Correlation of quality of life with knowledge and attitude of diabetic elderly

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Objective. To describe the quality of life (QL), knowledge and attitude of the elderly with diabetes mellitus (DM) and to correlate the QL with the knowledge and the attitude of the elderly. **Method.** It is a cross-sectional study of household inquiry type and developed with 296 elderly with DM. The used instruments were: *World Health Organization Quality of Life Bref* (WHOQOL-BREF), *World Health Organization Quality of Life Old* (WHOQOL-OLD), *Diabetes Knowledge Scale Questionnaire* (DKN-A) and *Diabetes Attitudes Questionnaire* (ATT-19). **Results.** The female were predominant (68.2%), aged from 70 - 79 years old (43.9%), married or living with a partner (41.6%), living with their children (43.2%), with income of one minimum wage (52.4%), had 4 - 7 years of education (32.8%), on diet use and oral hypoglycemic (68.6%) and less than five years diagnosis (29.1%). The greater the knowledge and the attitude the higher QL scores in physical, psychological, social relationships and environment domains; and facets of sensory works, autonomy, and intimacy. **Conclusion.** Educational activities need to be worked improving the knowledge and attitude of the elderly about the DM.

Key words: aged; attitude; Diabetes Mellitus; knowledge; quality of life; questionnaires.

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Correlación de la calidad de vida con el conocimiento y la actitud en ancianos diabéticos

Objetivo. Describir la calidad de vida (CV), el conocimiento y la actitud de los ancianos con diabetes mellitus (DM), y correlacionar la CV con el conocimiento y la actitud de los ancianos. **Métodos.** Estudio transversal del tipo encuesta de hogares en el que participaron 296 ancianos con DM. Se utilizaron los instrumentos: *World Health Organization Quality of Life Bref* (WHOQOL-BREF), *World Health Organization Quality of Life Old* (WHOQOL-OLD), *Diabetes Knowledge Scale Questionnaire* (DKN-A) y *Diabetes Atitudes Questionnaire* (ATT-19). **Resultados.** Predominó el sexo femenino (68.2%), la edad de 70 a 79 años (43.9%), los casados o con compañero (41.6%), que vivían con los hijos (43.2%), con renta de un salario mínimo (52.4%), con 4 a 7 años de estudio (32.8%), tratados con dieta e hipoglicemiante oral (68.6%) y con tiempo de diagnóstico inferior a cinco años (29.1%). Cuanto mayor fue el conocimiento y la actitud, los puntajes de la CV fueron mayores en los dominios físico, psicológico, relaciones sociales y medio ambiente; y en los aspectos de funcionamiento de los sentidos, autonomía e intimidad. **Conclusión.** Deben desarrollarse actividades educativas direccionadas hacia el mejoramiento del conocimiento y de la actitud de los ancianos acerca de la DM

Palabras clave: anciano; actitud; conocimiento; Diabetes Mellitus; calidad de vida; cuestionarios.

Correlação da qualidade de vida com conhecimento e atitude de idosos diabéticos

Objetivo. Descrever a qualidade de vida (QV), o conhecimento e a atitude dos idosos com diabetes mellitus (DM), e correlacionar a QV com o conhecimento e a atitude dos idosos. **Métodos.** Estudo transversal do tipo inquérito domiciliar em que participaram 296 idosos com DM. Foram utilizados os instrumentos: *World Health Organization Quality of Life Bref* (WHOQOL-BREF), *World Health Organization Quality of Life Old* (WHOQOL-OLD), *Diabetes Knowledge Scale Questionnaire* (DKN-A) e *Diabetes Atitudes Questionnaire* (ATT-19). **Resultados.** Predominaram o sexo feminino (68,2%), idade de 70 a 79 anos (43,9%), casados ou com companheiro (41,6%), que viviam com os filhos (43,2%), com renda de um salário mínimo (52,4%), com 4 a 7 anos de estudo (32,8%), em uso de dieta e hipoglicemiante oral (68,6%) e com tempo de diagnóstico inferior a cinco anos (29,1%). Quanto maior o conhecimento e a atitude maiores foram os escores de QV nos domínios físico, psicológico, relações sociais e meio ambiente; e facetas funcionamentos dos sentidos, autonomia e intimidade. **Conclusão.** Devem ser desenvolvidas atividades educativas direcionadas a melhoria do conhecimento e atitude dos idosos acerca do DM.

Palavras chave: idoso; atitude; conhecimento; Diabetes Mellitus; qualidade de vida; questionários.

