

HEALTH RELATED QUALITY OF LIFE OF PATIENTS WITH DIABETES IN ROMANIA

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Abstract

Background and aims: This paper aims at understanding patient's perspective in coping with diabetes in Romania. The study analyzes whether there are significant differences between health related quality of life (HRQL) of patients with diabetes, based on socio-demographic and disease-related characteristics. **Material and methods:** The study included 128 patients aged ≥ 18 years, diagnosed with type 1 and 2 diabetes and was conducted in the period of November 2015 – July 2016. The project included two main research instruments – one questionnaire applied face-to-face to each patient and one questionnaire completed by the physicians including health data for each patient who agreed to participate in the study. The set of tested characteristics includes: (i) gender; (ii) place of residence; (iii) education level; (iv) marital status; (v) employment status; (vi) level of personal income; (vii) age; (viii) type of diabetes; (ix) duration of diabetes; (x) household composition (another person with diabetes); (xi) network support and (xii) patient's access to information and communication technology (ICT). **Results:** The mean age was 54.23 ± 12.76 years, with three quarters of respondents above the age of 40 years and 68% married. More than half of participants have access to internet, either at home or at work. **Conclusions:** The results indicate that gender, household's composition, place of residence, access to ICT, employment status, type of diabetes, personal income level, the presence of a support network, age and diabetes duration differentiate between reported HRQL indicators. The study adds knowledge for understanding chronic disease patients' self-assessment of HRQL in Romania.

key words: diabetes, quality of life, Romania

Background and Aims

According to the International Diabetes Federation data, the age-standardized prevalence of diabetes mellitus (DM) in Romania is 8.4%,

with approximately the same rates for men and women [1]. This rate is almost equal to the global prevalence rate that doubled in 2014 compared to 1980, reflecting a rise in the risk factors associated with type 2 diabetes (T2DM) -

overweight and obesity [1,2]. Prevalence is growing fast in low- and middle-income countries, with the WHO Eastern Mediterranean region recording the highest increase and the highest prevalence rate in the adult population [2]. For Romania, even though the prevalence rate is higher than the mean of the European region, it is however lower than the rates from other former communist countries (Bulgaria, Hungary, Poland and Czech Republic as well as the Baltic states – Estonia, Latvia and Lithuania). Yet, the first large scale national study on the prevalence of DM conducted in Romania recorded a different prevalence rate than the one included in the WHO latest Global Report on Diabetes [2]. Thus, in the PREDATORR study (PREvalence of DiAbeTes mellitus, prediabetes, overweight, Obesity, dyslipidemia, hyperuricemia and chronic kidney disease in Romania), the age- and sex-adjusted prevalence of DM was 11.6% (95% CI 9.6%-13.6%) [3]. PREDATORR study showed an increased prevalence of diabetes and prediabetes in Romania, almost double compared to the previous estimations [4]. Diabetes represents one major public health concern, with severe long-term complications. This paper aims at understanding patient's perspective in coping with diabetes in Romania. It investigates health related quality of life (HRQL) of patients with diabetes, with a special emphasis on socio-demographic rather than on medical characteristics.

Material and methods

Study design and recruitment of participants

A study of 128 patients aged ≥ 18 years diagnosed with type 1 (T1DM) and type 2 (T2DM) diabetes was conducted in the period of November 2015 – July 2016 in partnership with the National Institute of Diabetes, Nutrition and Metabolic Diseases Prof. Dr. N. Paulescu

(INDNBM), Romania. Patients visiting the physicians from INDNBM were approached for inclusion in the study. The physicians have been previously informed regarding the aim and activities of the project, research instruments and general approach of data analysis. A specialized researcher from the Romanian Centre for Economic Modeling (CERME) conducted face-to-face interviews with each patient willing to participate in the study. All patients who agreed to participate completed an informed consent form prior to the interview, and their responses were anonymous. The study was approved by the ethics committee of INDNBM. Out of the total number of 128 patients participating in this research, for a part of the respondents some HRQL questions did not make sense – as for instance, diabetes prevents me from earning the necessary income or my career development. In addition, there were also non-responses for various items. Only those patients (n=87) who had complete HRQL responses were included in the final analysis.

The project included two main research instruments – one questionnaire applied face-to-face to each patient and one questionnaire completed by the physicians including health data for each patient who agreed to participate in the study. For this paper's aim, only data from the questionnaire applied to the patient have been analyzed. This questionnaire included topics related to the patient's general health status, lifestyle, medical tests, management of diabetes, his/her relation with the physician and the need for support, diabetes and quality of life, access to and use of information and communication technology (ICT) as well as socio-demographic characteristics.

