Short Communication

Diabetes mellitus type 1 and quality of life

Abstract

A cross sectional study was carried out to evaluate the self-perceived health status, using EQ-5D-3L questionnaire, in a sample of local population. Our results revealed that diabetes mellitus type 1 was most degrading factor of the quality of life. In particular, it contributes to severe pain and anxiety, in comparison to hypertension. These findings outline the importance of adding supplemental / adjuvant therapeutic to better manage the disease.

Keywords: diabetes mellitus type 1, hypertension, obesity, anxiety, quality of life

Volume 11 Issue 1 - 2023

Jamel el Ghoul,[1] Rim Ben-Slimen,[2] Hmed Ben-Nasr[2,3]

[1]Department of life Science, University of Carthage, Tunisia
[2]Department of life Sciences, University of Gafsa, Tunisia
[3]Laboratory of Pharmacology, Medicine Faculty of Sfax, Tunisia

Correspondence: Ben-Nasr Hmed, Department of Life Sciences, Faculty of Sciences of Gafsa, Sidi Ahmed Zarroug 2112, Gafsa- Tunsia, Tel 00216 96190136, Email hmedbnas@gmail.com

Received: March 08, 2023 | **Published:** March 23, 2023

Abbreviations: QOL, quality of life; BMI, body mass index; VAS, visual analog scale

Short communication

Quality of life(Qol) is a multidimensional concept that measures individuals' satisfaction and brings relevant information upon their health status and well- being. Chronic diseases, like diabetes mellitus, hypertension, obesity, metabolic syndrome and asthma, did not only affect the health of individuals but also profoundly disturb their Qol.[1-3] Psychomotor behavior, neuromuscular, cognitive, social and physical activities constitute the major components of Qol and are almost affected by diseases.[4] In this report, a simple and short form questionnaire with five questions (EQ-5D-3L) (EuroQol research Foundation, www.http//EuroQol.org) is used to measure peoples' self-perception of their health status. A cross sectional study was carried out in a local south- western region (city of Gafsa) of Tunisia, in which the EQ-5D-3L was administered. The questionnaire comprises five dimensions describing individual mobility, self-care (autonomy), usual activities (work), pain and discomfort sensation; and anxiety/ depression. Each item has three levels (no problem, some/moderate problem, and extreme/severe problems). Among 345 individuals, only 243 adult gave a written consent for their participation and fully responded to the questionnaire that was translated to the local language. Their sociodemographic and health history (age, chronic disease and its duration and body mass index (BMI)) were also registered. Only clinically diagnosed diseases were retained in the study. To fulfill the EQ-5D-3L an experimented interviewer did assist all responders. The interpretation of our findings was based on the validated transformation adopted for the French population.[5] The visual analog scale (VAS) for self- health estimation was also considered. Statistical analysis was carried out using SPSS program for Windows.17(IBM corporation). Pearson correlation, Anova and LSD tests were used to outline associations and compare results between groups. The significance was retained at 5% (Table 1).

Table 1 description of participants

Total N (243)	None (191)	DM1 (10)	HTA (34)	Others (8)
age (years)	38.88±16.23(b,c,d)	56.3±28.34(a,c)	70.82±11.72 (a,b,d)	53.37±20.11 (a,c)
Sex ratio (M:F)	0.51	0.10	0.32	0.25
BMI (Kg.m^{-2})	25.51±3.53(c)	24.11±3.67(c)	27.00±3.64(a,b)	27.10±4.57
Obesity (%)	11.52	10.00	17.65	37.50
Duration (years)	***	12.0 ±9.0	10.5 ±7.7	12.6 ±8.3

The calculated EQ-5D-3L score was significantly lower in chronically diseased people in comparison to healthy participants (0.597±0.251). In particular, it presented very reduced value in DM1 (0.278±0.271) than in HTA (0.416±0.275) and other diseases (0.327±0.180). In addition, it significantly diminished within the age of the total participants (R2= -0.233, p > 0.001). Accordingly, several researches highlighted that diabetes patients present a worse quality of life and increased risk to develop depression.[6] It is assumed that the quality of life is deeply decreased in older peoples.[7] Irrespectively, our results showed that DM1 patients, while they are younger than HTA ones (table 1), perceive more problems and more degraded quality of life. This is might be explained by the DM1- outcomes affecting the overall physiological systems such as growth, immunity, cardiovascular, and neuromuscular ones.[8] The visual analog score (VAS) significantly correlates to the calculated score (R2=0.276, p<0.001) but did not present significant variation between groups of participants (p=0.56). Its mean values were of 42.50±14.64, 50.42±18.06, 50.88±15.88 and 54.00±17.13; respectively for other, none, HTA and DM1 groups (Figures 1 &2).

