabetes treatments and to promote autonomy in diabetes self-management.[2,3,7] Diabetes self-management refers to nutrition, physical activity, insulin therapy and glucose monitoring, to maintain a good metabolic control and reduce diabetes complications.[8,9]

Previous research shows that two thirds of young adults feel competent enough to manage their diabetes, are satisfied with family and health care providers' support and participate in group activities with peers, namely summer camps.[10,11,12]

This research with young adults is the continuation of a previous study with adolescents[13,14,15,16] and was designed to include both quantitative and qualitative methodologies.

This investigation can allow professionals to better understand young adults and to help them and their families to have a better quality of life. Previous research shows that young adults who regularly attend diabetes appointments have better metabolic control.[17,18]

The objectives of the study were to investigate the behaviours and lifestyles of young adults, examine social support, to highlight adherence to diabetes treatment, as well as representations of diabetes in young adults with T1DM.

Materials and Methods
Study design and intervention
This research is based on the work undertaken with children and young adults in diabetes consultations, group consultations and summer camps, which were developed by the interdisciplinary team of the Portuguese Diabetes Association.[19] This was a cross-sectional quantitative study of young adults with T1DM who attended diabetes consultations at the institution during 2011–2012. The exclusion criterion was mental illness. Written and oral information about the study was provided and those who agreed to participate completed the questionnaire anonymously.

Data collection instrument
The 63 item questionnaire was based on the questionnaire used

previously in adolescent research[13,14] and adapted to this age. It consisted of 43 questions related to health behaviours, lifestyles, and satisfaction with life and social support. The remaining 20 questions were related to diabetes.

Most of the questions had Likert scales, for example, statements about perceptions of diabetes: '1 = strongly disagree', '2 = disagree', '3 = don't know', '4 = agree', '5 = strongly agree', as well as satisfaction with life: '0 = worst life' to '10 = best life'. The answers scoring ≥ 7 represent a positive satisfaction with life.[20]

Closed questions, with yes or no answers, where also asked, as were 'who?' and 'what?'

The assessment of questionnaire validity was performed by a multidisciplinary panel of 34 experts, three adolescents and four adults with T1DM.

Data relating to glycosylated hemoglobin A1c (HbA1c), weight and height were obtained on the day the young adults had their consultations and completed the questionnaire. HbA1c was obtained at the institution's laboratory using high performance liquid chromatography (HPLC) method by ionic change.

Analysis methods and statistics

This study used the quantitative research method, and IBM SPSS statistics (or SPSS) version 19.0 for Windows was used for statistical analysis. Descriptive Analysis is presented as mean ± standard deviation and percentages. Spearman's test was used to correlate HbA1c with diabetes treatment aspects, and Pearson's test was used to correlate diabetes representations about diabetes with diabetes treatment aspects.

Study population and ethical approval

The sample consisted of 278 young adults with T1DM: 139 boys and 139 girls aged 18–35 years, which represents 25.5% of the population at this group age followed at the institution. The institution's ethics committee approved the study. The participants' information is confidential and has informed consent.

Results

The demographics and participants' characteristics, as well as the perception of physical appearance and satisfaction with life (60% of young adults rate ≥7), are presented in Table 1.

Social support

These young adults consider it easy and very easy to communicate with family, friends and health care professionals (58–92%). In relation to communication about diabetes, they also considered this to be easy and very easy to talk about (78–96%).

Health behaviours and adherence to diabetes treatment

Half of young adults consider themselves to have reasonable health (51%), with 42% referring to good

Variables	Mean±SD or %
Sex	
Male	50%
Female	50%
Mean age	27 ± 5 years
Diabetes duration	14 ± 7 years
Attendance at institution	12 ± 8 years
Academic qualifications	
University qualifications	45%
10–12 years of schooling	42%
≤ 9 years of schooling	13%
Occupation	
Working	57%
Studying	23%
Do Both	9%
Other	11%
Living arrangements	
- With parents	50%
- With husband / wife	39%
- With children	15%
- With others	10%
- Alone	2%
Body mass index	23.5 ± 2.9
Physical appearance	
Normal	57%
Good and very good.	34%
Other	9%
Satisfaction with life	6.6 ± 1.7 (scale 0-10)

Table 1. Demographics, physical appearance and satisfaction with life

health. Three per cent consider their health as excellent and 4% consider it bad.

Eighty-three percent of youngsters eat more than five meals a day. They have a daily intake of some nutritional components as part of a balanced daily diet.

