Self-esteem and resilience in people with type 2 diabetes *mellitus*

Autoestima e resiliência em pessoas com Diabetes *mellitus* tipo 2

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Artigo Original • Original Paper
O Mundo da Saúde, São Paulo - 2017;41(2):223-231

Abstract
Diabetes mellitus type 2 (T2DM) is a disease that requires drastic changes in lifestyle, resulting from feelings of incapacity, lack of motivation and appearance of stressors, making glycemic control difficult. However, individuals with T2DM, who develop high self-esteem and resilience, manage to maintain a good quality of life. Self-esteem concerns self-image, while resilience is the ability to overcome adversity. This study was based on the assumption that self-confident and resilient individuals with T2DM face adversities more positively. The objective was to identify the self-esteem and resilience of individuals with DM2, in order to understand their coping abilities in the face of the disease. The study is a cut of the macro project entitled "Effects of Health Promotion Practices on People with Type 2 Diabetes mellitus". It is a cross-sectional, exploratory-descriptive, quantitative approach, conducted in the Petrópolis neighborhood of Manaus, AM, with 27 diabetic individuals (100% of the sample) followed by the Pastoral Health Care, with a margin of error of 5% and coefficient of confidence of 95%. The Rosenberg Self-Esteem Scale (RSES) was used. The data were presented in tables of simple (fi) and relative (%) absolute frequencies, calculating mean, median and standard deviation (SD). The results showed a mean / SD of 61.3 ± 11.19 years; 100% of the individuals reached a self-esteem and resilience pattern above the cut level (20 points), with a mean / SD of 33.25 ± 3,799 points. We conclude that there was a high level of self-esteem and resilience in the individuals in the studied group.

Keywords: Self-esteem. Psychological Resilience. Diabetes *mellitus*. Health Education

Resumo
O Diabetes mellitus tipo 2 (DM2) é uma doença que exige mudanças drásticas no estilo de vida, advindos daí sentimentos de incapacidade, desmotivação e aparecimento de fatores estressores, dificultando o controle glicêmico. Porém, indivíduos com DM2, que desenvolvem alta autoestima e resiliência, conseguem manter boa qualidade de vida. A autoestima diz respeito à imagem que se tem de si, enquanto a resiliência é a capacidade de superação das adversidades. Esse estudo partiu do pressuposto que indivíduos com DM2 autoconfiantes e resilientes enfrentam mais positivamente as adversidades. O objetivo foi identificar a autoestima e a resiliência de indivíduos com DM2, a fim de compreender suas capacidades de enfrentamento diante da doença. O estudo é um recorte do macro projeto intitulado "Efeitos das Práticas de Promoção de Saúde em pessoas com Diabetes tipo 2". É um estudo transversal, do tipo exploratório-descritivo, de abordagem quantitativa, realizado no bairro de Petrópolis em Manaus (AM), com 27 indivíduos diabéticos (100% do universo) acompanhados pela Pastoral da Saúde, com margem de erro de 5% e coeficiente de confiança de 95%. Utilizou-se a Escala de Autoestima de Rosenberg (EAR). Os dados foram apresentados em tabelas de frequências absolutas simples(fi) e relativas(%), calculando-se média, mediana e desvio-padrão (DP). Os resultados mostraram média/DP de 61,3 ±11,19 anos; 100% dos indivíduos alcançaram padrão de autoestima e resiliência acima no nível de corte (20 pontos), com média/DP de 33,25±3,799 pontos. Concluimos que houve presença em alto nível de autoestima e resiliência nos indivíduos do grupo estudado.

Palavras-chave: Autoestima. Resiliência psicológica. Diabetes *mellitus*. Educação em saúde

DOI: 10.15343/0104-7809.20174102223231

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The Authors declare no conflict of interest.

INTRODUCTION

Type 2 diabetes mellitus (T2DM) is a chronic degenerative metabolic disease characterized by defects in the action and secretion of insulin, as well as in the regulation of hepatic glucose production. It is caused by an interaction of genetic and environmental factors. In the last decades, it has reached epidemic proportions due to changes in the lifestyle of the society. Such social changes are related to population aging, sedentary lifestyle, and inadequate eating habits that increase fat in the body[1,2].

T2DM reaches numbers in the world population of around 387 million people, with the possibility of reaching 471 million in 2035. About 80% of these individuals live in developing countries, where the epidemic is most serious, and there is an increasing proportion of people affected in younger age groups, who coexist with the problems that the disease brings. In most developed countries, T2DM is found to be in the fourth and eighth position among the main underlying causes of death. Brazilian data for 2011 show that the mortality rates for T2DM /100 thousand inhabitants are 33.7 for the general population[1].