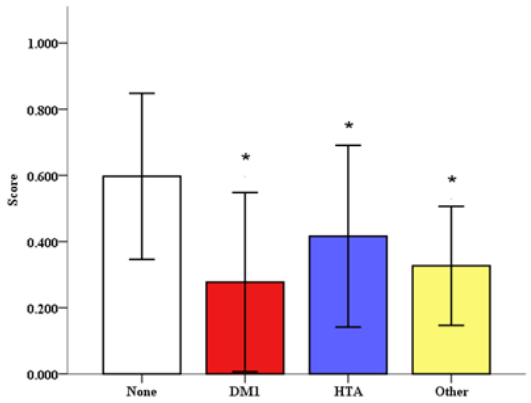

Figure 1 EQ-5D-3L mean score of healthy (None) and chronically diseased patients (HTA: hypertension, DM1: diabetes mellitus type1, and other (asthma, rheumatoid and cholesterolemea) diseases.

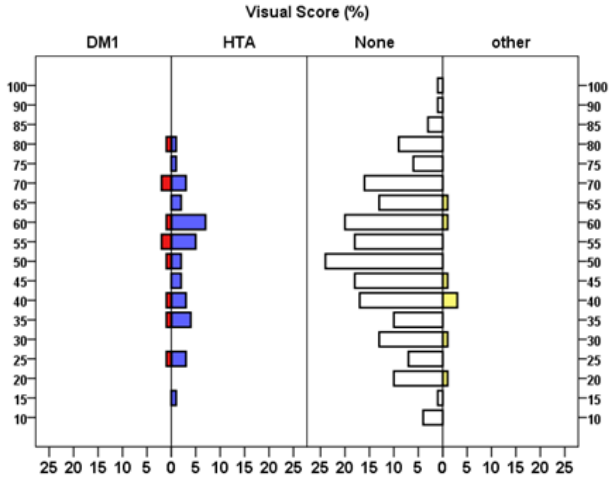

Figure 2 Summary of the visual analog score of participants.

The figure 3 shows the variation in EQ-5D-3L components depending on participants' status. It reveals that chronic disease significantly affect patients' mobility, work (activity) and autonomy in comparison to healthy persons (Chi-square respectively of 31.04, 28.19 and 53.66, at $p<0.001$). The proportion of people having moderate difficulty (level 2) in their mobility was much higher (over 40 %) in chronic diseases than in normal ones (10.47 %). Diabetes mellitus type 1 induces medium to severe reduction in activity, self- care (autonomy) and mobility respectively in 60%, 40% and 60 %. Furthermore, DM1 is associated to relevant pain sensation and anxiety in almost patients. Similar reduction of life quality's components was also observed in hypertensive people, but with lesser severity in comparison to DM1. For example, severe (level 3) pain and anxiety were observed in about 29 % of HTA cases where they were present in the moiety of DM1 patients. In other diseased people (asthma, rheumatoid and dyslipidemia) patients presented severe pain and anxiety in about 60% of cases. Furthermore, DM1 patients have moderate difficulties in taking care of themselves (autonomy) and reduced usual activities (work) in 40% and 60% of cases, respectively. Relevant percentage of patients with moderate and severe pain and anxiety was also observed in DM1 (pain: 40% and 50%, respectively; and anxiety 50% and 50% respectively), HTA (pain: 65% and 29%, respectively; and anxiety 47% and 29% respectively), and other diseases (Figure 3).

