Ro J Pediatr. 2024;73(3)
DOI: 10.37897/RJP.2024.3.4

The impact of type I diabetes in the psychosocial life of adolescents

Andreea Salcudean[1], Georgiana Maria Morosanu[2], Andreea Bianca Sasu[3], Andreea Georgiana Nan[3], Cîmpian Dora Mihaela[3], Cristina Bodo[1], Melania Cozma[1], Elena Ramona Craciun[4], Virgil Radu Enatescu[5] , Mariana Cornelia Tilinca[6], Elena Gabriela Strete[7]

[1]Department of Ethics and Social Sciences, "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Targu Mures, Romania
[2]Faculty of Medicine, "George Emil Palade University of Medicine, Pharmacy, Science and Technology of Targu Mures, Romania
[3]Psychiatry Clinic 1, County Clinical Hospital Mures, Targu Mures, Romania
[4]Department of Psychology, The Child and Childhood Association, Targu Mures, Romania
[5]Department VIII Neuroscience-Discipline of Psychiatry, "Victor Babes" University of Medicine and Pharmacy Timisoara, Romania
[6]Department of Internal Medicine, "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Targu Mures, Romania
[7]Department of Psychiatry, "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Targu Mures, Romania

ABSTRACT

Background. Type 1 diabetes is a chronic condition that requires continuous self-care behaviors to manage blood glucose levels and prevent complications. However, adherence to these behaviors can be psychologically challenging, and a person's cognitive, emotional, and social factors can significantly influence treatment success.

Aim. Our study aimed to present the psychosocial implications in the context of living with the diagnosis of type 1 diabetes.

Methods. The study was carried out by applying a specific questionnaire, made with the help of Google Forms, which included 33 semi-open and open questions. The inclusion criteria consisted in the presence of type 1 diabetes, the study being aimed at adolescents.

Results. Among the 203 participants in the study, there is a predominance of the female gender (n=156, 76.8%) over the male gender (n=47, 23.2%), in a ratio of 3.31:1. Most of the participants who completed the questionnaire (n=106, 52.2%) claim that they easily accepted the diagnosis, while a small number of people (n=19, 9.4%) still did not accept diabetes as part of their lives. However, more than half (n=103, 57.1%) considered adapting to the new lifestyle to be difficult, but nevertheless achieved good results (eg, adequate glycemic control). The statistical analysis carried out based on the questions in the questionnaire, showed significant correlations ($p<0.05$) in many situations that link the diagnosis of patients with type 1 diabetes and their feelings of anger, revolt, guilt and worry, there being a p=0.009, respectively p=0.039.

Conclusions. Study participants are predominantly female, with the majority of participants having type 1 diabetes as the only condition they are dealing with, suggesting that most subjects are only affected by this chronic disease. Future perspective is important for the control of type 1 diabetes, indicating that emotional factors may play an important role in managing the disease.

Keywords: type 1 diabetes, emotional factors, lifestyle, teenagers

INTRODUCTION

Type 1 diabetes is a chronic condition that requires ongoing self-care behaviors to manage blood sugar levels and prevent complications. However, adherence to these behaviors can be psychologically challenging, and a person's cognitive, emotional, and social factors can significantly influence treat-

Corresponding author:
Andreea-Bianca Sasu
E-mail: andreea_vinteler@yahoo.com

Article History:
Received: 2 December 2024
Accepted: 17 December 2024

ment success. Emotional health is therefore a critical aspect of person-centred diabetes care, as it can impact a person's ability to effectively manage their condition. People with type 1 diabetes may experience various emotional challenges, such as stress, anxiety, depression, or fear of hypoglycemia or complications. Addressing these emotional concerns and providing appropriate support can help people with diabetes improve their quality of life and achieve better treatment outcomes [1].

About 20-40% of people with type 1 diabetes experience diabetes-specific emotional distress, which can occur at any age, from early adulthood to old age. Two critical periods when this distress is most prevalent are after initial diagnosis and when complications arise [2]. Common sources of distress for people with type 1 diabetes include feeling powerless and overwhelmed by daily self-care demands, fear of hypoglycemia, and worry about complications. If diabetes-related suffering persists for a long time, it can lead to depressive symptoms and high levels of HbA1c, which is a measure of long-term glycemic control [3].