Definition of terms

The socio-demographic variables used in this study are as follows: (i) gender; (ii) place of

residence; (iii) education level categorized as following: primary school – below 12 years, secondary school – 12 years, university or college (in Romania also post-secondary) – above 12 years; (iv) marital status; (v) employment status – categorized into two groups: employed/ self-employed/ entrepreneur or pensioned due to disability/ retired/ student/ housewife/unable to work; (vi) level of personal income and (vii) age. In addition, data on the type of diabetes, duration of diabetes, whether there is another person with diabetes living within the household, whether the patient has a network of support from family or friends and patient's access to ICT were collected. As the project's general objective relates to measuring the impact of ICT on improving HRQL for patients with diabetes, patients with or without access to various ICT devices have been included in this initial study. All the variables used in this study were self-reported.

Health-related quality of life is used in this study as patient's self-evaluation on their functioning, ability to perform daily life activities, how they feel, personal evaluations of their health in line with previous definitions [5] where HRQL "refers to the physical, psychological, and social domains of health that are influenced by a person's experiences, beliefs, expectations and perceptions" [6]. For this study, HRQL of people with diabetes has been tested using a questionnaire based on a set of questionnaires validated in previous studies: The National Survey of People with Diabetes [7], Diabetes Care Profile [8], Diabetes-Specific Quality-of-Life Scale [9], Sample Diabetes Questionnaire [10]. Thus, we developed a study specific HRQL questionnaire which included several domains: general health status, lifestyle (physical activity, diet), questions about regular medical examinations (glucose monitoring, HbA1c, urine test, measuring blood pressure,

cholesterol, dilated eye examination, evaluation of the foot, measuring body weight), questions about the management and diabetes care (medication and diabetes control, knowledge and informations about the diabetes), relationship with the doctor, the family and the need for support, questions about diabetes and quality of life, access and use of ICT, use of eHealth platform and demographic data.

The questionnaire included variables on patient's physical functioning, social life, family life effects, role functioning, usual activities, activities related to diabetes management etc.

Data analysis

The data have been analyzed using the Statistical Package for Social Sciences (SPSS), with $p < 0.05$ as the level of statistical significance. Descriptive statistics are presented regarding socio-demographic and clinical characteristics of the patients. Inferential statistics were performed to evaluate associations between study variables. The Kruskal–Wallis test for nonparametric variables was used to test the significance of differences between more than two groups and the Mann–Whitney U test to test the significance of differences between the two groups.

Results

Socio-demographic and clinical characteristics of patients

The major study terms and corresponding categorizations are presented in [Table 1](#). The total cohort of participants with fully completed HRQL questionnaires included 87 participants, mostly male (60%). The mean age was 54.23 ± 12.76 years, with three quarters of respondents above the age of 40 years old and 68% married.

Regarding employment status, 43% of them were actively working at the time of the research (employed/self-employed/entrepreneur). The

respondents are rather well-educated, with more than half graduating 12 classes or more.

As regarding the level of personal income, about one third of subjects are placed in the lower level (below 1000 RON, approximately 222 euro). Participants have a rather long duration of diabetes with 61% reporting a

duration of diabetes of more than 5 years. Most patients had a diagnosis of T2DM. Only a small part of respondents use physical activity for managing diabetes and, again, only a small share have another member of the household with diabetes. More than half of participants have access to Internet, either at home or at work.

Table 1. Characteristics of the patients (n=87).

Variables	Number	Percentage (%)
Gender	52/35	59.8/40.2
Male/Female	35	40.2
Age, years (mean \pm SD =54.23 \pm 12.76)		
Less than \leq 40 years	14	16.1
41-65 years	59	67.8
> 65 years	14	16.1
Marital status		
Married/Not married	68/19	78.2/21.8
Employment status		
Employed/ self-employed/ entrepreneur	37	42.5
Pensioned due to disability/ retired/ student/ housewife/ unable to work	50	57.5
Educational level		
Primary/Secondary/Post-secondary	28/25/34	32.2/28.7/39.1
Personal Income level (mean \pm SD =1553.96 \pm 1288.683)		
\leq 1000 RON	31	35.6
1001 – 2000 RON	22	25.3
Above 2000 RON	14	16.1
Non-response	20	23.0
Duration of diabetes (mean \pm SD =11.40 \pm 9.037)		
More than 15 years	19	21.8
Between 10 and 15 years (\leq 15)	26	29.9
Between 5 and 10 years (\leq 10)	16	18.4
Less than 5 years (\leq 5)	25	28.7
Non-response	1	1.1
Methods used for managing diabetes		
Insulin	46	52.9
Oral and non-insulin injectable drugs	57	65.5
Type of diabetes		
Type 1/Type 2	20/67	23.0/77.0
Other household member with diabetes		
Yes/No/Non-response	16/69/2	18.4/79.3/3.3
Support network (family or friends offering support in diabetes' management)		
Yes/No	65/22	74.7/25.3
ICT Access (Internet access at home or at work)		
Yes/No	52/35	59.8/40.2

HRQL results

The greatest difficulties associated with diabetes are felt by the respondents in the area of diet. The disease prevents more than half of respondents to eat as much as they want and what they want. In addition, 1 in 5 patients state

that the disease impedes them from being as active as they would like to be. On the other hand, diabetes does not represent a major problem in other areas of patients' social life: maintaining good relationships with others, spending time with friends, planning time,

travelling, earning the necessary income or career development opportunities (Figure 1).

