Which Factors may reduce the Health-Related Quality of Life of Ecuadorian Patients with Diabetes?

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Objective: To quantify the health-related quality of life (HRQoL) of patients with type 2 diabetes mellitus (DM) in Ecuador and to determine its association, or lack thereof, with demographic and clinical variables, particularly with the comorbidities and complications of DM.

Methods: This was an analytical cross-sectional study with 325 patients attending regular care at a primary health care center in Quito, Ecuador. HRQoL was measured using the EuroQol 5-dimension 3-level (EQ-5D-3L) questionnaire. The patients were screened for diabetic nephropathy, retinopathy, and peripheral artery disease (PAD). Clinical files were reviewed to obtain data regarding gender, age, time since diagnosis, type of treatment, glycemic control, and history (if any) of hypertension and/or dyslipidemia. Associations were verified using the Mann–Whitney U or Kruskal–Wallis test, and the confounding effects of the variables "age" and "gender" were controlled for using logistic regression analysis.

Results: The mean HRQoL for the population was 0.844 (±0.215) on the EQ-5D-3L index (EQ-Index) and 80.6 (±18.8) on the EQ visual analogue scale (EQ-VAS). The prevalence of DM complications was 1.8% for nephropathy, 14.8% for retinopathy, and 14.5% for PAD. Of the participating patients, 66.8% presented hypertension and 91.4%, dyslipidemia. Significant associations were found between lower scores on the EQ-Index and age (≥65 years) (0.84 vs. 0.87; p = 0.016), time since diagnosis (≥10 years) (0.81 vs. 0.87; p = 0.005), presence of hypertension (0.83 vs. 0.88; p = 0.017), and, after controlling for age and gender, presence of nephropathy. For the EQ-VAS, only time since diagnosis (≥10 years) was associated with a lower score (77.99 vs. 82.97; p = 0.043).

Conclusion: Older age, longer disease duration, hypertension, and nephropathy are associated with having a lower HRQoL, in patients with type 2 DM in Quito, Ecuador. [*P R Health Sci J 2019;38:102-108*]

Key words: Health-related quality of life, Diabetes mellitus, Hypertension, Diabetes complications, Ecuador

Diabetes mellitus (DM) has become a major public health issue worldwide. It is the most frequent chronic endocrinopathy; it has been called an epidemic, and it has been estimated that by the year 2030 the number of people with DM will be well above 300 million (1). Even though the highest current prevalence of DM is found in developed countries, the largest increases in the population with DM in the next decade will occur in developing countries (2). In fact, it is expected that by the year 2025, over 75% of the patients with DM will reside in developing countries (2). It is precisely in a developing region, Latin America and the Caribbean, that the economic burden of DM has been estimated to be $65,216 million USD per year (3). The prevalence of DM in Ecuador was estimated to be 7.3% for the year 2016 (4), and DM is frequently reported as a leading cause of mortality in the country, reaching the top spot in 2011 (5).

A great majority of patients with DM present at least one chronic comorbidity (6, 7). Diabetes-concordant comorbid chronic conditions have the same pathophysiologic risk profiles and, thus, similar treatment goals as DM, whereas discordant comorbidities are not directly related to DM in either their pathogenesis or management (8). Cardiovascular disease and cardiovascular risk factors are widely considered to be concordant comorbidities of DM; the latter include conditions

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such as hypertension, dyslipidemia, and obesity. Furthermore, along the natural history of DM, multiple complications can arise, becoming comorbidities themselves. Micro- and macrovascular abnormalities can lead to diabetic nephropathy, retinopathy, and peripheral artery disease (PAD), for example.

The concept of health-related quality of life (HRQoL) refers to the way in which a person perceives his or her physical and mental health status over a period of time. It is a measure of the impact that a disease has over a patient, how it meddles with his or her everyday life, sense of wellbeing, and functionality (9). It provides a broad panorama of the patient's health, one that does not focus exclusively on the biological sphere but also on the mental, emotional, and social ones. Ideally, the adequate management of chronic non-communicable diseases (NCDs) such as DM should not be aimed exclusively at increasing the life expectancy of patients but rather at constantly improving, restoring, and preserving their quality of life (10).