Providing psychosocial care is a crucial part of diabetes care, and all members of the diabetes care team have a responsibility to meet the emotional and social needs of people with diabetes. Ideally, the diabetes care team should include a mental health professional, such as a psychiatrist, psychologist or social worker, who can provide guidance to the team and provide consultation to people with diabetes who need psychosocial support [4].

METHODS

The group of patients was created after filling out a specific form in the online environment. Thus, in the year 2023, a sample was created consisting of 203 adolescents aged between 13-18 years, who suffer from type 1 diabetes.

All patients included in the study group were informed about the purpose of the study and the conditions of its conduct and expressed their consent for data processing. The only exposure of the retrieved data was carried out in numerical form, without making any connection between the identity of a patient and his medical information, according to the European ethics rules in force.

The inclusion criteria consisted in the presence of type 1 diabetes and age between 13-18 years, the study being addressed to adolescents.

The study was carried out by applying a specific questionnaire, made with the help of Google Forms, which included 33 semi-open and open questions. The distribution and completion of the form was carried out online in 2023.

Closed-ended questions focused mainly on patients' demographics, such as gender, age, background, and their experience with type 1 diabetes (eg, how they accepted the disease, how they rate their glycemic control, etc.). On the other hand, the semi-open questions emphasized the psychological impact that the disease has on the patients: the attitude towards one's own person, the frustrations related to the disease, etc.

Statistical analysis

Statistical analysis was performed using Microsoft Office Excel and IBM SPSS Statistic 28.0 (IBM Corporation, USA, 2022). Descriptive statistics were calculated for all variables.

In the context of the present retrospective study, the specific study elements are represented by 203 subjects that reflect the statistical sample; a statistical sample consists of a partial statistical collectivity, not a total one, such as the statistical population [5].

Following the creation of the table with the help of the Microsoft Excel application and the evaluation of the normality of the data, the possibility of the existence of some associations between the nominal variables was the starting point for verifying the hypothesis of the work, by applying specific analysis techniques of inferential statistics.

For comparisons between categorical variables, the $\chi 2$ test (Chi-Squared Test) with or without Yates correction was used. To demonstrate that a statistical association is not random, the rejection of the null hypothesis was performed. The threshold of statistical significance was considered at a value of $p<0.05$. Only statistically significant values were reported.

All statistical data were reported according to the most recent recommendations at the time of writing of the paper of the American Psychological Association (APA) [6].

RESULTS

77% of the study participants are female and 23% male (Figure 1).

Regarding the area of origin, 74% are from the urban area and 26% from the rural area. 100 participants aged 13-15 and 103 participants aged 16-18 are included in the study. Regarding type 1 diabetes, 25 participants were recently diagnosed, less than a year after the diagnosis, 43 of the adolescents have been diagnosed with diabetes for 2-5 years, 44 of them for 5-10 years, and 91 among study participants over 10 years (Figure 2).

A statistically significant correlation is observed between the diagnosis of diabetes and the appearance of feelings of anger, revolt, guilt, worry ($p=0.009$, $p=0.039$, $p<0.001$, $p<0.007$).

