

ORIGINAL ARTICLE

Activity Limitation and social participation of patients with diabetes

Limitação de atividades e participação social em pacientes com diabetes

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ABSTRACT

Objectives: to evaluate the activity limitation and the social participation in individuals with type 2 diabetes mellitus. **Methodology:** 79 diabetic patients were evaluated through SALSA scale (Screening of Activity Limitation and Safety Awareness) and Social Participation scale of the International Classification of Functioning, Disability and Health (ICF). **Results:** the average age of the participants was 61.6±9.8 years, 55.7% were female, 68.4% had a marital status, 32.9% had a low income (up to three minimum wages) and 13.9% had left work due to health reasons. The average time of illness was 10.3±8.9 years. 39.3% of the participants were treated with insulin, 70.9% with oral medication, 51.9% with diet and 45.6% with physical exercises. 48.1% presented some disease complication. The average in SALSA score was 26.5±11.6 and higher scores were associated with more than 10 years of disease. With diabetes evolution there may be a

need for insulin therapy and diabetes complications can appear and interfere with the individual's occupations. These factors can contribute to activity limitation. The average in Social Participation scale was 9.8±10.9, with higher scores when the patients considered their physical health impaired in the last year and when they were under insulin therapy. **Conclusion:** the activity limitation in type 2 diabetes mellitus was associated to the duration of the disease with possible contribution of factors related to the disease's evolution. The auto-evaluation of impaired physical health and insulin therapy seem to interfere with social participation.

KEYWORDS

diabetes mellitus, quality of life, international classification of functioning, disability and health

RESUMO

Objetivos: Avaliar a limitação de atividades e a participação social em indivíduos portadores de diabetes melito tipo 2. **Métodos:** Foram avaliados 79 pacientes, utilizando-se a escala SALSA (Screening of Activity Limitation and Safety Awareness - Triagem de Limitação de Atividade e Consciência de Risco), e a escala de Participação, que abrange oito das nove principais áreas da vida definidas na Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF) da OMS. **Resultados:** A idade média dos participantes foi 61,6 ± 9,8 anos, sendo 55,7% do sexo feminino, 68,4% com companheiro(a), 32,9% com renda até 3 salários mínimos e em 13,9% o diabete influenciou na ocupação. O tempo médio de doença foi 10,3 ± 8,9 anos. Tratamento de 39,3% dos participantes foi com insulina, 70,9% com medicação oral, 51,9% com dieta e 45,6% com exercícios físicos. 48,1% apresentavam alguma complicação da doença. A média de pontos SALSA foi 26,5 ± 11,6 e houve maior

pontuação quando o tempo de doença foi superior a 10 anos. Com a evolução do diabetes, pode haver necessidade de insulino terapia, aparecem as complicações, que podem interferir na ocupação. Estes fatores parecem contribuir para a limitação de atividade. A média de pontos na Escala de Participação foi 9,8±10,9, com maior pontuação quando os entrevistados consideraram sua saúde física alterada no último ano e faziam uso de insulina. **Conclusões:** A limitação de atividades no diabetes melito tipo 2 se associou ao tempo de doença, com possível contribuição de fatores que ocorrem com sua evolução. Auto-avaliação de saúde física alterada e insulino terapia se associaram a restrição social.

PALAVRAS-CHAVE

diabetes mellitus, qualidade de vida, classificação internacional de funcionalidade, incapacidade e saúde

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INTRODUCTION

Diabetes mellitus is a chronic disease characterized by the compromising of the glucose metabolism and of other substances that produce energy. Changes in the human behavior and lifestyle, aging of the population, increased urbanization, dietary changes, non-activity, obesity, among other factors resulted in a drastic rise of diabetes all over the world.¹

In Brazil, it affects around 10% of the population from ages between 30-69 years, affecting 9 to 10 million people.² Diabetes is considered a worldwide epidemic and dealing with it constitutes a challenge for every health system around the world.