Introduction

Population aging experienced by Brazil in recent decades has brought several repercussions for the health sector, among them, the increase in chronic diseases.[1] In this context, diabetes mellitus (DM) has been constituted in compliance priority in Brazil, especially in the elderly population, considering that 22.1% of those have the diagnosis of this disease.[2] DM is a group of metabolic disorders that have in common hyperglycemia resulting from defects in insulin secretion and/or in insulin action.[3] Thus, DM treatment requires changes in behavior; to this end, health education is one of a fundamental pillar to contribute to improving knowledge about the disease and treatment adherence. It is noteworthy that this is one of the activities also of nurses in primary care responsibility, specifically in the Family Health Strategy (FHS) .[4]

Studies have found that knowledge of elderly facing the disease was unsatisfactory; moreover, they did not reach a positive attitude to the expected changes in lifestyle to improve the disease. On the other hand, it was noted that participation in the educational group increased knowledge, attitude about DM and participation in self-care activities.[5,6] Thus, it is assumed that the lack of knowledge and attitude of the elderly about

DM may negatively influence their quality of life (QL). The concept adopted QL is established by a group of scholars supported by the World Health Organization defines as "individual's perception of their position in life in the context of culture and value systems in which they live and about their goals, expectations, standards, and concerns." 7:1405

Several factors may influence the QL of elderly with DM, such as: age, financial status, schooling, physical activity, nutrition, comorbidities, alcoholism, smoking and lifestyle habits in general.[8,9] A study conducted in Criciúma- SC found that knowledge and positive attitude towards the disease are factors that can produce changes in the behavior of the elderly, improving their QL and health.[10] Despite the cited studies, the scientific literature is sparse concerning the impact of knowledge and attitude about the DM in improving the QL of the elderly. Thus, there is a need for more research in Brazil, allowing expand knowledge of the relationship of QL with the knowledge and attitude of elderly patients with DM and support the work process in health education groups and Brazilian public policy. The objectives of this study were to describe QL, knowledge and attitudes of elderly with DM; correlate QL with the knowledge and attitudes of elderly with DM.

Methods

Quantitative approach study, household inquiry type, cross-sectional, observational and analytical. This research integrates longitudinal research conducted by Community Health Research Group in Uberaba-MG. The calculation of population sampling was performed considered 95% of confidence, 80% test power, a margin of error of 4.0% for the interval estimates and an estimated rate of 0.5 for the interest proportion. The sample of the longitudinal study was calculated in 2 142 elderly and for the selection of subjects the proportional stratified sampling technique was used, considering the different neighborhoods as extracts. In the present study considered the inclusion criteria: be 60 years or older; self-referred diagnosis of DM without cognitive decline and reside in the urban area of Uberaba-MG. The sample consisted of 296 elderly, because 1 471 had not DM; 201 were not found after three visits and 174 refused.

Data were collected at the residences of the elderly at the end of 2012 and early 2013 through direct interview. Cognitive decline was assessed using the Mini Examination of Mental State (MEMS) translated and validated in Brazil.[11] The demographic data and morbidities self-reported by the elderly were collected in the instrument built by the Health Research Group. QL was measured by the World Health Organization Quality of Life Bref (WHOQOL-BREF)[12] and by the World Health Organization Quality of Life Old (WHOQOL-OLD).[13] The knowledge was assessed by questionnaire Diabetes knowledge Scale Questionnaire (DKN-A) and the attitude by the Diabetes Attitudes Questionnaire (ATT-19).[14] The study variables were: socioeconomic; QL domains and facets; related to the DM; knowledge and attitudes.

After data collecting, the database in Excel spreadsheet was developed and double typed. The data were imported into the Statistical Package for Social Sciences (SPSS) for assessment. Data were submitted to descriptive analysis (absolute frequencies and percentages) and Pearson's correlation ($p<0.05$). Each domain and facet of QL measured by WHOQOL-BREF and WHOQOL-OLD were analyzed separately according to the syntax provided by the World Health Organization (WHO). The score can range from 0 to 100, where the highest number corresponds to better QL. The project was approved by the Ethics Committee on Human Research of the Federal University of Triangulo Mineiro, protocol in Nº 2265.