One of the most important components of the definition of HRQoL is that it (HRQoL) must be determined by the patient and not the health care provider (9). As such, it can be used by the medical personnel to better understand the patient's needs, in that it provides a unique insight into his or her health status and allows those personnel to provide that patient with better care (11, 12); likewise, it can guide the implementation and evaluation of public health policies. The importance of HRQoL is being increasingly recognized worldwide, and it is now being included in many clinical trials as an endpoint measure of medical interventions. Since the decade of the 1990s, the development of accurate and reliable instruments to measure patient-reported HRQoL has greatly evolved. Such instruments, both those designed for the general population and those that are specific for patients with DM, are currently available.

The aim of this study was to quantify HRQoL in a group of patients with type 2 DM attending a primary health care center in Quito, Ecuador, using the EuroQoL-5-dimension 3-level (EQ-5D-3L) questionnaire as the chosen instrument. Additionally, the study looked into the relationships between HRQoL and demographic and clinical variables in these patients. Most importantly, the associations between the comorbidities and complications of DM with the HRQoL of the patients were assessed.

Patients and Methods

Type of study

This study used an analytical cross-sectional design.

Population

The population consisted of the totality of patients with a diagnosis of type 2 DM (according to the guidelines in (13)) who were attending regular clinical check-ups, defined as at least 4 consults in the last year, at the internal medicine clinic of Chimbacalle Health Center, a primary health care center belonging to the Ministry of Public Health in Quito, Ecuador, during the year 2015. The health center operates using the integrated disease management approach for chronic, non-communicable conditions established by the Pan American Organization and World Health Organization (PAHO & WHO). All patients 18 years of age and over were invited to participate in the study. However, patients with type 1 DM, pregnant women, patients with incomplete, missing, or outdated results from the complementary exams, and patients who did not provide an informed consent were excluded from the study. After we applied these criteria, the sample population consisted of 325 patients.

Data-collection process

Patients getting their regular check-ups and who were deemed eligible according to the established preliminary inclusion and exclusion criteria were informed about the purpose of the study and the necessary procedures to be performed. The patients who understood and signed the informed consent form were then assigned an appointment, normally the Saturday after the original consult, when all the procedures and data collection processes would be carried out.

On the day of the appointment, a given patient would (i) have a blood sample taken to determine his or her glycosylated hemoglobin (HbA1c) and creatinine levels; creatinine clearance would then be determined using the Cockcroft–Gault equation, (ii) be part of a face-to-face interview conducted by a trained physician, in a private room, in order to complete the EQ-5D-3L questionnaire, (iii) receive a dilated-pupil fundus examination, performed by a certified ophthalmologist and retina specialist, to assess the presence and severity of diabetic retinopathy, and (iv) undergo a Doppler ultrasound exam in order to determine the ankle–brachial index (used to diagnose PAD, when such was present). Concomitantly, the clinical file of the patient would be reviewed to obtain additional information regarding comorbidities, demographic variables, and the current management plan. If, due to any circumstance, all the data collection processes could not be performed on the same date, appointments for the remaining interventions would have been scheduled; only patients with all data obtained within 4 weeks were included in the statistical analysis.

Variables and instruments

The EQ-5D-3L (14), introduced in 1990, is a standardized instrument used as a descriptive measure of HRQoL. It has 2 components: the EQ-5D descriptive system and the EQ visual analogue scale (EQ-VAS). The descriptive system evaluates 5 dimensions (5D): mobility, self-care, usual activities, pain/discomfort, and anxiety/depression; and each of them has 3 levels (3L), indicating "no problems," "some problems," and "extreme problems," respectively. Each of the 243 possible combinations of responses is converted into an index value using a predetermined algorithm, with scores typically ranging from 0 to 1, where 1 is the best possible quality of life and 0 is death.

Negative scores are sometimes reported and are interpreted as health states worse than death. Furthermore, the EQ-VAS consists of a vertical, visual analogue scale with endpoints labeled 100 ("best imaginable health state") and 0 ("worst imaginable health state"). Using this scale, the patient rates his or her health state. Even though a recent study has questioned the validity of the Spanish version of this instrument (15), this version has been previously validated and used in and for a large number of patients and conditions, including for DM (16).

The clinical and demographic variables collected from the clinical files were age, gender, time since DM diagnosis, and type of medication (oral hypoglycemic agents [OHAs], insulin, or combined therapy). Using the mean value of HbA1c since their first check-up, patients were identified as having good glycemic control (HbA1c ≤ 7%) or poor glycemic control (HbA1c>7%). The concordant comorbidities included in the analysis were hypertension and dyslipidemia; finally, adequate diagnostic criteria (13) were used for the identification of 3 major complications of DM, namely severe nephropathy (with a creatinine clearance threshold of <30 ml/min), retinopathy, and PAD.