The concept Health Related Quality of Life (HRQoL) includes the World Health Organization (WHO) precepts of 1948 which include the state of complete physical, mental and social well-being, opposing to the traditional model focused basically on physical aspects.³ It is an important indicator to public health as well as to clinical research.⁴

Some studies have shown that diabetes constitutes an important cause of mortality and early incapability with loss of quality of life. Diabetes increases the risks of cardiac, cerebral and peripheral vascular diseases from 2 to 7 times, besides causing several chronic complications that could lead to a progressive rise in physical incapability with mobility difficulties, deambulation and difficulties in the performing of simple or complex daily activities.⁵⁻⁷ The physical deficiencies caused by peripheral neuropathies to patients with diabetes occur gradually and slowly. The patients adapt to their deficiencies and incorporate new habits that enable them to independently perform their daily activities.⁸

This independence, added to loss of sensibility and/or loss of muscular strength, potentiates the risk of injuries and deformation that can result in the loss of the entirety of the affected extremities.^{9,10} Besides that, some studies show that the physical limitations may interfere with the social participation in diabetic patients.

Deficiencies, activity limitation and restriction to social participation were defined in the ICF (International Classification of Functioning, Disability and Health)^{11,12} as important components of an individual health condition and to the promotion of policies for social inclusion.¹³

Instruments that evaluate the quality of life in diabetes such as the SF-36, WHOQOL, among others have been used.¹⁴⁻¹⁷ However, they don't have the specific objective of evaluating activity limitation and social participation. The SALSA (Screening of Activity Limitation and Safety Awareness) scale was created to measure the activity limitation¹⁸ in individuals affected by hanseniasis, diabetes and other peripheral neuropathies. The Social Participation¹⁹ scale measures the social participation in people affected by hanseniasis, stigmatizing problems or deficiency as well as in patients with diabetes, for example. These two scales were elaborated based on the ICF and validated to be used in developing countries.

OBJECTIVE

To evaluate the activity limitation and the social participation in individuals with type 2 diabetes mellitus using SALSA and Social Participation scales.

METHODS

From 79 interviewed patients 39 were participants of an UNIMED group of Preventive Medicine (São José do Rio Preto) and 40 were patients at the Outpatient Specialty Clinics of the Hospital de Base de São José do Rio Preto. Included in the study were individuals with type 2 diabetes mellitus with age superior to 30 years old at the beginning of the disease and without any other aggravations to health considered by them as having more impact than the diabetes.

The questionnaires were applied at the individual's respective local medical service at the time of the patient's appointment. This process was approved by the Research Ethics Committee of the Faculdade de Medicina de São José do Rio Preto on the 15th of May of 2006 – process n° 2990/2006, approval n° 095/2004.

The instrument used for data collection was composed by three questionnaires (General and Clinical Data form, SALSA¹⁸ scale and Social Participation scale¹⁹) that were applied after the patient's clear and free consent.

The General and Clinical Data form had questions regarding the patient's age, marital status, income, diagnosis, treatment and the disease's follow-up; their perception over quality of life with and without the disease and mental and physical self-evaluations. Laboratory and clinical data were obtained from the patient's medical chart after their authorization.

The SALSA scale¹⁸ is a standardized instrument that provides a total score for activity limitation. It consists of 20 items that evaluate the presence of limitations among mobility, self-care, work and ability.

The addition of the obtained values results in a score that varies from 10 to 75. A low score indicates little difficulty in the performing of daily activities, while higher scores indicate increasing levels of activity limitation. The cut-off point in this study was 20, considering that superior values to this indicate some kind of limitation.¹⁸

The Participation scale,¹⁹ which was validated through multi-center research in India, Brazil and Nepal, was elaborated based on the ICF published by the WHO in 2001 according to the HR-QoL concept.^{3,20} It is composed of 18 items and it measures the problems noticed in the main life aspects such as: learning and knowledge application; communication and personal care; mobility; domestic life; interactions; interpersonal and community relationships. It includes 8 out of the 9 main life aspects defined in the ICF. Its score varies from 0 to 72 points. Values from 0 to 12 points indicate no restriction to social participation.