Most patients are satisfied with the knowledge they have about diabetes, with the current treatment, with the cost associated with the treatment plan, with the way others treat them and with the flexibility of planning spare

time. In addition, patients have a rather neutral attitude on what concerns the time allocated for managing the disease, diet flexibility, the physical activity they practice, monitoring frequency and values of the blood glucose levels as well as the effects the disease has on their families.

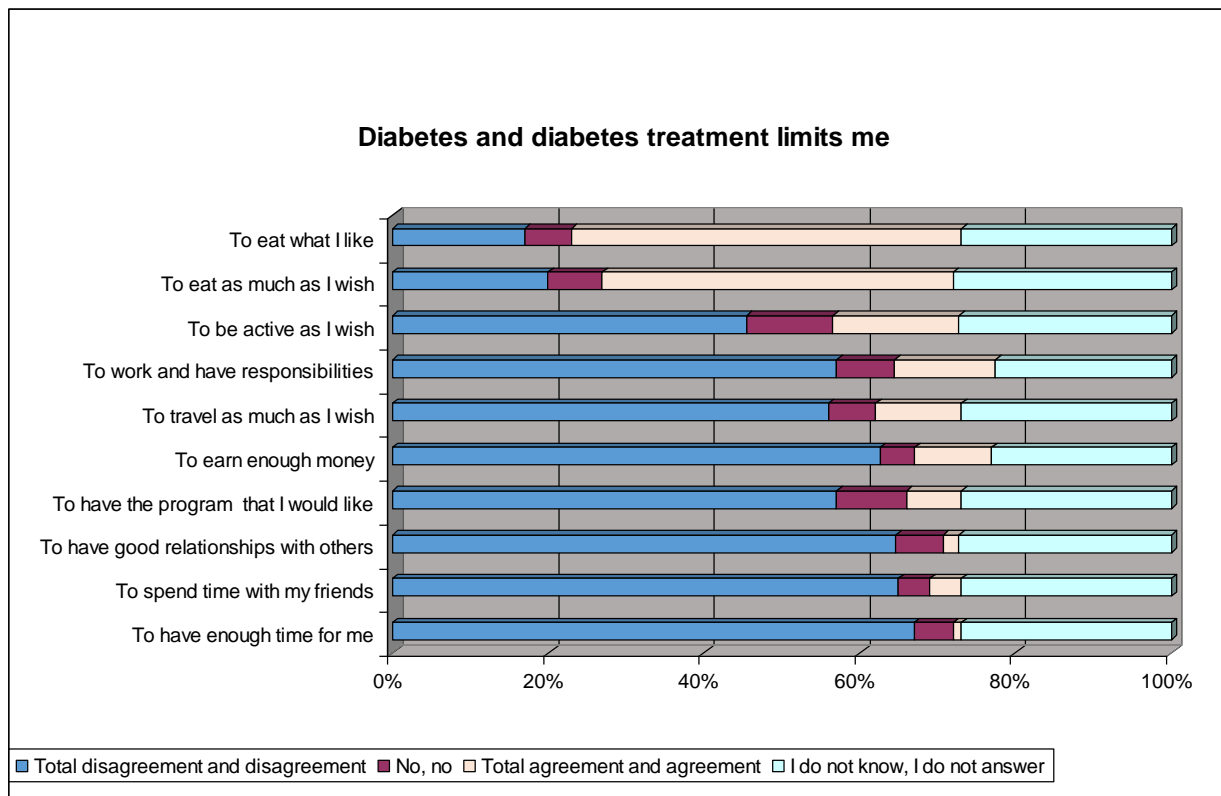


Figure 1. Diabetes impact on HRQL questionnaire items.

In general, diabetes negatively affects the respondents included in our cohort to a small extent. The areas identified by patients with the largest impact on their lives are the restrictions in diet, the need to eat at regular time frames and testing the level of blood glucose. The areas with a lower impact are: physical activities needed for diabetes management, the impact the disease has on their families and friends, restrictions on walking or foot problems. In the last year, most of the patients (62) did not experience difficulties in carrying out daily activities caused by diabetes, compared to 23 patients seldom and 2 frequently experiencing difficulties.