It is now understood that social, cultural and geographic changes, as well as their biological interactions, can trigger critical responses to health such as chronic and degenerative diseases. Chronic disease is an illness that is characterized by a long treatment, being incurable, and usually causes sequelae and functional restrictions, requiring individual adaptations. The confrontation of chronic disease depends on personal characteristics: health, belief system, life goals, self-esteem, self-control, knowledge, problem solving ability, and social support[3]. Considering that each risk threatens specific dimensions of biopsychosocial functioning, the adjustment becomes inseparable from risk. Thus, it is necessary to seek to overcome and change the conditions of social vulnerability that thousands of people affected by T2DM live with.

One of the most significant changes in the field of health concepts and practices refers to those resulting from the paradigm of health promotion, especially considering that the vulnerability frameworks associated with various disorders in the health of individuals, groups, and populations are the result of complex relationships, which are not understood or overcome strictly by the way of prevention[4].

The modification of the conditions of facing and overcoming adversity by the development of positive aspects depends on a complex combination of factors that include constitutional, relational and socio-structural aspects of the individual[5]. This complexity expresses itself in a singular and subjective way, since each person has a distinct way of giving meaning to the facts and their existence, even if they share common aspects of reality.

In this respect, many studies have been carried out in order to understand how people, in adverse situations, have shown positive ways of coping with their reality. In this way, the concept of resilience has been appropriated and evolved in the human, social, and health sciences. This corresponds to the capacity of human beings to face the adversities of life, to learn from them, to overcome them, and be transformed by them[5,6]. Resilience is characterized by the ability to return to the functioning levels prior to the traumatic or threatening situation. It makes experiencing a positive psychological process possible as a result of dealing with the critical vital circumstance which includes, among others, the development of more affective relationships, recognition of individual possibilities, a greater sense of personal strength, and significant changes in the hierarchy of vital priorities which, as a whole, may be a protective factor[5,6,7,8].

Resilience is a theme that dialogues with various theoretical perspectives in the health and human areas[6]. Among its central propositions are the maintenance of focus on human potentialities and the recognition of an individual as the protagonist of his story, and the transformation of the environment or context where he is placed. In spite of still being a concept in transformation, the peaceful points among the diverse scholars of the subject allow to infer that this corresponds to a process of significant contribution to the proposed renewal of health practices.

It is believed that the development of resilience abilities involves the activation of

their self-esteem abilities. By interfering in affective, social, and psychological conditions of individuals, self-esteem becomes an indicator, or a meter, of mental health, well-being and quality of life. Studies[8,9,10] on resilient characteristics shows sufficient evidence that there is a close relationship with self-esteem, because it allows for a better adaptation of the individual to the environment, besides providing a greater capacity to withstand pressures and face situations. Poorly resilient individuals present greater exposure to stress in the face of adversity, which can generate anxiety, depression, anger, impulsivity, and low self-esteem[9,10].

The definition of self-esteem becomes complex because it involves valuing beliefs and a personal and internal construct, strongly influenced by the social and cultural context in which the individual is placed. They self-evaluate themselves according to the thoughts and feelings introjected in the formation of their identity. Outside assessments highlight differences, create labels, and develop rejection or acceptance processes[5].

On the other hand, these characteristics are not stable and can therefore undergo life-long variations depending on their degree of knowledge, their understanding of the phenomena, and their pleasurable or unpleasant experiences. Thus, by helping people discover their abilities, it is possible to make them more confident and resilient to face the adversities of everyday life.

Therefore, this study started with the assumption that people with T2DM bring with them problems related to self-image, self-esteem, as well as difficulties in adapting to everyday family and social life due to the disease and its chronicity. In addition, it is believed that individuals who are self-confident are more easily persuaded to adopt healthy behaviors. In order to identify such a situation, we used the Rosenberg self-esteem scale as a tool, which defined self-esteem like the self-evaluation that people performed, applying a sense of value that encompasses an affective component expressed in an attitude of approval / disapproval of themselves[11].

This study aimed to identify the self-esteem and resilience of individuals with Type 2 Diabetes mellitus in order to understand their coping abilities in the face of the disease.

METODOLOGY

The present study is a part of the project entitled "Effects of Health Promotion Practices on People with Type 2 Diabetes", where the response to the second specific objective of the macro project was sought.