Results

Most elderly were female (68.2%); in the age group 70 a 79 years old (43.9%); living with

their husband/wife or partner (41.6%); living with their children (43.2%); had 4 a 7 years of education (32.8%); monthly individual income of one minimum wage (52.4%); diagnosed with DM for less than five years (29.1%) and used oral hypoglycemic agents and diet (68.6%). About self-assessment of QL, most elderly evaluated it as good (44.9%), followed neither bad nor good (39.5%); 38.5% were satisfied with the health and 25.7% neither satisfied nor dissatisfied. The highest score of QL measured by WHOQOL-BREF was in social relationships domain (70.86) while the lowest was in the physical (55.92). QL assessed by the WHOQOL-OLD had higher scores on the facet in death and dying (73.73) and lowest in social participation (63.98).

Concerning the knowledge of the elderly about the DM, it was observed a variation of 0-15 points. The average score was 6.35 points, indicating little knowledge about the DM. The evaluation of the attitude of the elderly against the DM ranged from 35 to 85 points with an average score of 63.23 indicating a negative attitude to the DM. It was observed that the greater the knowledge of the elderly against the DM, the largest QL scores in the physical, psychological, social relationships and the environment domains and the working facets of sense, autonomy and intimacy; the higher the attitude of the elderly against the DM, the largest QL scores in the physical, psychological, social relationships and environment domains and on the working facets of sense, autonomy and intimacy. In Table 1 below, are the correlation of QL domains, WHOQOL-BREF, and WHOQOL-OLD, with the attitude and knowledge of the elderly.

Table 1. Correlation of quality of life scores with the attitude and knowledge of elderly with DM. Uberaba, 2014.

	Attitude		Knowledge	
	r	*p*	*r*	*p*
WHOQOL-BREF				
physical	0.260	<0.001	0.149	0.010
Psychological	0.345	<0.001	0.243	<0.001
Social relationships	0.157	0.007	0.130	0.025
Environment	0.263	<0.001	0.218	<0.001
WHOQOL-OLD				
Sensory abilities	0.210	<0.001	0.240	<0.001
Authonomy	0.267	<0.001	0.173	0.003
Past, present and future activities	0.061	0.298	0.023	0.697
Social participation	0.052	0.377	0.024	0.678
Death and dying	0.091	0.118	0.008	0.892
Intimacy	0.250	<0.001	0.210	<0.001

Discussion

In the present study, the highest percentage of elderly women was according to that found among elderly with DM in Fortaleza (76.0%).[15] Concerning the age group, divergent results were found in research among elderly with DM of São Paulo-SP, where the highest percentage was 60-69 years old (51.0%).[16] This data were influenced by the fact that in this study the elderly are from a cohort and are being followed since 2005 by the Research Group on Collective Health/UFTM. Similar to that obtained in this survey, the married predominance was also observed in research

among elderly with DM of São Paulo-SP (51.1%).[16] The presence of the partner could favor the elderly with chronic diseases, considering that the same can encourage self-care and to constitute as a support. In this sense, nursing should seek the inclusion of the partner in the treatment and care of the elderly with diabetes.

Low schooling is a predominant characteristic of the population attended by public health services. Thus, it should be considered at the approach time of the elderly with DM, because it hinders the understanding of the treatment and self-care learning.[17] It is emphasized the level of education that can influence the knowledge and attitudes related to DM as noted among adults and the elderly in Nepal; the likelihood of having sufficient knowledge level and insufficient attitude was higher among those who graduated as compared to illiterate.[18] The prevalence of monthly income of one minimum wage corroborates data found in the survey among elderly with DM in Montes Claros, Minas Gerais (57.6 %).[19] The low income is a factor that may compromise the health status and QL of elderly with DM, making difficult to adherence to drug treatment and diet.

The higher DM diagnosis time favors the appearance of chronic complications.[8] In this sense, health professionals should encourage changes in lifestyle habits, adherence to the DM treatment, seeking alternatives that suit the elderly daily life and engage in the complications already installed. The prevalence of treatment with oral hypoglycemic agents and diet has also been observed in a study of elderly with DM in São Paulo-SP; 78% reported making diet and 58% used oral hypoglycemic agents. In this context, there is a need for reflection about the adherence since many factors can hinder the adhesion of the individual with DM, as the tiredness of using multiple medications and multiple daily applications of insulin.[20]

