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Original Article

Psychosocial self-efficacy in young people with diabetes mellitus and its influence on self-care

Autoeficácia psicossocial em jovens com Diabetes Mellitus e sua influência no autocuidado

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Objective: to identify psychosocial self-efficacy in young people with Type 1 diabetes mellitus and its association with sociodemographic variables, health profile, and search for health care. **Methods:** cross-sectional study conducted with 35 young people through audio-recorded interviews. Two instruments were used: a) script for characterization of sociodemographic data, health profile, and search for health care; b) Diabetes Management Self-Efficacy Scale - Short Version. In the analysis, we used descriptive and inferential statistics - Chi-square test and Fisher's Exact test. **Results:** all young people had satisfactory (moderate and high) self-efficacy levels. Although not statistically significant, there was a slightly higher proportion of high self-efficacy in young males, people over 18 years old, white skinned, unemployed, with overweight, with health insurance, with more than eight years of diagnosis, and not hospitalized. **Conclusion:** young people present satisfactory self-efficacy, without significant association with sociodemographic and clinical variables.
Descriptors: Nursing; Diabetes *Mellitus;* Self Efficacy; Self Care.

Objetivo: identificar a autoeficácia psicossocial em jovens com Diabetes *Mellitus* tipo 1 e associação com variáveis sociodemográficas, perfil de saúde e busca por atendimento de saúde. **Métodos**: estudo transversal realizado com 35 jovens, mediante entrevista audiogravada. Usou-se dois instrumentos: a) roteiro de caracterização sociodemográfica, perfil de saúde e busca por atendimento em saúde; b) Escala de Autoeficácia em Diabetes-Versão Curta. Na análise, utilizou-se estatística descritiva e inferencial - teste Qui-quadrado e Exato de Fisher. **Resultados**: a totalidade dos jovens apresentou índices satisfatórios de autoeficácia (moderada e alta). Embora sem significância estatística, observou-se a proporção ligeiramente maior de autoeficácia alta em jovens do sexo masculino, maiores de 18 anos, da cor branca, que não trabalham, com plano de saúde, acima do peso, com mais de oito anos de diagnóstico e que não sofreram hospitalização. **Conclusão:** os jovens apresentam autoeficácia satisfatória, não sendo observada associação significativa com variáveis sociodemográficas e clínicas.
Descritores: Enfermagem; Diabetes *Mellitus*; Autoeficácia; Autocuidado.

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Introduction

Type 1 Diabetes Mellitus (DM1), formerly known as juvenile diabetes, comprises 10.0% of all diabetes cases. This chronic condition, characterized by absolute insulin deficiency has its causes related to an autoimmune process triggered by an interaction between genetic and environmental factors. It may occur at any age, but it is usually diagnosed before age 20. Its complications may lead to early disability and decreased quality of life, as well as economic losses caused by the high cost of treatment and frequent hospitalizations[1].

Childhood and adolescence are phases in which intense physical and psychological development occurs, triggering important biopsychosocial transformations. Thus, the presence of a chronic condition such as DM1 requires that the adolescent not only had to deal with the usual demands of this stage of life but also meet those arising from the disease and treatment, which can lead to emotional disorders that, if not properly addressed, may negatively influence his/her quality of life[2].

Living with DM1 requires from young people living standard adaptations, self-overcoming, acceptance and resignation. However, awareness of this need is achieved only from the moment the adolescent develops maturity, besides the stage of the disease and its context. Thus, tasks that are initially the responsibility of guardians are slowly assumed by the young person, who seeks to adapt to the new lifestyle[3]. In this context, it is important to encourage self-care practices, paying attention to the need to understand the patients' condition and investigate the factors that interfere with their treatment.

In addition to age, several other factors may influence the coping with DM1, such as gender, race, educational level, socioeconomic status, family conditions, occupational status, and psychosocial self-efficacy[4]. Among these factors, psychosocial self-efficacy has been highlighted as an important self-care and glycemic control behavior in young people with DM1[5].

Psychosocial self-efficacy refers to an individual's ability to cope with the adversities inherent in a given situation. When it is moderate or high, it may be associated with high self-esteem, better quality of life, disease monitoring and lower barriers to treatment adherence in young people with DM1[5]. Thus, considering the complexity of the management of DM1 and the obstacles of chronic diseases, especially in youth, it is relevant to know the self-efficacy of affected young people, as this is an indicator of the quality of self-management of the disease. This knowledge may support the implementation of more appropriate health care to this population. Thus, the objective was to identify the psychosocial self-efficacy of young people with DM1 and its association with sociodemographic variables, health profile and search for health care.