The results are shown in percentages or in average and standard deviation (SD). The X² and Fisher tests were used for statistical analysis as appropriate. The significance

RESULTS

The 79 participants in this study had an average age of 61.6 years (SD 9.8), which varied from 40 to 78 years old. 55.7% were females. Regarding the social-economic characteristics 32.9% had a family income of up to four minimum salaries, 53.2

% had finished secondary school and 68.4% had a companion. About their occupations, 13.9% had left work due to health issues. Only 9% were smokers and 72.2% didn't have the habit of alcohol consumption.

The average time of disease was 10.3 years (SD 8.9). From the total amount of participants the insulin therapy was part of the treatment of 39.3%; 70.9% used oral medication; 51.9% revealed having an adequate diet and 45.6% practiced exercises regularly. 48.1% of the patients had at least one complication related to the disease. In this study it was observed that the self-monitoring of blood glucose wasn't performed by 21.5% of the participants. The physical health self-evaluation was considered from good to excellent by 62% of the participants.

The SALSA scale's score analysis showed that 67.1% of the interviewed patients obtained scores that suggest some degree of activity limitation, which is above 20 points. The average score in this scale was 26.5 (SD 11.6).

The Participation scale's total average score was 9.8 (SD 10.91) and 21.5% of the interviewed patients scored more than 12 points, suggesting restriction in social participation.

The relations between SALSA and Participation scales as well as the characteristics of the participants of the study are shown in Table 1.

The activity limitation indicated by the score in the SALSA scale was associated to a period with diabetes superior to 10 years. We found a statistically significant association between the Participation scale's score indicating restriction to social participation and the physical health self-evaluation considered impaired in the

last year ($p=0,003$) and the use of insulin ($p<0,001$).

The physical health was considered impaired in the last year by 50.9% of the patients that had a SALSA score above 20 points and by 30.8% of those with a SALSA score equal or below 20 points, however this difference wasn't considered significant.

DISCUSSION

Based fundamentally on physical aspects, only signs and symptoms have been considered by the doctors to evaluate and treat pathologies.³ The International Classification of Diseases (ICD-10) provides a diagnosis of diseases, disturbances and other health conditions based on etiological and anatomical structures and on the external causes of injuries, besides providing statistic data concerning mortality.²¹

From a classification of "disease consequences" (International Classification of Impairments, Disabilities and Handicaps – ICIDH – a 1980's version) the ICF became a classification of "health components" that includes several aspects such as physical, mental, social and environmental.^{3,22} It's an adequate classification system for the understanding of functioning and human incapability. It evaluates morbidity and it consists in an important instrument for life condition evaluation and for the promotion of policies for social inclusion.¹³

The scales used in the present study were elaborated based on the ICF^{11,12,19} main life aspects and it made it possible to evaluate the morbidity in the interviewed patients. Diabetes is a chronic disease usually associated to a substantial loss in quality of life which is commonly attributed to its treatment and to the co-morbidities associated to it.²³⁻²⁷ This study, to the best of our knowledge, is the first exploratory analysis of the use of SALSA and Social Participation scales in diabetic patients.

The activity limitation was associated to a longer period of disease. The SALSA scale evaluates aspects such as mobility, self-care, ability and manual work. All these aspects involve routine chores and most of them demand preserved neuronal functions that are usually modified in patients with a long-term evolution of the disease, as for example sensibility and hand and feet muscular strength alterations.

With the evolution of the disease there may be the need for insulin treatment and there may be the occurrence of complications that end up influencing the production capability of the patient. In this exploratory study these factors weren't related to activity limitation probably due to the small number of patients evaluated. However they have been related to loss of quality of life (measured by the instruments AddQoL, HRQoL and SF-36) in previous studies.^{14-17,28,29}

According to the self-evaluation the physical health impaired in the last year and the use of insulin were associated to restriction to social participation. According to the literature the impairment in physical health leads to social isolation.^{11,12} On the other hand, the regular practice of physical activities provides a decrease in the blood glucose level that leads to the improvement of physical and psychological disposition

Table 1

Characteristics of the studied population according to the scores obtained from SALSA and Participation scales.