About the assessment of QL, data were similar to those observed in research in Jequié-BA, in which 40% of elderly with DM have defined it as good.[21] This may indicate positive evaluation of the elderly about their health condition even with the presence of the disease and the exigencies of its treatment. Regarding satisfaction with health, a study performed in Jequié-BA found that 40% of elderly reported that they are neither satisfied nor dissatisfied and, diverging from this research.[21] Satisfaction with health may be related to lower impact coming from the time of diagnosis and possibly fewer complications, considering that in this investigation the highest percentage was diagnosed within the last five years. What suits the QL measured by WHOQOL-BREF, research with elderly with DM of Jequié- BA, found that in the field of social relationships, 50% of respondents showed their satisfaction with the relationship between friends, relatives, acquaintances and colleagues. As for the sex life, 50% said they were satisfied,[21] which is consistent with the population of this study considering the highest score in this area. As for the lowest score in the physical domain, a study of elderly with DM of Jequié- BA noted that 50% of respondents reported that pain disturbs more or less in their daily life activities.[21] In this study, the impact on the physical domain may be due to the interference of complications and treatment of DM in the daily activities of the elderly although this aspect has not been investigated. It is emphasized that nurses can work in identifying pain and discomfort caused by the disease and its treatment; in the prevention of possible diseases favoring the health promotion.[22]

The highest score on the death and dying facet in this investigation suggests that the elderly are facing concerns in a favorable way related to end of life. The lowest score on the social participation facet suggests that the elderly of this study find difficulties to participate in community activities. It is necessary that health professionals perform the planning, organization and coordination of care actions meeting the specific demands of each elderly. A study with adults and elderly with DM in Ribeirao Preto corroborates with found data in this research, the knowledge and attitude of the elderly about DM, in which it was found that 66.7% of users had unsatisfactory knowledge of the disease; 97.6% had negative attitude, suggesting difficulty in confronting the doença.[17]

There are programs in Brazil for assistance and guidance to patients with DM, as Hiperdia, a System of Registration and Monitoring Hypertensive and Diabetics held in all the Family Health Strategies,[19] in which it is monthly performed nursing consultation, benchmarking blood pressure and blood glucose, distribution of medicines provided by the government and health guidance and QL, allowing the professional to check for the presence of factors that may interfere with the monitoring and adherence to DM treatment.[9] As for the positive correlation between knowledge and physical aspects of QL, it is believed that the elderly with greater knowledge of the disease has better adaptation and familiarity with the requirements of the treatment, as diet, physical activity, and medication use, presenting improvement in self-care to favor the autonomy and decision taking.[22,5] A research among adults and the elderly in Taiwan showed that better understanding and attitude in DM were associated with achieving five or more self-care dietetic behavior.[23] In this sense, knowledge can contribute to aspects related to dependence on medication or treatment and work capacity,[12] measured in this area.

It is inferred that the elderly may have a better attitude with more knowledge, to follow the recommendations that the disease requires, favoring the physical aspects; this was seen in a survey among adults and elderly with DM in a hospital in Australia where knowledge about the DM was a significant predictor of positive attitudes.[24] A research performed in Criciuma-SC found that the higher the positive attitude of confrontation of the disease, greater the QL in the physical domain ($p<0.05$),[10] consistent with this research. However, for the elderly have better attitude related to treatment, the family support is essential. A research performed in Maringá-PR showed that individuals with DM felt uneasy to realize that the family does not share certain attitudes. It should also be noted that in the absence of the family, the individual feels less stimulated in the care of the disease because they do not have anybody to share their problems.[25] The understanding of disease development facilitates interaction and treatment, as well as coping the difficulties. A survey performed in Belém-PA identified among individuals with DM, fear of loss of function or body part by amputation arising from complications of the disease.[22] Thus, the multidisciplinary team is responsible for guiding and answering questions about the disease, treatment, and its possible complications; intervene to modifiable risk factors, and provide emotional support to the elderly and their family.

The positive correlation between attitude and psychological QL was assessed in a study in Criciuma-SC in which the higher the coping attitude about the disease, the higher the score in the psychological domain ($p<0.05$).[10] It is inferred that a positive attitude promotes adherence to treatment impacing on improving their body image, appearance, and self-esteem,[12] measured in this area. A research performed by adults and elderly with DM in a hospital in Australia noted that more positive attitudes help to satisfaction and reduce the impact of QV.[24] Therefore, during the nursing consultation, the nurse can take the role of articulating the educational process within the staff to encourage self-care and decision-making about the disease[5] and pay attention to issues that underlie the representation of having DM in the life of this elderly and its implications, considering the particularities of each subject.