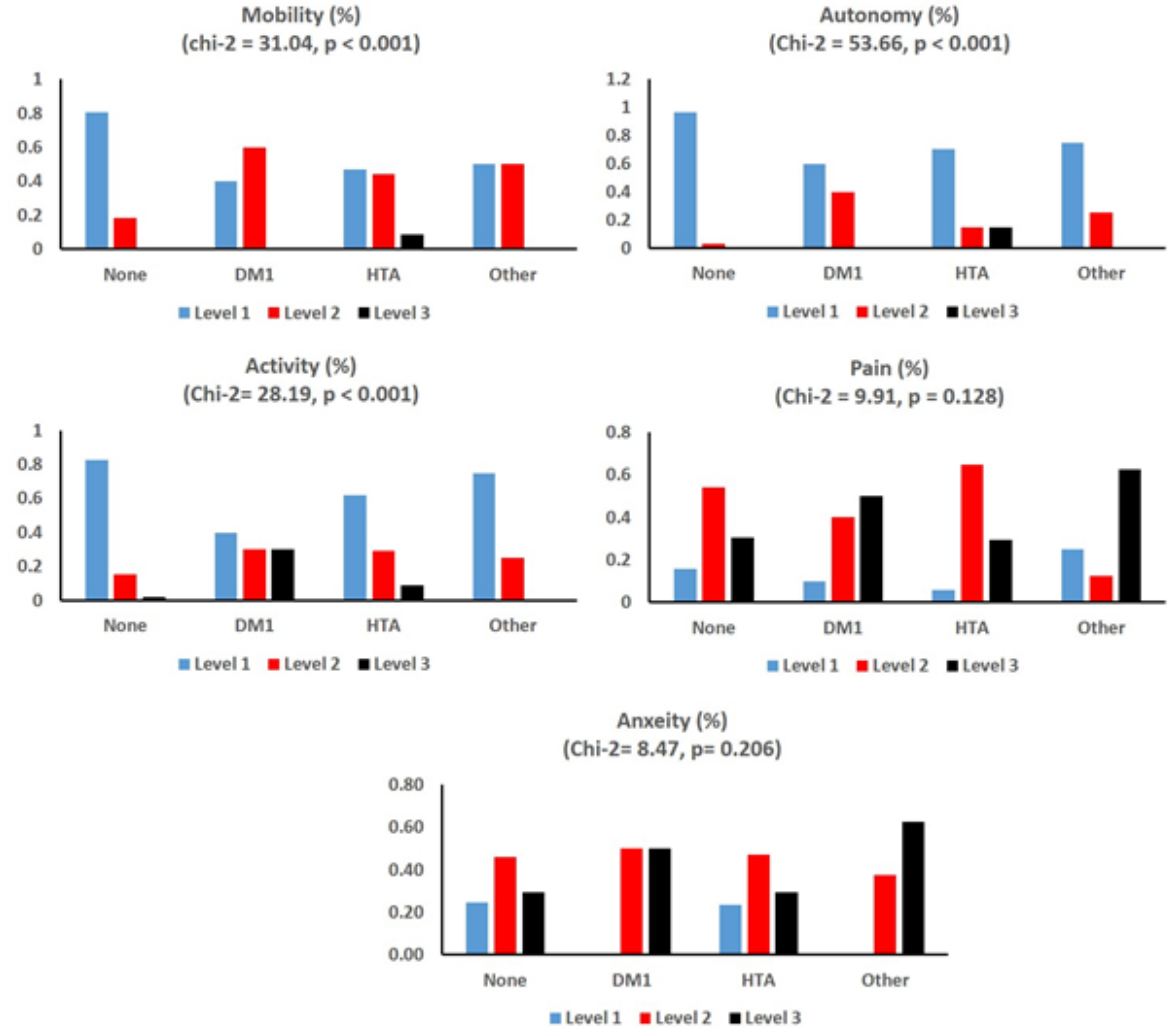

Figure 3 Distribution of participants' responses to the EQ-5D-3L questionnaire.

Citation: el Ghoul J, Ben-Slimen R, Ben-Nasr H. Diabetes mellitus type 1 and quality of life. *Endocrinol Metab Int J.* 2023;11(1):9–11.
DOI: 10.15406/emij.2023.11.00324

It is commonly admitted that diabetes leads to neuropathic pain and neuromuscular fatigue through a mechanism involving nerve injuries.[9,10] In consequence activities and mobility of patients will, inevitably, be affected. In HTA and other diseases (asthma, rheumatoid and cholesterolemea) there should be important contribution for obesity in the degradation of the quality of life, in addition to the specific effects of inflammation in rheumatoid and asthma. This work, reveals the role of chronic diseases, particularly diabetes mellitus type 1, in decreasing the quality of life of patients. While insulino-therapy gave good results in re-establishing glycaemia, it seems so far to resolve the overall outcomes of the pathology. Supplemental interventions, like dietetic natural phyto-therapeutics supplements protecting the nervous system, should be envisaged to better manage the disease.

Acknowledgements

None.

Conflicts of interest

None

Funding

None.

References

1. Singh H, Bradley C. Quality of life in diabetes. *Int J Diab Dev Ctries*. 2006;26(1):7–10.
2. Taylor VH, Forhan M, Vigod SN, et al. The impact of obesity on quality of life. *Best Pract Res Clin Endocrinol Metab*. 2013;27(2):139–146.
3. Wilson SR, Rand CS, Cabana MD, et al. Asthma outcomes: quality of life. *J Allergy Clin Immunol*. 2012:129(3 Suppl);S88–S123.
4. Dolan P. Modeling valuations for EuroQol health states. *Med care*. 1997;35(11):1095–1108.
5. Chevalier J, de Pouvourville G. Valuing EQ–5D using time trade–off in France. *T Eur J Health Econ*. 2013;14(1):57–66.
6. Schram MT, Baan CA, Pouwer F. Depression and quality of life in patients with diabetes: a systematic review from the European depression in diabetes (EDID) research consortium. *Curr Diabetes Rev*. 2009;5(2):112–119.
7. Fernández–Ballesteros R. Quality of life in old age: Problematic issues. *Applied Research in Quality of life*. 2011;6:21–40.
8. Schillinger D, Grumbach K, Piette J, et al. Association of health literacy with diabetes outcomes. *JAMA*. 2002;288(4):475–482.
9. Kapur D. Neuropathic pain and diabetes. *Diabetes/metabolism research and reviews*. 2003;19(S1):S9–S15.
10. Bril V. Neuromuscular complications of diabetes mellitus. *Continuum: Lifelong Learning in Neurology*. 2014;20(3):531–544.