Statistical analysis

All the data were collated into an electronic database on Excel 2007 and later transported into the program SPSS.v.23. Per the reviewed literature (17, 18), the statistical analysis of the data was performed using the following steps: (i) Descriptive statistics of the population of the study were determined using proportions for qualitative variables and measures of central tendency and dispersion for quantitative variables, (ii) for measurements between variables, an assessment of normality using the Kolmogorov–Smirnov test was performed, and since the result showed non-homogenous values, (iii) the Mann–Whitney U or Kruskal–Wallis test was carried out; finally, (iv) a logistic regression analysis was carried out to control for the effect of the variables "age" and "gender," in the previous step. In any case, p values ≤0.05 were deemed to be statistically significant.

Ethical considerations

An informed consent was obtained from each of the individual participants included in the study. All the procedures performed in the study were done in accordance with the ethical standards of the institutional research committee of the Chimbacalle Health Centre and with the 1964 Helsinki declaration and its later amendments.

Results

Descriptive statistics

Out of the 325 patients with type 2 DM included in the study, 80.6% (n = 262) were female. The mean age of the population was 63 (±11.4) years, ranging from 21 to 95 years. Additionally, the median time since DM diagnosis was 9 years, ranging from 1 to 47 years. The majority of the patients were older than 65 years of age (52.9%), had a time since diagnosis of fewer than 10 years (57.5%), were under management with OHAs (56.3%), and had adequate metabolic control, as determined by the level of HbA1c (60.3%). Comorbidities were commonly found, the most frequent one being dyslipidemia, in 91.4% of patients. Finally, out of the screened complications, retinopathy had the highest prevalence, affecting 14.8% of the population. Detailed descriptive statistics of the sample can be found in Table I.

Table I. Descriptive statistics of the study population (n = 325 patients with type 2 DM)

Variable	Absolute frequency	Relative frequency
Gender		
Male	63	19.4%
Female	262	80.6%
Age (years)		
≥65	172	52.9%
<65	153	47.1%
Time since DM diagnosis (years)		
≥10	138	42.5%
<10	187	57.5%
Glycemic control (HbA1c)		
Well-Controlled (≤7%)	196	60.3%
Poorly controlled (>7%)	129	39.7%
Type of treatment		
OHA	183	56.3%
Insulin	16	4.9%
OHA + Insulin	125	38.5%
No Pharmacological treatment	1	0.3%
History/Presence of comorbidities or complications		
Hypertension	217	66.8%
Dyslipidemia	297	91.4%
Nephropathy	6	1.8%
Retinopathy	48	14.8%
Peripheral arterial disease	47	14.5%

DM: diabetes mellitus; HbA1c: glycosylated hemoglobin; OHA: oral hypoglycemic agent

Quality of life

Of the 243 possible combinations in the EQ-5D-3L descriptive system, 45 were encountered. The most frequent combination in this study was 11111, which was reported by 39.7% of the patients (n = 129) and is interpreted as the absence of problems in all 5 tested dimensions, with a resulting EQ-5D-3L index (EQ-Index) of 1, or best possible HRQoL. Table II shows the number and proportion of patients for each level of the 5 explored dimensions. The dimension on which the largest proportion of patients reported problems was "Pain/Discomfort," closely followed by "Anxiety/Depression," both of which had over a third of the patients reporting that they had some degree of problem with one or the other issue. On the other hand, the dimension "Self-Care" had the least number of patients reporting problems. After transforming the reported combinations into the EQ-Index, we found that the population had a mean score of 0.844 (±0.215). On the second part of the

EQ-5D-3L, the visual analogue scale (EQ-VAS), 21.8% of the patients (n = 71) had a score of 100 (the best possible HRQoL), whereas only 1 patient had a score of 0. The mean score of the EQ-VAS in this study was 80.6 (±18.8). Additional information about the EQ-Index and EQ-VAS scores is found on Table III.