Over a third (34%) are physically active more than three days per week for at least one hour per day.

Regarding treatment, insulin pens were used by 94% with the remaining 6% of participants using an insulin pump. Seventy-eight percent administer insulin more than four times a day. Concerning insulin regime, 86% use short acting insulin, 75% use long acting insulin, and 10% use another kind.

Most participants (74%) were reported to monitor their blood glucose more than three times a day.

The aspects of diabetes treatment considered more difficult were self-control (62%), nutrition (47%), physical activity (42%), and insulin therapy (26%).

The mean HbA1c of participants is high, with an average of 8.7± 1.6%, range 5–15%, with recommended HbA1c value of less than 7%.[21]

HbA1c is negatively correlated with glycemic monitoring (r=-0.236, p=0.000) and insulin administrations (r = -0.160, p=0 .014).

A quarter of the young adults reported to have late-stage complications, namely retinopathy (86%, corresponding to 21.5% of youngsters).

Representations about diabetes

Most of young people agreed with the positive representations presented, namely 'With good diabetes control we can improve our life' (Table 2).

The best representations about diabetes are positively correlated with the daily meals (r=0.190, p=0.002) and insulin administrations (r = 0.247, p=0.000).

Variables	Frequency	Young adults (%)
Dietary intake	5–6 times a day	73
	3–4 times a day	17
	7–8 times a day	10
Balanced diet – some components		
	Milk daily	85
	Fruit daily	61
	Vegetables daily	58
	Soup daily	44
Physical activity	≥ 3 days, at least 1 hour day	34
	2 days, at least 1 hour day	16
	1 day, at least 1 hour day	12
	Don´t practice	38
Insulin therapy	≥ 4 administrations /day	78
	≤ 3 administrations/ day	16
Insulin pump		6
Glucose monitoring	≥ 3 times a day	74
	1–2 times a day	16
	3–4 times per week	5
	Rarely	5

Table 2. Young adults' adherence to diabetes treatment

Discussion

This study confirms that at this stage of life, young adults have different occupations and varied family lives, thus promoting a lot of challenges and changes.

Young people have positive appraisements in relation to satisfaction with life.[20] Most of them refer good social support, which is connected with satisfaction with life, health, wellbeing and psychological adaptation.[1]

Communication with their health care team is considered good, and in turn, can promote adherence to diabetes treatment and psychosocial improvement.[1,2,4]

Two thirds of the group had previously experienced participation in other group activities with peers and considered it very useful and positive in promoting learning and enjoyment. Several studies refer to the benefit of these activities in relation to diabetes acceptance, adaptation to illness, diabetes management and wellbeing.[10,18,19]

Many of the young adults refer to their health as being reasonable and good, which is a similar perception in other studies.[2]

Similarly, many of the young adults present good adherence to diabetes treatment in relation to nutrition, insulin therapy and glucose monitoring. However, only one-third practiced the recommended physical activity, which was similar to the diabetes, attitude, wishes and needs (DAWN) study.[10]

The most difficult aspects for young people are self-control, nutrition and physical activity, which can contribute to a high average in HbA1c levels and to the development of diabetes related complications. HbA1c is negatively correlated with glucose monitoring and insulin administrations. These results show the difficulty of having good diabetes control within this age group.[1–4,17,18]

Representations about diabetes	Young adults (%)
Healthy nutrition is essential for diabetes control	99
Family's support and education is essential for diabetes control	97
With a good diabetes control we can improve our life	97
Physical activity is healthy and contributes to diabetes control	97
Being diabetic does not prevent happiness	94
Being diabetic is being like others, socialising with friends and knowing our limits	93
Friends must know I have diabetes	91
Diabetes does not prevent us from following our dreams	88
Diabetes means having my life well organised, to enjoy what I can do and to manage what I cannot do, for my wellbeing	88
Group discussion is the best method to understand diabetes	64

Table 3. Percentage of young adults' agreements with representations about diabetes

As mentioned before, this is a cross-sectional quantitative study, causalities cannot be established. Moreover, it is a study (self-report) and is related to a selected population; therefore the results may not be representative of all young adults living with type 1 diabetes in Portugal, however, this study could still be very important to the promotion of knowledge in this area to health care providers who are working with young adults with type 1 diabetes.