All the work was surrounded by a process of group meetings (conversation circles), with an educational focus (health promotion), aiming to provide a space for listening and sharing to raise awareness about issues related to resilience in overcoming challenges imposed by T2DM. The group meetings (conversation circles) were organized in 24 sessions, every 15 days, on Wednesdays, from 9 am to 11 am. The sessions were conducted by psychologists and nurses, and the participation of psychology and nursing students was also made possible.

This resection is a transversal, exploratory, and descriptive study with a quantitative approach, carried out in the Pastoral Health Care community center of the Petrópolis neighborhood in Manaus, AM, with 27 diabetic individuals registered and accompanied by the Pastoral Health Care. The sample counted on 100% of the survey sample (N = 27), with a relative error margin of 5% and a 95% safety coefficient. The study was approved by the of Amazonas State University Research Ethics Committee, with the project code CAE 33528914.4.0000.5016. All individuals signed the Free and Informed Consent Form (ICF), according to what is recommended in National Health Council's Resolution No. 466/2012. All participants were assured confidentiality and discretion regarding their responses.

After the invitation, starting from their presence in the Pastoral Health Care activities, the volunteers received an explanation of the purpose of the project and all the information necessary for their participation. Inclusion criteria were: individuals with a confirmed diagnosis of T2DM; aged 18 years or over; followed by the Pastoral Health Care; possessed a sound mind during the survey period; who

agreed to participate in the study by signing the ICF; not diagnosed with diabetes of other types (type 1, gestational or non-specific diabetes); and not self-declared indigenous.

Data collection questionnaire

The application of the questionnaire for this study's data collection occurred after the eighth biweekly meeting and gatherings of conversation circles where diverse subjects on diabetes were developed. In closed rooms of the Pastoral Health Care community center, in a silent environment, and after signing the ICF, the surveys were applied to each group of three individuals, under the supervision of the researchers, until all nine groups were completed. Individuals who had difficulty reading received the researchers help in reading the questions and indicating the answers. The average time to complete filling in the survey per group was estimated at 40 minutes.

The data collection instrument used was the Rosenberg Self-Esteem Scale (RSES) 12 in its translated and adapted to Portuguese version. This scale is composed of 10 items, with questions regarding the feelings of respect and acceptance of oneself, that is, 5 items are formulated positively and 5 other negatively formulated items, as follows:

1. I feel that I am a person of value at least on a plane equal to that of other people.
2. I tend to feel that I am a failure in everything.
3. I think I have many good qualities.
4. I can do things as well as most other people do.
5. I do not think I have many reasons to be proud of myself.
6. I have a positive attitude towards myself.
7. Overall I am satisfied with myself.
8. I would like to have more respect for myself
9. Sometimes I really feel like a useless person.
10. Sometimes I think I'm not a big deal.

Each item corresponds to a Likert scale with the following response options: (1) Strongly disagree, (2) Disagree, (3) Indifferent, (4) Agree, and (5) Strongly agree. The subject was asked to select the answer that best characterized him in each item.

Regarding the scale quotation, after the inversions were made and the answers to all items were added up, the total scale score was obtained, which could vary between 10 and 40. From this, the individual was classified in two levels: high and low self-esteem. The first refers to the expression of the feeling that the individual has in finding himself good enough, respecting himself and considering himself capable without feeling superior to other people; and the second, the expression of self-rejection, dissatisfaction with self, and contempt toward his own person[12]. The higher the score, the higher is the self-esteem of the subject. Thus, the value of 20 was used as the cut-off point: low self-esteem individuals reached up to 20 points; high self-esteem those reached above 20 points.

The results were plotted in Microsoft Excel® 2007 software and analyzed with the support of the IBM SPSS® version 19.0 statistical package. The data were presented through tables and graphs, and the simple (fi) and relative (%) absolute frequencies were calculated. In the analysis of the quantitative variables, when a 5% level of normality was guaranteed, the mean and standard deviation (SD) were calculated. In the case of non-normality of the data, the median was calculated.

RESULTS

The study was carried out with 27 people diagnosed with type 2 diabetes mellitus, of which 92.6% were women, 44% of whom were below 60 years old, with a minimum age of 36 years and a maximum of 59 years. The range above 60 years corresponded to 55.6% of the individuals studied with a minimum age of 61 years and a maximum of 78 years. Mean / SD for the age group was 61.3 ± 11.19 years of age and the median was 62.5 years (Table 1).

Table 2 shows the distribution of the individual scores of the research subjects, where the sum of the values are presented, with a mean / SD of 33.25 ± 3.799 points for this group. Overall, no one reached an index below 20, being considered the group with high self-

esteem.

When the answers were analyzed in a particular way, it was observed that the answers with lower scores referred to question 2) *I tend to feel that I am a failure in everything and* 9) *Sometimes I really feel like a useless person,* with a mean of 2.18 points in both responses, out of 5 points (Table 3).