Table II. Number and proportion of patients for each level of the 5 dimensions explored by the EQ-5D-3L

EQ-5D dimension	Levels	Absolute frequency	Relative frequency
Mobility	L1: No problems	246	75.7%
	L2: Some problems	78	24.0%
	L3: Extreme problems	1	0.3%
Self-Care	L1: No problems	303	93.2%
	L2: Some problems	20	6.2%
	L3: Extreme problems	2	0.6%
Usual Activities	L1: No problems	287	88.3%
	L2: Some problems	34	10.5%
	L3: Extreme problems	4	1.2%
Pain/Discomfort	L1: No problems	211	64.9%
	L2: Some problems	99	30.5%
	L3: Extreme problems	15	4.6%
Anxiety/Depression	L1: No problems	214	65.9%
	L2: Some problems	96	29.5%
	L3: Extreme problems	15	4.6%

Table III. Measures of central tendency of the EQ-Index and EQ-VAS

	Mean ± SD	75th percentile	Median	25th percentile
EQ-Index	0.844 ± 0.215	1	0.914	0.808
EQ-VAS	80.6 ± 18.8	99	80	70

SD: standard deviation

Bivariate analysis

For the bivariate analysis, 2 quantitative variables, namely "age" and "time since DM diagnosis," were turned into qualitative variables by dichotomization. The age threshold was set at 65 years to adjust to the concept of "older adults," a subpopulation for which slightly different management plans for DM are necessary (13), and that may be subject to additional health problems, such as geriatric syndromes, that may reduce their HRQoL (19). Regarding the time since diagnosis, the threshold that was chosen to differentiate between a shorter and longer duration of the disease was 10 years, as has been done by other authors (20, 21). Table IV presents the results of the bivariate analysis using the Mann–Whitney U and Kruskal–Wallis tests. For the EQ-Index value, patients who were 65 years of age and older, those with a disease duration of 10 years or more, and those with hypertension as a comorbidity had a significantly lower HRQoL. This phenomenon was only seen for the EQ-VAS in patients with a time since DM diagnosis of 10 years or more. There was no significant association between HRQoL and the other tested variables, such as gender, type of treatment, and adequate glycemic control or lack thereof. Similarly, the 3 explored complications of DM, retinopathy, nephropathy, and PAD, bore no significant associations with the HRQoL of patients, and neither did the presence of dyslipidemia.

Multivariate analysis

Finally, each of the comorbidities and the metabolic control variable were used in a logistic regression analysis to test whether, after controlling for age and gender, they explained the variations in the HRQoL of the patients. The variable "time since diagnosis" was excluded from the analysis because of its multicollinearity with age. The resulting equation for the EQ-Index showed that, from a starting score (beta) of 0.909, none of the variables had a statistically significant association with the HRQoL. For the EQ-VAS, the regression equation showed that, from a starting score (beta) of 89.35, the presence of nephropathy was associated with a decrease of 4.68 points (p = 0.04) in HRQoL, with no other variable providing a statistically significant contribution.

Discussion

HRQoL is now recognized as one of the most important measures for evaluating the effect of the management plans

Table IV. Associations between HRQoL and clinical and demographic variables

Variables		n	EQ-Index Mean	p	EQ-VAS Mean	p
Gender	Male	63	0.87	0.155	80.67	0.610
	Female	262	0.84		80.9	
Age (years)	≥65	172	0.84	0.016*	80.64	0.689
	<65	153	0.87		81.86	
Time since DM diagnosis (years)	≥10	138	0.81	0.005*	77.99	0.043*
	<10	187	0.87		82.97	
Glycemic control (HbA1c)	Well-controlled (≤7%)	196	0.84	0.247	81.82	0.598
	Poorly controlled (>7%)	129	0.85		79.48	
Type of treatment	OHA	183	0.83	0.342	79.74	0.145
	Insulin	16	0.80		77.13	
	OHA + Insulin	125	0.88		82.80	
Hypertension	Yes	217	0.83	0.017*	79.76	0.158
	No	108	0.88		83.04	
Dyslipidemia	Yes	297	0.85	0.250	81.82	0.753
	No	28	0.81		79.32	
Nephropathy	Yes	6	0.76	0.143	65.6	0.296
	No	319	0.84		80.63	
Retinopathy	Yes	48	0.77	0.094	79.94	0.375
	No	277	0.86		81.01	
Peripheral arterial disease	Yes	47	0.87	0.666	81.28	0.866
	No	278	0.84		81.03	