Diabetes duration represents an important predictor concerning HRQL of people with diabetes. Patients with diabetes duration over 15 years feel to a significantly larger extent that their quality of life has been affected in the last month by the need to undergo the treatment prescribed by the physician, diet restrictions for controlling the disease, loss of control over the blood glucose, testing the blood sugar and the impact regarding their visual problems. Nevertheless, patients with a rather short and medium duration of diabetes (below 5 years or between 5 and 10 years since diagnosis) tend to be significantly more satisfied with the necessary time for diabetes management.

Discussion

The HRQL of patients with diabetes is determined by a variety of socio-demographic and disease-related characteristics. In our study, gender, household's composition, place of residence, access to ICT, employment status, type of diabetes, personal income level, the presence of a support network, age and diabetes duration differentiate between reported health related quality of life indicators.

In our study, gender differentiates satisfaction with different aspects of diabetes' management, such as values of blood sugar in the last weeks as well as satisfaction with current treatment plan. Men are more satisfied than women with the values of blood sugar in the last weeks and the current treatment. In addition, male patients are less likely than female patients to be affected by visual problems caused by diabetes in the last month. The gender differences, with lower satisfaction levels for females than males are in line with the results of previous studies [11-15].

Household's composition (whether they have or not another member of the household with diabetes) significantly differentiates the satisfaction with the levels of blood glucose in the last weeks and with the need to eat at periodic time frames. Those who have another person in the household with diabetes are to a statistically significant extent more satisfied with the levels of blood sugar and less negatively affected by the need to eat at periodic time frames. This aspect can be explained partially by different lifestyles of patients with diabetes in households with more than one member living with this chronic disease.

Place of residence differentiates the patient's satisfaction with the time needed for diabetes' management – the respondents from the urban area are more satisfied than the ones in the rural area.

Respondents with Internet access are significantly more likely to agree that diabetes prevents them from fully using career development opportunities. In addition, employment status differentiates opinions concerning health related quality of life in the area related to physical activity. The ones who are actively working at the time when the study has been conducted are less affected by the restrictions imposed by diabetes on what concerns foot walking.

Type of diabetes influences opinions related to patients' quality of life concerning the relations with their families and friends. Patients diagnosed with T1DM are predisposed to feel more affected by the disease imposed restrictions in this area.

Personal income level differentiates the satisfaction with the time available in relation with disease management. Patients with income levels in the group of 1001-2000 lei tend to agree to a larger extent with statements saying that diabetes prevents me to organize the schedule as I would like it to be, prevents me to spend time with my friends and to have sufficient time for myself.

The presence of a support network for managing diabetes differentiates perceptions on restrictions imposed by diabetes in what concerns career development opportunities as well as satisfaction with flexibility in planning spare time. Patients with a support network tend to agree to a larger extent with the statement on 'diabetes limits me in what concerns my career' and less satisfied with planning time flexibility.

Age differentiates opinions related to restrictions imposed by diabetes on diet. Respondents above 40 years and below 65 years agree to a larger extent with the statements that diabetes prevents me from eating as much as I want. Yet, this result differs from other previous studies reporting no significant differences

between age and quality of life of diabetes patients [11,16].

In our study, diabetes duration represents one of the most important predictors concerning HRQL of people with diabetes. Patients with diabetes duration over 15 years had their quality of life affected in the last month. Still, this finding differs from other studies results that did not report any significant differences for duration of diabetes and HRQL [11,17].

There were no significant differences on HRQL reported in Romania by patients with diabetes according to marital status and education levels. In the medical literature there are conflicting data. Similar results were published by Gönen MS et al. [18]. Trief and colleagues [19] revealed that quality of marriage is associated with adaptation to diabetes and Connell CM et al. [20] highlighted that social support is important for the well-being of patients with diabetes.

Limitations

This study has several limitations. First, the study included only the patients attending the physicians of the National Institute of Diabetes, Nutrition and Metabolic Diseases Prof. Dr. N. Paulescu from Romania. Hence, the respondents selected and who agreed to participate might have different characteristics than the ones not selected or who refused to participate. Therefore, a large scale study representative for the population of diabetes subjects in Romania is needed in order to re-test the results presented here.

Another limitation is the importance of the effect of comorbidity, also outlined by previous

studies [21]. Although other studies found that HRQL is affected only if at least four diagnoses are present [22], further research should comprehensively investigate its effect for the patients with diabetes. This predictor might also be related with the duration of diabetes, which has been identified as an important diabetes related characteristic for differentiating satisfaction regarding HRQL.

Conclusions

The results of our study indicate that gender, household's composition, place of residence, access to ICT, employment status, type of diabetes, personal income level, the presence of a support network, age and diabetes duration differentiate between reported HRQL indicators. This study adds knowledge to understanding chronic disease patients' self-assessment of HRQL in Romania. Yet, further research is needed to validate its findings on a large scale study of patients with diabetes in Romania and complement the set of tested variables with a larger set of clinical characteristics.

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