The highest index reached was in the response to item 3) *I think I have many good qualities,* with an average of 4.33 points, out of 5 points (Table 3).

With regard to positively and negatively formulated items, Table 4 shows that the negative items obtained a mean score well below the positive items, with positive items achieving a mean / SD of 4.24 ± 0.190 points out of 5 points, And the negatives reached average mean / SD 2.61 ± 0.399 points of the total of 5 points.

It is worth mentioning that some individuals may recognize the same risk factor in different ways according to the assessment they make of the moment and their life context, and the way they react to them determines the process of adjustment or destabilization.

Table 1 – Distribution according to age and gender of the research subjects. Manaus (AM), 2016.

Variables (n = 27)	Fi	%
Age Group		
< *60 years*	12	44.4
> 60 years	15	55.6
Mean/SD: 61.3± 11.19 years		
Median: 62.5		
Gender		
Male	2	7.4
Female	25	92.6

Table 2 – Distribution according to individual scores referring to the dimensions of the Rosenberg Self-esteem Scale. Manaus, AM, 2016.

Subjects	Rosenberg Self-esteem Scale										Total
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
1	4	2	3	4	2	4	4	2	1	4	30
2	4	1	5	5	2	5	5	3	2	5	37
3	4	1	5	5	4	4	5	4	1	4	37
4	4	2	4	4	2	4	4	3	2	4	33
5	2	2	3	4	3	2	4	4	3	4	31
6	4	2	5	5	4	4	2	2	4	4	36
7	2	1	5	5	2	1	5	2	2	2	27
8	4	2	4	4	1	4	5	2	1	2	29
9	5	1	4	4	2	4	4	1	1	1	27

to be continued...

...continuation - Table 2

10	3	4	4	2	3	4	4	4	4	4	36
11	5	1	5	4	2	4	5	2	1	1	30
12	5	2	5	4	2	4	2	2	2	2	30
13	4	2	4	4	4	4	4	4	2	2	34
14	4	3	4	4	2	3	3	4	2	2	31
15	4	4	5	4	4	4	4	4	2	4	39
16	4	4	5	4	4	4	4	4	2	4	39
17	4	2	4	4	4	4	2	3	2	2	31
18	4	2	4	2	4	4	2	2	2	2	28
19	5	1	5	5	1	5	5	1	4	4	36
20	4	4	4	4	2	4	4	2	2	4	34
21	5	1	4	4	5	4	5	3	4	2	37
22	4	3	4	2	4	4	4	2	1	2	30
23	4	4	4	4	4	4	4	4	4	4	40
24	4	1	5	5	4	4	2	4	4	4	37
25	5	4	4	4	2	4	4	4	1	2	34
26	5	1	5	5	1	5	5	4	1	1	33
27	3	2	4	4	4	4	3	4	2	2	32

Mean/SD of 33.25 ± 3.799 pontos

Table 3 – Distribution according to the average scores of the individual responses to the items of the Rosenberg Self-Esteem Scale. Manaus (AM), 2016.

RSES Items	Averages
1. I feel that I am a person of value at least on a plane equal to that of other people.	4.03
2. I tend to feel that I am a failure in everything.	2.18
3. I think I have many good qualities.	4.33
4. I can do things as well as most other people do.	4.03
5. I do not think I have many reasons to be proud of myself.	2.88
6. I have a positive attitude towards myself.	3.88
7. Overall I am satisfied with myself.	3.85
8. I would like to have more respect for myself.	2.96
9. Sometimes I really feel like a useless person.	2.18
10. Sometimes I think I'm not a big deal.	2.88

Table 4 – Distribution according to the measurements of scores referring to the individual positive and negative responses of the Rosenberg Self-esteem Scale. Manaus, AM, 2016.

RSES Items	Averages
Positive:	
1. I feel that I am a person of value at least on a plane equal to that of other people.	4.03
3. I think I have many good qualities.	4.33
4. I can do things as well as most other people do.	4.03
6. I have a positive attitude towards myself.	3.88
7. Overall I am satisfied with myself.	3.85
Negative:	
2. I tend to feel that I am a failure in everything.	2.18
5. I do not think I have many reasons to be proud of myself.	2.88
8. I would like to have more respect for myself.	2.96
9. Sometimes I really feel like a useless person.	2.18
10. Sometimes I think I'm not a big deal.	2.88

Positive: Mean/SD 4.24±0.190 points; Negative: Mean/SD 2.61±0.399 points.