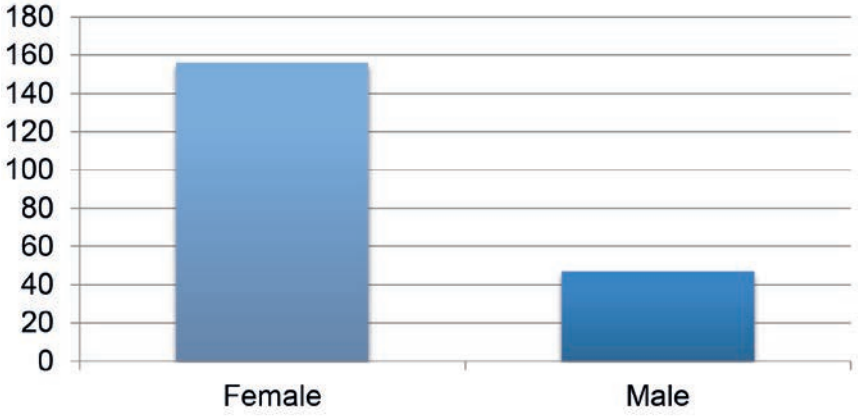

FIGURE 1. Gender distribution

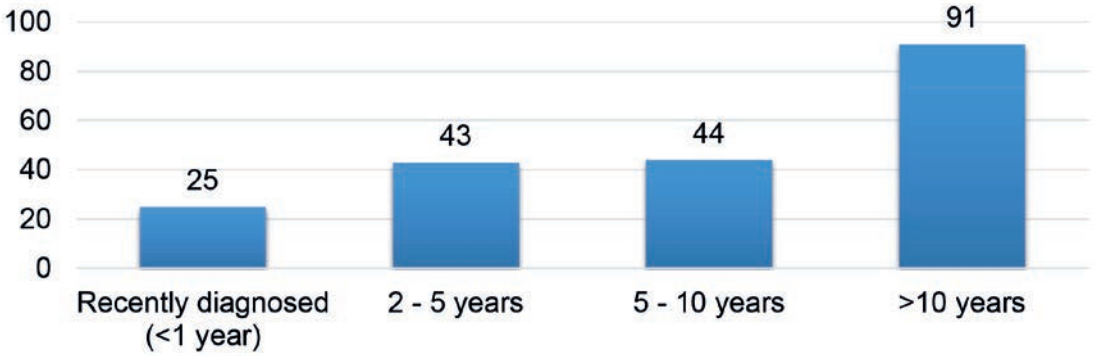

FIGURE 2. The time of diagnosis of type 1 diabetes

Regarding the acceptance of the diagnosis, 106 people accepted the disease easily, 78 accepted it hard and 19 did not yet accept the disease (Figure 3).

Regarding the integration of this disease in life and the relationship of the person with this diagnosis, 116 people answered that they find it difficult but have good results, 43 of the participants find it easy and have good results, 18 participants answered that they it seems easy but they don't have good results and 26 consider that this diagnosis is a difficult one and they don't have good results, thus there is a statistically significant correlation between the patient's relationship with diabetes and acceptance disease ($p<0.001$) (Figure 4).

112 patients considered that the diagnosis of diabetes made them stronger than they were before, and 91 did not feel stronger. Thus, a statistically significant correlation between the feeling of power and the acceptance of the disease is highlighted ($p=0.018$). Also, a statistically significant correlation is observed between the patient's attitude towards himself and the acceptance of the disease. ($p<0.001$) Regarding the patients' opinion related to the psychotherapy sessions, 134 patients considered the psychotherapy sessions beneficial because it helped them in the self-management of the disease, in controlling the distress due to diabetes and they had a better compliance with the treatment, while 69 considered that psychotherapy did not help them in any way. Regarding the impact of insulin on body weight, 75 of the participants did not consider that insulin had an impact on body weight, 37 did not experi-