Methods

Cross-sectional study, part of a larger study conducted with young people with DM1. The scenario was the city of Maringá-PR, with an estimated population of 406,693 inhabitants at the time of the study, of which 116,415 were young people[6]. Young people with DM1 were found from a list of DM patients provided by the Municipal Health Department, containing full name, age and gender. In this list, 99 people in the age group of 15 to 29 years were identified, whose addresses and telephone numbers were obtained through consultation of Electronic Medical Records.

They were invited to participate in the study by telephone, when they met the following inclusion criteria: confirmed diagnosis of DM established at any time, residence in the municipality, and ownership of a Facebook® account. The only exclusion criterion established was not to be found on at least five attempts at different days and times. Thus, 35 young people participated in the study, as eight reported not having DM, 20 refused to participate,

18 resided in another municipality, 12 were not located, and six did not have a Facebook® account. The later was a necessary requirement for the second phase of the study, which provided for an intervention using social networking. (It is not appropriate to present details of the other step in this communication).

Data from this communication were collected from February to May 2017 through face-to-face audio-recorded interviews with an average duration of 25 minutes. Interviews were conducted at the participants' preferred place, 25 at home, seven at college, and three at work. During the interviews, two instruments were used: a) a script for characterization of sociodemographic variables, health profile, nutritional status and search for health care; b) Diabetes Management Self-efficacy Scale - Short Version[7], which measures the psychosocial self-efficacy for managing self-care in DM. Nutritional status was defined according to body mass index, calculated from age and self-reported weight and height information, being classified as adequate and overweight[8].

The Scale consists of eight questions related to behavior change, designing a care plan, overcoming barriers, seeking support, self-care, emotional management, personal motivations, and choosing appropriate decisions about diabetes care[7]. Answers were recorded on a five-point Likert-type scale ranging from "I agree" (five points) to "I don't agree at all" (one point). The numeric values for the set of items are summed and divided by eight. A score between one and 2.3 is considered to indicate low efficacy; 2.4 and 3.7, moderate efficacy; and between 3.8 and 5.0, high efficacy[7]. In the present study, moderate and high self-efficacy was considered satisfactory. The instrument was adapted for the young audience by changing the treatment pronoun only, replacing "You" (in a written form in Portuguese that indicates a dialogue with a Mister/Mistress) with "You" (in a written form that indicates a dialogue with an equal subject).

Data were entered into a database using the Microsoft Excel® software and then transferred and analyzed in the Statistical Package for Social Sciences (version 20.0 for Windows) using descriptive and inferential statistics, using means and standard deviations. The Fisher's Exact test and the Chi-square test were used to verify the association between the dependent variable (self-efficacy) and the other studied variables (behaviors adopted in relation to treatment, sociodemographic data, health profile and search for care). Significance was indicated when $p \leq 0.05$.

In the development of the study, all the guidelines established by Resolution 466/2012 of the National Health Council were respected, and the work was authorized by the Municipal Health Department and approved by the Standing Committee of Ethics in Research with Humans of the State University of Maringá (Opinion nº 1,963,605/2017).

Results

Of the 35 young participants, 21 (60.0%) were female, 34 (97.1%) were single, 25 (71.4%) self-reported white skinned, 24 (68.6%) were older than 20 years, 30 (85.7%) lived with their parents, 25 (71.4%) were in the job market, 19 (54.3%) had no health insurance, nine (25.7%) had complete higher education, and 11 (31.4%) were in college.

Regarding the disease, 19 young people (54.3%) reported that the initial symptoms aroused in childhood and were: weight loss (12 - 63.1%), polyuria (10 - 52.3%), and polydipsia (8 - 42.1%). A significant portion, 17 young people (48.5%), had already required hospitalization due to complications of DM, caused by hyperglycemia (11 - 64.7%), hypoglycemia (5 - 29.4%), and ketoacidosis (1 - 5.8%). As for the control of the disease, all had a glucometer, 30 (85.7%) checked capillary glucose daily, 31 (88.6%) used more than one type of insulin, and 32 (91.4%) rotated the application sites. Two young people (5.7%) reported using an insulin pump.

The psychosocial self-efficacy of participants regarding self-management of self-care in DM was considered satisfactory, since 30 (85.7%) had self-efficacy classified as high and five (14.3%) as moderate (Table 1).