OHA: oral hypoglycemic agent. The Mann–Whitney U test was used for all associations except Type of Treatment vs. HRQoL for which the Kruskal–Wallis test was used. *p<0.05 and deemed to be statistically significant

used in NCDs (22). It is advisable to establish the baseline HRQoL of a patient with an NCD and to regularly monitor how it changes along the natural history of the disease and with the implementation of medical interventions. Unfortunately, it is seldom taken as a priority by health care providers, and in an overcrowded public health care system, such as the one found in Ecuador, severe time constraints during the patients' clinic appointments can lead to the systematic neglect of this practice. The EQ-5D-3L questionnaire, as used during this study, proved to be a quick and easy-to-understand tool to measure HRQoL in the patient population. Guided by a trained physician, every patient in the study was able to accurately and rapidly fill out the questionnaire. Further research into the issue is warranted and should investigate the possibility that patients might be able to self-administer the EQ-5D-3L questionnaire prior to their appointments, while they are in the waiting room.

The EQ-5D instrument has been previously used in groups of patients with DM in other parts of the world. To the best of our knowledge, however, this is the first study to measure HRQoL with the EQ-5D-3L questionnaire in Ecuadorian patients with DM. Even though it provides important data that can be later compared with other studies to be carried out in the country, some key characteristics that make this population of patients unique should be kept in mind. Firstly, 80.6% of the sample consisted of women, primarily because of the structure of the Ecuadorian health system. In Ecuador, people with formal employment contracts have access to health care in the network that belongs to the Ecuadorian Social Security Institute (IESS, by its initials in Spanish), which works independently from the Ministry of Public Health network, to which the Chimbacalle Health Center belongs. Women in our sample did not have access to IESS clinics, whereas most men in the community did. Although the female-to-male prevalence ratio of diabetes in Ecuadorian patients has been found to be as high as 1.5:1 (23), this sample did not necessarily represent the typical gender distribution of the disease. Secondly, the study was performed in a primary health care center, and it excluded those patients that had not been receiving regular care for the last year. Thirdly, the patients had organized themselves to form the "Club of Patients with Diabetes," the members of which had regular meetings to discuss various aspects of their chronic condition, provide social and emotional support for each other, and promote educational and recreational activities. Finally, the patients belonged to an urban population in the country's capital and had medium-to-low incomes but had, as well, relatively easy access to health care and high health literacy. Hypothetically, the latter 3 characteristics would allow a better control of the disease and a subsequently higher HRQoL, while gender has been previously found not to have a significant influence on HRQoL (24). In any case, the mean value of 0.844 (±0.215) for the EQ-Index obtained in this study is higher than those obtained for populations of patients with type 2 DM in Norway (0.81) (24), Spain (0.74) (25), Saudi Arabia (0.71) (22), and Brazil (0.65) (26).

The variable "time since diagnosis" had a significant association with HRQoL in both components of the EQ-5D-3L questionnaire (Table IV). Patients with fewer than 10 years since the diagnosis of DM had significantly higher mean EQ-Index (0.87) and EQ-VAS (82.97) scores than did patients that had been diagnosed 10 or more years ago (0.81 and 77.99; $p = 0.005$ and $p = 0.043$, respectively). This association between longer duration of disease and lower HRQoL has been previously described in the literature (27–29). The phenomenon has been attributed to the concomitant aging of the patients, the natural history of the disease leading to the onset of complications, and the transition from lifestyle changes to OHAs and to insulin as the main therapeutic measures. Interestingly, the variables "age" and "time since diagnosis" showed collinearity in this study. Aging and the accumulation of comorbidities seemed to play an important role; however, the lack of associations between HRQoL and type of treatment and some of the complications of DM shown in this study elicits the hypothesis that additional factors must be considered. Among others, the possible reasons are the weakening of the network of social support, the cumulative economic burden of the disease, and the exhaustion of disease-specific coping mechanisms and disease self-management behavior in the individuals.