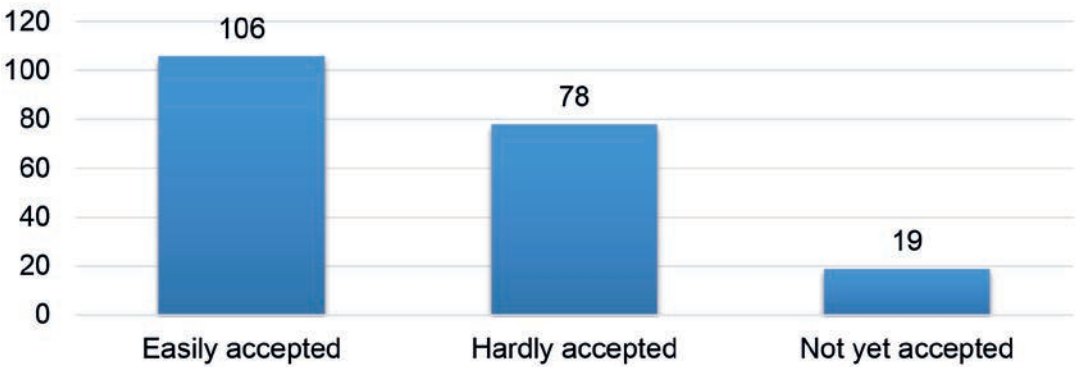

FIGURE 3. The acceptance of the diagnosis

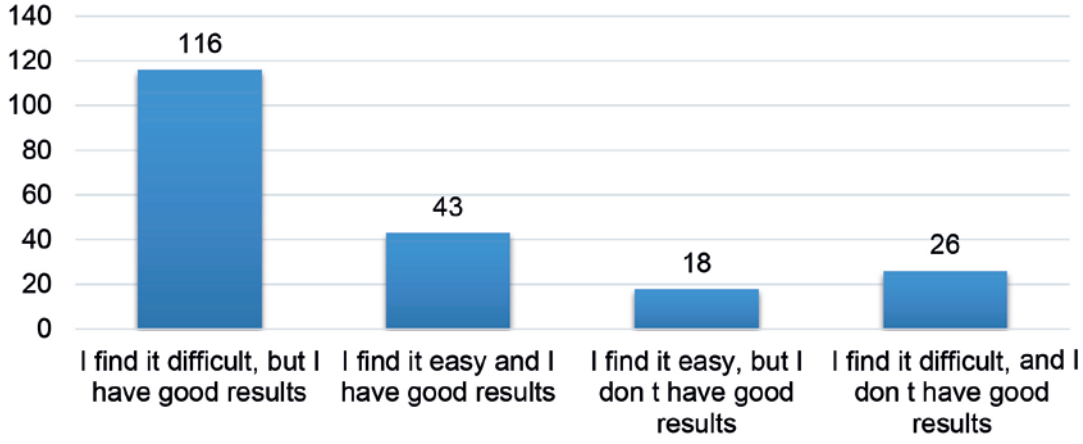

FIGURE 4. Relationship with diabetes

ence major weight increases due to insulin, 26 adopted a healthier lifestyle than before the disease, 22 stated that they administered less insulin than necessary for fear of gaining excessive weight, and 43 participants stated that insulin was associated with excessive weight gain. Regarding glycemic control, 86 say that the glycemia is predominantly well controlled, 104 say that they have approximately equal periods, and 13 say that the glycemia is poorly controlled.

Regarding the behavior adopted in case of hypoglycemia, 137 participants stated that they had episodes of compulsive eating due to the symptoms, 50 stated that they felt a heightened state of nervousness, decreased ability to concentrate and had impulsive behavior with those close to them, and 16 developed a phobia of hypoglycemia following repeated episodes.

Regarding how the patients managed diabetes in relation to other things in their lives, placing it in the background, 85 stated that this made them feel guilty and anxious, 96 stated that they managed to keep things under control both at school and at home in the family, and 22 saw the illness as an opportunity to evade current obligations.

Regarding parental involvement in diabetes management, 130 feel suffocated by parents who are overly protective, and 73 say they would like more parental involvement.

DISCUSSIONS

Our study highlighted the psychosocial implications in the context of living with the diagnosis of type 1 diabetes and the realization of a statistic to address the patients' perception of the quality of life and the difficulties imposed by this diagnosis. Also, the demographic data of the patients were documented, such as age category, gender, environment of origin. Thus, among the 203 participants in the study, there is a predominance of the female gender (n=156, 77%) over the male gender (n=47, 23.2%), in a ratio of 3.31:1. For most of the people who participated in the present study (n=91, 44.8%), the diagnosis is not recent, they have known type 1 diabetes for over 10 years. For a number of 25 patients (12.3%), the diagnosis was established for less than one year.

The majority of participants who completed the questionnaire (n=106, 52.2%) claim that they easily accepted the diagnosis, while a small number of people (n=19, 9.4%) still did not accept diabetes as part of their lives. However, most (n=103, 57.1%) found adaptation to the new lifestyle difficult, but nevertheless achieved good outcomes (eg, adequate glycemic control).