About the correlation between social relationships and knowledge, refers reverse causality, that is, social support, family and friends, could support and encourage the elderly in the pursuit of knowledge and self-care by increasing knowledge about the DM. Added to this, the nursing care in fighting the disease because the professional support can help them in improving QV.[22] A research conducted in Criciuma-SC found that the higher the positive attitude of confrontation of the disease, the greater is the QL in social relationships domain ($p<0.05$),[10] similar to that obtained in this study. It is considered that the members involved in care should receive support, guidance and clarification favoring family care. In this sense, must be appreciated the integration between family and professional care and recognize

the role of the family,[25] inserting it in care. So it is important that health professionals develop actions directed to the families of individuals with chronic diseases, favoring the support at home.

It infers that the knowledge about the disease can reverberate on the environmental QL as it allows the elderly to program and adapt to the environment in which they live. This favors the search for health resources when necessary, an aspect that can influence the safety and health care and social,[12] measured in this domain. A research in São Paulo-SP found that 24.6% of diabetic elderly did not seek health care and 5.5% only when they had problems. Among the reasons for not looking for it was highlighted that 37.4% thought unnecessary and 3.3% had difficulty in geographic access. The lack of knowledge about the disease prevents the elderly to recognize the need to attend health services regularly,[16] and acquire knowledge and develop skills necessary for the treatment and self-care.[5] Thus, we emphasize the need of professional health to guide the population as the demand of health services; develop strategies to facilitate the monitoring of the elderly with chronic disease and conduct educational group activities based on dialogue and exchange of knowledge between elderly and the staff.[5,22]

The positive correlation between attitude and environment was also found in the research conducted in Criciuma-SC; the higher the positive attitude of confrontation of the disease, the higher the score in the environment domain ($p<0.05$).[10] Considering the chronicity of the disease, constant monitoring by the health services is needed. The home visit of health professionals can assist in this regard, contributing to the assessment of the difficulties in the use of medications, self-care, social issues, among others. The elderly who have knowledge of diabetes have greater QL in the functioning of the senses because it is expected to have better metabolic control and comorbidities, making it less likely to consequences in this facet. In this sense, it can favor positive attitude towards the disease. On the other hand, the decrease of the working senses, such as visual loss, may discourage the attitude to take care and manual dexterity in the preparation and administration of insulin.[15] Thus, health professionals should be alert to these possible modifications; guide the participation of the family and caregiver, when necessary; training in the preparation and administration of insulin and the use of compensatory strategies such as labels with enlarged letters.

Through acquired knowledge about the disease, the elderly have greater chances to dedicate to self-care, as they learn to check their blood glucose levels, properly administer the drugs and maintain a healthy diet. It is inferred that the elderly who have autonomy over their health may have a positive attitude towards the disease. Therefore, the multidisciplinary team should promote actions that encourage the autonomy of elderly people in decision-making and to consider aspects that go beyond biological questions, such as the individual's knowledge about the disease and its complications, emotional and social, and financial issues and schooling, family and social support, attitude to disease, among others.

Moreover, that team empowers the caregiver and family for support of the elderly in the treatment of DM, encourage, support in and assist in the existing difficulties, about their autonomy. About the relationship between knowledge and intimacy, it is inferred that occurred reverse causality, that is, favorable personal relationships of the elderly can have a positive impact on attitudes towards knowledge. In this way, the family could help to the elderly adaptation with DM, in adherence to the individual treatment plan,[1] favoring the adoption of positive attitudes to the disease and live healthier. Thus, it is relevant that health professionals guide about the need for a reorganization of family dynamics from the care required by the disease and encourage effective participation in the treatment and support to that elderly. It stands out as a limitation of this study, the self-reported DM, which may underestimate the prevalence, due to the absence of diagnosis; the cross-sectional design, that does not establish casual relationships and the difficulty in finding

studies in the national and international literature on the theme.

The conclusion of this study is that higher QL scores were in social relationships domain and death and dying facet; while the lower were for physical and social participation. Most elderly with DM had a negative attitude and low readiness to overcome the disease and unsatisfactory knowledge about the disease. The most positive attitude of the elderly against the DM correlated with higher QL scores in the domains: physical, psychological, social relationships and environment, and the facets: sensory abilities, autonomy and intimacy. The greater the knowledge of the elderly about DM, the higher QL scores in the domains: physical, psychological, social and environmental relationships, and the facets: sensory abilities, autonomy, and intimacy. This study revealed that knowledge about DM and the attitude towards the disease interfere with the QL of the elderly, and is therefore among the various aspects another to be considered in the health care of this population, in search of better treatment adherence. Nursing plays an important role in this issue considering their role in the educational activities in health services. It is, therefore, important for nurses to seek strategies that contribute to the monitoring of elderly patients with DM favoring the control of the disease and treatment adherence.

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