Table 1 – Distribution of responses of young people with DM1 in the Diabetes Management Self-efficacy Scale - Short Version

Diabetes Management Self-efficacy Scale - Short Version	No opinion	Agrees	Totally agrees
You know what you have to do to take care of your health, but you don't like to do it	-	26	9
You can plan your daily life with things that will help you take care of your health	8	20	7
You can try different things to ward off difficulties and do what you said you were going to do to control diabetes	6	22	7
You believe you can find different things to do and feel good about	6	29	-
You can live well and find a way to carry on despite all this stress from diabetes	9	26	-
When you need, it is possible to ask for help to control diabetes	-	30	5
You know what makes you motivated to control diabetes	-	31	4
You know yourself very well, don't you? So you can choose the right things that will work for you to take care of your health	-	29	6

Note - The answer options "I do not agree at all" (1 point) and "I do not agree" (2 points) are not displayed because they have not been ticked once

Table 2 shows the characterization of sociodemographic variables, health profile and search for health care according to the psychosocial self-efficacy of young people.

Table 2 – Distribution of health profile variables and search for care according to the psychosocial self-efficacy of young people with DM1

Variables	Psychosocial self-efficacy			
	Total n (%)	Moderate n (%)	High n (%)	p
Health profile				
Nutritional status				
Adequate	19 (54.3)	4 (21.1)	15 (78.9)	0.466*
Overweight	16 (45.7)	1 (6.2)	15 (93.8)	
Practice of physical activity				
No	20 (57.1)	3 (15.5)	17 (85.0)	0.727*
Yes	15 (42.9)	2 (13.3)	13 (86.7)	
Follow-up by an endocrinologist (months)				
< 6	30 (85.7)	5 (16.7)	25 (83.3)	0.439†
> 6	5 (14.3)	-	5 (100)	
Follow up by a nutritionist (months)				
< 6	18 (51.4)	3 (16.7)	15 (83.3)	0.528†
> 6	17 (48.6)	2 (11.8)	15 (88.2)	
Search for health care				
Follow-up at a Basic Health Unit				
No	9 (25.7)	-	9 (100.0)	0.385*
Yes	26 (74.3)	5 (19.2)	21 (80.8)	
Follow-up at services through healthcare plan				
No	19 (54.3)	2 (10.5)	17 (89.5)	0.835*
Yes	16 (45.7)	3 (18.8)	13 (81.2)	
Use of services in emergency units				
No	27 (77.1)	5 (18.5)	22 (81.5)	0.459*
Yes	8 (22.9)	-	8 (100.0)	
Use of services in hospitals				
No	22 (62.9)	4 (18.2)	18 (81.8)	0.721*
Yes	13 (37.1)	1 (7.7)	12 (92.3)	

*Chi-square test; †Fisher's Exact test

Discussion

The limitation of this study was the small number of participants that prevents generalizations from the results obtained, and also the possibility of the results having been influenced by the characteristics of the participants – high schooling associated with the fact that they are young - which allowed them to more easily and quickly identify the answers they considered most appropriate rather than those that correspond to their reality. In any case, the results are relevant to clinical practice because they demonstrate and reinforce that self-efficacy rates may guide care planning, especially for young people.

Higher levels of self-efficacy were observed in young people aged 22 to 24 years, with higher education (complete or incomplete) and longer diagnosis, results that reinforce that self-efficacy tends to evolve as people acquire new skills, experiences and knowledge[9]. This result corroborates a study with 60 people who had DM2, aged between 20 and 59 years, in which it was identified that people with higher education had adequate adherence to medication use (94.4%) and followed a healthy diet (72.2%)[10].

The results achieved, the autonomy in self-care, and the self-efficacy of the individual – the extent to which he believes in himself and in his capacity - are

favored by higher levels of education because they allow the understanding of the importance of treatment and the responsibility regarding the way and quality of self-care management. It is noteworthy that a high level of self-efficacy among diabetes patients, not only leads to better disease control but also improved overall health, mental health and social functioning, as it influences their self-care ability[9]. This fact was observed in the present study, because of the five people with moderate self-efficacy, four had already been hospitalized twice or more times due to uncontrolled disease.

It is noteworthy that higher levels of education also favor the obtaining of financial resources and, consequently, the care and maintenance of treatment, as specific inputs and products for disease control are generally more expensive than traditional ones[2]. A study of 16 patients aged 20 to 75 years and diagnosed with DM2 found that they had difficulties to adhere to healthy nutrition, comply with their diet plan, and the study associated this fact with financial conditions and the high cost of products indicated for diabetes patients[11].

Another important factor for disease control and prevention is early diagnosis, as it enables the immediate implementation of control measures to prevent episodes of acute and chronic complications. In this sense, in order to favor adherence and engagement, it is important that, whenever possible, care plans take into account the users' preferences[2].

In this study, it was found that most of the diagnoses of DM1 occurred in childhood, which is similar to the results of a study conducted with 122 adolescents (aged 12 to 18 years), who reported that the discovery of the disease occurred when they were nine years old; 60.0% of them had been diagnosed at this age or before[12].