People with type 1 diabetes may experience emotional distress due to a lack of social support or the feeling that they are being monitored and criticized by family, friends or colleagues about their condition [7]. These data from the literature were mirrored in the present study, and a significant percentage of patients report feeling suffocated by their parents, who were or are overly protective of the way they choose to live their lives.

Up to 10% of people with type 1 diabetes fear hypoglycemia, especially those who have had repeated episodes of hypoglycemia [8]. This fear can lead to avoidance behaviors aimed at maintaining a "safe" blood glucose level, which can lead to persistently high blood glucose levels [9]. This fear of hypoglycemia was also found in the group of patients included in this study, and patients feel anxious about meal times and food.

People with type 1 diabetes, especially young girls, are more likely to develop eating disorders such as anorexia nervosa, bulimia nervosa, and binge eating. [10,11]. Thus, also in the present study, a significant percentage of patients stated (67.48%) âthat they faced episodes of compulsive eating due to the symptoms of hypoglycemia. Also, a number of 22 (10.83%) patients administered less insulin for fear of gaining weight.

CONCLUSIONS

Most participants have had type 1 diabetes for over 10 years, indicating that most are experienced in managing the disease.

A significant number of patients experienced episodes of binge eating due to symptoms of hypoglycemia, indicating that this may be a common problem among people with type 1 diabetes.

A significant number of patients experienced feelings of guilt and anxiety due to relegating disease management to personal or professional life issues, indicating that stress may be an important factor in disease management.

Future perspective is important for the control of type 1 diabetes, indicating that emotional factors may play an important role in managing the disease.

Conflict of interest: none declared
Financial support: none declared

REFERENCES

1. Nefs G, Hendrieckx C, Reddy P, et al. Comorbid elevated symptoms of anxiety and depression in adults with type 1 or type 2 diabetes: Results from the International Diabetes MILES Study. *J Diabetes Complications.* 2019;33(8):523-9. https://doi.org/10.1016/j.jdiacomp.2019.04.013
2. Iqbal A, Heller SR. The role of structured education in the management of hypoglycaemia. *Diabetologia.* 2018;61(4):751-60. https://doi.org/10.1007/s00125-017-4334-z
3. Nano J, Carinci F, Okunade O, et al. A standard set of person-centred outcomes for diabetes mellitus: results of an international and unified approach. *Diabet Med.* 2020;37(12):2009-18. https://doi.org/10.1111/dme.14286
4. Fisher L, Polonsky WH, Hessler DM, et al. Understanding the sources of diabetes distress in adults with type 1 diabetes. *J Diabetes Complications.* 2015;29(4):572-7. https://doi.org/10.1016/j.jdiacomp.2015.01.012
5. Butănescu-Volanin R. Statistică Descriptivă. Editura Universității „Lucian Blaga" din Sibiu; 2018.
6. American Psychological Association. Publication manual of the American Psychological Association: the official guide to APA style: American Psychological Association (APA). Published online 2020.
7. de Wit M, Trief P, Huber J, Willaing I. State of the art: understanding and integration of the social context in diabetes care. *Diabet Med.* 2020;37(3):473-82. https://doi.org/10.1111/dme.14226
8. Wild D, von Maltzahn R, Brohan E, Christensen T, Clauson P, Gonder-Frederick L. A critical review of the literature on fear of hypoglycemia in diabetes: implications for diabetes management and patient education. *Patient Educ Couns.* 2007;68(1):10-5. https://doi.org/10.1016/j.pec.2007.05.003
9. Snoek FJ, Hajos TR, Rondags SM. Psychological effects of hypoglycaemia. *Hypoglycaemia in Clinical Diabetes.* Published online 2014:323-3. https://doi.org/10.1002/9781118695432.ch16
10. Jones JM, Lawson ML, Daneman D, Olmsted MP, Rodin G. Eating disorders in adolescent females with and without type 1 diabetes: cross sectional study. *BMJ.* 2000;320(7249):1563-6.
11. Colton PA, Olmsted MP, Daneman D, et al. Eating disorders in girls and women with type 1 diabetes: a longitudinal study of prevalence, onset, remission, and recurrence. *Diabetes Care.* 2015;38(7):1212-7. https://doi.org/10.2337/dc14-2646