	Escala SALSA		valor-p	Escala de Participação		
	>20	≤ 20		> 12	≤ 12	valor-p
	N=53	N=26		N=17	N=62	
	n (%)	n (%)	n (%)	n (%)		
Female	33 (62,3)	11 (42,3)	0,093	9 (52,9)	35 (56,5)	0,796
Age >65 years old	27 (50,9)	9 (34,6)	0,171	7 (41,2)	29 (46,8)	0,681
Without companion	21 (39,6)	4 (15,4)	0,03	7 (41,2)	18 (29,0)	0,34
Smokers	4 (7,5)	3 (12,0)	0,674	1 (5,9)	6 (9,8)	1,0
Income of up to 3 minimum salaries *	26 (49,1)	9 (34,6)	0,225	11 (64,7)	24 (38,7)	0,056
Period of study > 8 years	22 (41,5)	15 (57,7)	0,176	7 (41,2)	30 (48,4)	0,598
Period with diabetes >10 years	26 (49,1)	3 (11,5)	0,001	9 (52,9)	20 (32,3)	0,117
Practice diet	29 (54,7)	12 (46,2)	0,474	9 (52,9)	32 (51,6)	0,923
Don't do physical activities regularly	32 (60,4)	11 (42,3)	0,130	14 (82,4)	29 (46,8)	0,009
Use of insulin	26 (49,1)	5 (19,2)	0,011	13 (76,5)	18 (29,0)	<0,001
Presence of complications	31 (58,5)	8 (30,8)	0,021	11 (64,7)	28 (45,2)	0,153
Disease interfering in the occupation	13 (24,5)	1 (3,8)	0,028	6 (35,3)	8 (12,9)	0,066
Consider quality of life excellent or good	36 (67,9)	13 (50,0)	0,123	10 (58,8)	39 (62,9)	0,759
Consider physical health impaired in the last year	27 (50,9)	8 (30,8)	0,09	13 (76,5)	22 (35,5)	0,003

*Current minimum salary in the value of three hundred and eighty reais (R\$ 380,00)

and to change in these patient's lifestyles. This may result in an improvement in socialization.^{30,31}

Even though the association between activity limitation and social restriction wasn't observed in this study it was observed in previous studies that evaluated quality of life.

The use of insulin for the treatment of type 2 diabetes mellitus happens more frequently when the disease is hard to control or has had a long duration. These factors are usually related to a negative impact on the patient's quality of life. The association between the use of insulin and social restriction that we observed was also observed in other studies.^{14,17}

Social participation is one of the components in the ICF. In our study we didn't find association with some factors that have been identified as important for the quality of life^{16,32,33} (age, for example) or for the loss of quality of life in diabetic patients such as duration of the disease, presence of complications and lack of a companion.^{5,14,32,34}

In a metanalysis on diabetic patients and quality of life in Nordic countries, Walden²⁷ concluded that the effects of demographic factors (age, gender, marital status etc.) in the quality of life related to health aren't specific for diabetes.

A recent study³⁵ based on the use of the ICF summarized core set for diabetes mellitus concluded that generally the quality of life is inferior in patients with chronic complications, besides concluding that the compromising of functions and physical structures are the most prevalent.

In fact, the duration of the disease and the consequent presence of complications not only modify the quality of life but also reverberate in activity limitation and can modify the global evaluation of quality of life. The study of the morbidities is still a challenge and studying it in its several aspects becomes essential in order to direct prevention programs and attention to the diabetic patients health consequently improving their quality of life.

CONCLUSION

The SALSA and Participation scales were elaborated to evaluate the physical limitation in patients with peripheral neuropathies and the social restriction in patients with stigmatizing problems or deficiency, as happens in diabetes. The results obtained with the use of these scales suggest that in type 2 diabetes mellitus the activity limitation is associated to a longer period of the disease. The occurrence of complications along the disease's evolution can also contribute to this limitation.

The patients that suffered loss in social participation were the ones that considered their physical health impaired in the last year and were making use of insulin.

So that we can act on the improvement of the patient's functioning and quality of life it's important to know the role of each of its components. These two scales allow a better understanding over physical limitation and social restriction. The roles of the different aspects that constitute these scales must be subject to other studies.

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