A compelling amount of evidence shows that the comorbidities and complications of DM are capable of diminishing the HRQoL of its patients (24, 26–27, 30–31). Nevertheless, there is no consensus as to which specific comorbidity has the greatest impact on such quality of life nor whether any particular condition is universally accepted as a contributor to a lower HRQoL. The great diversity of results regarding this issue suggests that each population of patients has a specific susceptibility to or tolerance of the deleterious effects of different comorbid conditions. In this study, the associations between HRQoL and 5 of the most common concordant comorbidities and complications of the disease were explored. In the bivariate analysis, hypertension proved to have a significant association with HRQoL, as patients with both DM and hypertension had a mean EQ-Index of 0.83, whereas DM patients without hypertension had a mean EQ-Index of 0.88, with a p value of 0.017 (Table IV). Hypertension is usually asymptomatic, and, as suggested by Sepúlveda et al. (30), it is through further predisposition to associated diseases, such as cardiac, cerebrovascular, renal, and ocular complications, that reductions in the HRQoL of patients with DM and hypertension can be explained. After controlling for age and gender, an association between diabetic nephropathy and the HRQoL of this group of patients became apparent. Even though this finding should be taken with caution due to the small number of patients in the sample that had nephropathy (6/325), previous studies have been able to link diabetic nephropathy with other predictors of poor HRQoL, such as depression (32). The lack of association between diabetic retinopathy and PAD with HRQoL in this study could be explained by 2, non-mutually exclusive, factors: (i) a statistical quirk due to the relatively low prevalence

of these complications (14.8% and 14.5%, respectively) in the studied population and (ii) the fact that a great majority of the patients who were diagnosed with these complications remained completely asymptomatic.

Certain limitations of this study must be considered when interpreting its results. As previously discussed, the results are not generalizable to the entire population of patients with diabetes in Ecuador. Additionally, the study does not capture the HRQoL of undiagnosed patients with diabetes. The cross-sectional design of the study does not allow us to assume cause–effect relationships between the studied variables and the HRQoL of the patients, but instead reveals only those associations that should be further explored. An interesting approach towards this end could be the serial measurement of HRQoL in the sample. Finally, the small number of patients with the studied complications of DM in this study also acts as a limitation, as does the absence of a control group.

Summarizing, the studied population presented better HRQoL scores than those described for most groups of patients with DM found in the literature. Although presumable, the exact characteristics of this population that led to the finding of a high mean quality of life should be defined by further research. Statistically significant associations between a lower HRQoL and older age, longer disease duration, hypertension, and nephropathy (as comorbidities), were found; however, no such association was found with the presence of dyslipidemia, diabetic retinopathy or PAD. Periodically measuring the HRQoL of patients with NCDs provides important insight into the patients' needs and suggests interventions that could be implemented to continuously improve, preserve, and restore that quality of life.

Resumen

Objetivo: Cuantificar la calidad de vida relacionada con la salud (CVRS) de pacientes con diabetes mellitus (DM) tipo 2 en Ecuador y determinar su asociación, o ausencia de la misma, con variables clínico-demográficas, en particular con comorbilidades y complicaciones de DM. Métodos: Estudio transversal analítico, con 325 pacientes que acuden regularmente a un centro de atención primaria en Quito, Ecuador. La CVRS fue medida usando el cuestionario EuroQol 5-dimension 3-level (EQ-5D-3L). Se tamizó a los pacientes para nefropatía diabética, retinopatía y enfermedad arterial periférica (EAP). Se obtuvieron de las historias clínicas datos sobre género, edad, tiempo desde el diagnóstico, tipo de tratamiento, control glicémico y antecedente de hipertensión y/o dislipidemia. Las asociaciones se verificaron usando la prueba de U de Mann–Whitney o de Kruskal–Wallis y la influencia de las variables edad y género se controló mediante un análisis de regresión logística. Resultados: El promedio de CVRS para la población fue de 0.844 (±0.215) en el componente EQ-Index del cuestionario y 80.6 (±18.8) en la escala visual análoga (EQ-EVA). La prevalencia de complicaciones de DM fue 1.8% para nefropatía, 14.8% para retinopatía y 14.5% para EAP. 66.8% de los pacientes presentaron hipertensión y 91.4% dislipidemia. Se encontraron asociaciones significativas entre puntajes menores del EQ-Index y edad (≥65 años) (0.84 vs. 0.87; p = 0.016), tiempo desde el diagnóstico (≥10 años) (0.81 vs. 0.87; p = 0.005), presencia de hipertensión (0.83 vs. 0.88; p = 0.017) y, luego de controlar para edad y género, presencia de nefropatía. Para la EQ-EVA, sólo un tiempo desde el diagnóstico ≥10 años se asoció con un menor puntaje (77.99 vs. 82.97; p = 0.043). Conclusión: Mayor edad, mayor duración de la enfermedad, hipertensión y nefropatía están asociadas a una menor CVRS en pacientes ecuatorianos con DM tipo 2.

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