Satisfactory self-efficacy was observed in all the research young participants, regardless of where they seek care. This finding reiterates the importance of health professionals and, especially, Family Health Strategy teams carrying out self-care promotion actions[13]. This is because, when working with a limited population, they are more likely to bring people closer to a reflection about their responsibility towards their own health. In the case of young people, autonomy in self-care is more easily achieved when there is support from a multiprofessional health team, especially when there is continuous follow-up, and with guidance and stimuli on specific treatment and care[14].

It is noteworthy that the Primary Health Care network has the necessary resources to effectively diagnose, intervene and assist users with DM, promoting quality of life and reducing damage to target organs[13]. This is important and needs to be valued, because the proportion of the population that depends exclusively on public services is increasing.

Regarding the occurrence of hospitalizations, it was found that most participants never required hospitalization due to DM1, which is similar to the results of a study conducted in Ceará with 160 adolescents (aged 10-19 years) with DM1 that found that 71.3% of them had never been hospitalized for complications of the disease[15]. Thus, as pointed out in a study conducted in Australia, intervention strategies focusing on primary care education for individuals with DM offer clinically important benefits because they reduce the chance of complications[16]. In this sense, the more individuals invest in self-care actions, the lower the chances of complications - especially acute ones, and hospitalizations.

Another factor that may influence the low incidence of hospitalization and complications is support for treatment, indicated by the finding that most participants lived with their families. Self-care practices are gradually transferred from parents to children. However, in the case of chronic diseases such as DM, follow-up functions such as monitoring and stimulating treatment continue to be developed by the parents, and this tends to favor glycemic control[3]. Moreover, other modifiable variables may interfere with this control, such as quality of family relationships, health literacy, and interactions between the young people and the health system[17].

In the case of young people, family participation is not a substitute for multidisciplinary professional care. The later provides complete, personalized and specialized assistance, taking into account factors such as hormone dosage, age, eating and cultural habits, and cognitive and psychosocial needs. Thus, regular consultations with endocrinologists and nutritionists should always be encouraged among young people with DM1[1].

Differentiated attention should be given to the young clientele. A cross-sectional study conducted in Australia evaluated the impact of youth-specific participation/follow-up on hospitalizations over one-year period in all hospitals in the region and identified 55 hospitalizations of 39 young patients with DM1 aged between 15 and 25 years. The study found that the majority of the admissions (82.0%) were of young people not supported by services specifically designed to them and that the length of stay was also significantly longer in this group[18].

It is important to emphasize that adopting self-care behaviors requires that the individual first of all believes that the disease is harmful to him and can cause serious damages, that the behaviors to be adopted are effective for controlling and coping with the disease and that difficulties in implementing specific actions and behaviors are outweighed by their benefits. Some behaviors, however, require technical and cognitive skills and are usually associated with self-efficacy beliefs. Thus, as self-efficacy influences whether the person will adopt a certain behavior or not and overcome obstacles that may arise[19], it should be encouraged by health professionals through motivational interviewing that will lead the young person to reflect on self-care actions.

An intensive and practical diabetes educational program including theoretical knowledge about the disease, diet, exercise, insulin and hypoglycemia, self-analysis, self-management, macro and microvascular complications and a practical part involving skills training (self-monitoring and self-care, insulin injection, carbohydrate counting) and practical exercises (preventing hypoglycemia and taking action when it occurs, adjusting the insulin dose, planning exercise) proved to be quite effective at six months and one year after the intervention. However, the authors asserted that for longer-lasting benefits in the planning of education programs aimed at diabetes patients, including psychological strategies to motivate them to make real changes in their lifestyle is also recommended[20].

Finally, it is important to highlight that the health behavior of individuals with chronic diseases such as Diabetes Mellitus needs to be carefully evaluated and several factors, including self-report veracity, need to be taken into account. In any case, knowing the characteristics of this behavior may support health professionals in the implementation of more effective strategies to obtain positive results regarding the control of the disease, in order to favor the measurement of the impact of the implemented interventions and strengthen the capacity of coping with the disease and its treatment.

Conclusion

The results indicate that the young people in the study presented satisfactory (moderate and high) self-efficacy, without significant association with sociodemographic characteristics, health profile and search for health care. This result may be related to the characteristics of the study population – young age and high level of schooling - that favor the adoption of positive health behaviors.

Collaborations

Nass EMA, Marcon SS and Teston EF contributed to the project design, data analysis and interpretation, article writing, relevant critical review of intellectual content and final approval of the version to be published. Haddad MCFL, Reis P and Lino IGT contributed to the writing of the article and final approval of the version to be published.

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