DISCUSSION

The Brazilian Society of Diabetes1 and the International Diabetes Federation (IDF)[13] have released worrisome estimates of the number of people with diabetes worldwide, referring to the disease that has been severe in an increasingly younger population worldwide and affecting women more.

In the study in question a percentage of 92.6% of women, with 44.4% under the age of 60 years (Table 1), was found. In a study published by Iser et al[2], entitled *Prevalence of self-reported diabetes in Brazil: results of the National Health Survey* 2013, it can be observed that the prevalence of diabetes increased with advancing age, reaching 20% of the population from 65 to 74 years and from 75 years or older, a contingent of over 3.5 million people. However, the greatest concern has been with individuals in the age group under 60 due to poor eating habits, sedentary lifestyle, and urban stress.

With respect to self-esteem, it was observed that 100% of the individuals reached a standard above the cut-off level of the study (20 points), with an average of 33.25 points out of a total of 40 points (Table 2). The items 2) *I tend to feel that I am a failure in everything and 9) Sometimes I really feel like a useless person*, appeared in the study with an average of 2.18 points in both answers, being considered the lowest averages. The highest index appeared in the response of item 3) *I think I have many good qualities*, with an average of 4.33 points, out of 5 points (Figure 1).

An individual with T2DM may be faced with possible changes in physical appearance, limitations and impediments in routine activities, difficulty in facing treatment and its side effects, and readjustment to a new life. Thus, these individuals may present psychological problems, especially changes in their self-esteem, since their perception about body image is related to this new condition of life.

In view of these conditions, people with T2DM need to make various adjustments in daily life, especially with regard to eating habits, which predisposes them to difficulties related to social life. In addition to the impact on their social realm, these adaptations are based on restrictive measures, colliding with the desire and autonomy of these people who also suffer by the restriction of their will and decisions concerning their diet and habits. This involves feelings beyond the physiological perspective. However, this group of individuals has shown that they are able to overcome such difficulties.

Risk factors, usually present in chronic diseases such as T2DM, are capable of destabilizing homeostasis and causing social, mental, and physical damage in the individuals who experience them. It is noteworthy that during the exposure to stressful phenomena there are alterations in the production of cortisol, glucagon, catecholamines, growth hormones, and renin, which are able to interfere with the action of insulin and, consequently, the control T2DM[1,15]. These situations may influence lifestyle, which exacerbate insulin resistance, leading to difficulties in T2DM control.

Stress events usually appear unexpectedly and may induce psychopathological disorders if they are not adequately treated[15]. The adaptive weaknesses are usually motivated by the difficulty of living with the demands of the treatment, becoming sources of suffering, conflicts, and tensions in daily life, making it difficult to carry out the proposed care adequately. However, experiencing situations of stress can bring the individual to the desire to overcome, motivating him to seek strategies that strengthen him. Thus, it can be said that resilience is formed in the face of exposure to adversities or risk factors, helping in the search for solutions and a better way of living[16].

With respect to self-esteem, it plays an important role since its results from studies are predictors of resilience. These results are consistent, and the close relationships between resilience and self-esteem can be considered.

CONCLUSION

Living with T2DM implies finding strategies to better adapt and overcome the difficulties inherent in the chronicity of the disease. Many individuals often have difficulties controlling T2DM, resulting in fear, stress, and maladjustment. In this way, in the face of daily difficulties and stressful situations, the promotion and expansion of coping skills, management, and adherence to the therapies implemented becomes relevant.

Low self-esteem is an important risk factor for the lack of T2DM control, while high self-esteem is considered a consistent resource in the search for adaptive behavior, an active attitude in conflict resolution, and the configuration of resilient characteristics.

Resilience develops in the interrelationship between risk factors, characterized as events that negatively influence daily living, and protective factors, which are beneficial situations that help in the search for resolutions and positive adaptation.

In this study, the high-level presence of these two components, self-esteem and resilience, can be identified, inferring that they have the ability to face conflicts and the emotional abilities to face stress arising from the disease. The management of self-care in chronic disease conditions is one of the objectives to be achieved for the prevention of complications related to the disease.

It is inferred that the promotion of resilience and self-esteem by professionals dealing with individuals with T2DM is necessary in order to assist them in coping with the disease and in achieving greater adherence to treatment.

It should be emphasized that this study had limitations regarding the transversal design of the research, thus limiting the analyses and not allowing better establishment of the cause-effect relationship of the findings. However, it opened up the possibility of further research on the subject. Future research should consider longitudinal studies to determine, more clearly, the correlation of these variables in individuals with T2DM.

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Received September 2016.
Approved March 2017.