In general, these results reveal a surprisingly positive scenario; in spite of difficulties at this group age, most young adults feel satisfied with life, have a good social support network, and present reasonable adherence to diabetes treatment. However, the mean HbA1c is above the recommendations with a quarter of young adults presenting diabetes complications.

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References

1. Hanna KM. A framework for the youth with type 1 diabetes during the emerging adulthood transition. *Nursing Outlook* 2012; 60:401–10.
2. Anderson B, Wolpert HA. A developmental perspective on the challenges of diabetes education and care during the young adult period. *Patient Education and Counseling* 2004;53:347–352.
3. Dovey-Pearce G, Hurrel R, May C, *et al.* Young adults (16–25 years) suggestions for providing developmentally appropriate diabetes services: a qualitative study. Health and Social Care in the Community 2005;13:409–19.
4. Garvey KC, Markowitz JT, Laffel LMB. Transition to adult care for youth with type 1 diabetes. *Current Diabetes Reports* 2012;12:533–541.
5. Hislop AL, Fegan PG, Schlaeppi M, *et al.* Prevalence and associations of psychological distress in young adults with type 1 diabetes. *Diabetic Medicine* 2008;25:91–96.
6. Hillege S, Beale B, McMaster R. Enhancing management of depression and type 1 diabetes in adolescents and young adults. *Archives of Psychiatric Nursing* 2011; 25:e57e67.
7. Ivernois J, Gagnayre R. Apprendre à éduquer le patient. Paris: Éditions Vigot. 1995.
8. Kaplan RM, Sallis Jr. JF, Patterson TL. Health and human behavior. USA, McGraw-Hill, 1993.
9. Correia LG, Raposo JF, Boavida JM. *Viver com a diabetes*, 3ª edição. Associação Protectora dos Diabéticos de Portugal. Lisboa, Climepsi Editores, 2012.
10. Peyrot M. How is diabetes perceived? The results of the DAWN Youth Survey. *Diabetes Voice* 2008;53:19–13.
11. Aanstoot HJ. DAWN Youth in Europe – international principles, national actions. *Diabetes Voice* 2008;53:21–23.
12. Anderson B, Aanstoot HJ. The DAWN Youth initiative – setting priorities for action. *Diabetes Voice* 2008;53:5–8.
13. Serrabulho L, Matos M. A saúde e os estilos de vida dos adolescentes com diabetes tipo 1. Revista Portuguesa de Diabetes. 2006;1:15–17.
14. Serrabulho M L, Matos MG, Raposo J. The health and lifestyles of adolescents with type 1 diabetes in Portugal. *European Diabetes Nursing* 2012;9:12–16.
15. Serrabulho L, Matos M, Raposo J. As representações de saúde e estilos de vida dos adolescentes com diabetes tipo 1. Revista Portuguesa de Diabetes 2011;6:55–61.
16. Serrabulho M L, Matos MG, Raposo J. Adolescents living with diabetes - in their own words. *Diabetes Voice* 2012;57:19–22.
17. Brierley S, Eiser C, Johnson B, *et al.* Working with young adults with type 1 diabetes: views of a multidisciplinary care team and implications for service delivery. *Diabetic Medicine* 2012; 29:677–81.
18. Garvey KC, Wolpert HA, Rhodes ET, *et al.* Health care transition in patients with type 1 diabetes. *Diabetes Care* 2012;35:1716–22.
19. Serrabulho L, Raposo J, Gonçalves F, *et al.* Campos de férias para adolescentes com diabetes tipo 1: 10 anos de experiência da Associação Protectora dos Diabéticos de Portugal. Revista Portuguesa de Diabetes. 2008;3:148–53.
20. Cantril H. Satisfaction with Life Scale. (http://www.gallup.com/poll/122453/understanding-gallup-uses-cantril-scale.aspx; accessed 18 June 2014).
21. American Diabetes Association (ADA). Standards of medical care in diabetes. *Diabetes Care* 2012;35.

KEY POINTS

- This study highlights the importance of social support from family, friends and healthcare professionals for young adults with type 1 diabetes. The social support is crucial for young adults, to help them to live better with diabetes
- The study emphasises the importance and usefulness for young adults with type 1 diabetes of participating in group activities with peers, such as summer camps and youth groups
- Group education activities with peers promote exchange of experiences' and can inspire and motivate young adults with type 1 diabetes to a better adherence to diabetes treatment, and to the improvement of diabetes through the promotion of healthier lifestyle choices relating to physical exercise and healthy eating