Jaccr *Community Health*

Original article

Quality of life in hypertensive patients and its Influencing factor in Moroccan Population

Qualité de vie des patients hypertendus et ses facteurs associés dans une population marocaine

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Abstract

Introduction: Hypertension is the second most frequent non-communicable disease in Morocco. It is the cause of almost half of the costly attacks of the heart and stroke whose sequelae can have a considerable impact on the quality of life of patients. The objective of the study is to evaluate the quality of life of hypertensive patients and determine the factors that influence it.

Methodology: A cross-sectional study in primary healthcare facilities of Fez from May to November 2018. Quality of life has been evaluated using the SF 12 translated and validated in Moroccan dialect Arabic language.

Results: 404 subjects were included; women were predominantly represented (71.3%). Clinically, the mean duration of patients follow-up was 7.2 ± 5.8 years, comorbidities were found in 56.2% of cases. Blood pressure was controlled in 46.9% of cases. Mean of mental and social quality of life score was 52.7 ($\pm$ 9.6) and physical quality of life 49.9 ($\pm$ 0.2). The SF12 domain that had the worst score was related to physical pain with an average of 32.1 ± 28.6. Relationship with others domain had highest score (75.0 ± 27.8). Health related quality of life was associated with gender ($p<0.001$), age range

($p<0.008$), marital status ($p<0.002$), residence, level of studies ($p<0.001$) and profession ($p<0.002$).

Conclusion: Our study has found risk factors influencing the quality of life of high blood pressure patients. These finding would be useful for health policies in establishing national health program.

Keywords: quality of life; hypertension; comorbidity; knowledge.

Résumé

Introduction : L'hypertension est la deuxième maladie non transmissible la plus fréquente au Maroc. Elle est à l'origine de près de la moitié des crises cardiaques et d'AVC dont les séquelles peuvent avoir un impact considérable sur la qualité de vie des patients. L'objectif de l'étude est d'évaluer la qualité de vie des patients hypertendus et de déterminer les facteurs qui l'influencent.

Méthodologie : Une étude transversale a été menée dans les établissements de soins de santé primaires de Fès de mai à novembre 2018. La qualité de vie a été évaluée à l'aide du SF 12 traduit et validé en dialecte arabe marocain.

Résultats : 404 sujets ont été inclus ; les femmes étaient majoritairement représentées (71,3%). Cliniquement, la durée moyenne de suivi des patients était de 7,2

± 5,8 ans, des comorbidités étaient retrouvées dans 56,2% des cas. La pression artérielle était contrôlée dans 46,9% des cas. Le score moyen de qualité de vie mentale et sociale était de 52,7 (± 9,6) et de qualité de vie physique de 49,9 (± 0,2). Le domaine SF12 qui avait le pire score était lié à la douleur physique avec une moyenne de 32,1 ± 28,6. Le domaine des relations avec les autres avait le score le plus élevé (75,0 ± 27,8). La qualité de vie liée à la santé était associée au sexe (p <0,001), à l'âge catégorisé en classe (p <0,008), à l'état matrimonial (p <0,002), à la résidence, au niveau d'études (p <0,001) et à la profession (p <0,002).

Conclusion : Notre étude a révélé des facteurs de risque influençant la qualité de vie des patients souffrant d'hypertension artérielle. Ces constatations seraient utiles pour les politiques de santé lors de l'établissement de programme national de santé.

Mots-clés : qualité de vie; hypertension; comorbidité; connaissance.

Introduction

Hypertension or high blood pressure (HBP) is considered as an important public health problem in developed and developing countries. Hypertension, one of the most important risk factors for cardiovascular disease, includes coronary artery disease, heart failure, and cerebral stroke. These diseases are among the main causes of mortality, morbidity, and disability in the world that is responsible of 12% of deaths by year [1].

In Morocco, Hypertension is ranked the second most common chronic disease after diabetes. The estimated global prevalence of hypertension is 6.8% in general population and 34% in older aged most 65 years[2].

Quality of life (QoL) measurements, based on the patient's perspective, are used frequently nowadays to determine the global impact of diseases as well as medical treatments. Health-related quality of life (HRQoL) assesses the health status of patients, which reflects the physical, psychological, social, and emotional conditions[3]. HRQoL has been recognized as an important measure of wellbeing in patients with both acute and chronic diseases such as hypertension. Not only is HRQoL an important outcome in itself, but also studies across disease states have demonstrated an association between lower HRQoL and mortality.[4–8]

HRQoL could serve as an important indicator for the treatment outcomes, particularly for the patients with chronic diseases such as hypertension.

Various questionnaires are available to assess HRQoL of individuals across cultures. Such questionnaires can be generalized into two categories: specific instruments and generic instruments [9]. Most of these are self-administered questionnaires that explore several domains (physical, psychological, etc.) by proposing items to which the patient generally answer in a binary manner. They are developed in English and must be validated after transcultural adaptation.

To the best of our knowledge HRQoL of Moroccan hypertensive patients has not been reported.

The aim of the present study was to describe self-reported HRQoL in patients with hypertension and to investigate its associations with socio demographic and clinical variables.

Methodology

Study population and data collection

This was a cross-sectional of quality of life in patients with hypertension. The study was conducted from May to November 2018; hypertension patients were recruited from the primary healthcare facilities of Fez. Data collection was done by medical students of the Faculty of Medicine and Pharmacy of the Sidi Mohammed Ben Abdellah University administering standardized questionnaires

Patients responding to following criteria were included in our study:
• Patients seen in consultation
• Patients adults (≥ 18 years)
• Patients diagnosed as hypertensive according to the recommendations of the WHO[10] and who

have been receiving anti-hypertensive treatment for at least 1 month

The exclusion criteria were as follows:

• Pregnant women (previously known hypertensive or with toxemia of pregnancy)

• renal failure dialysis or not,

• Patients with severe disability sequelae and those with severe complications such as vascular dementia.

Measures

• Patient information form

This included questions about personal information: Age, gender, educational level , ,marital status was defined in these categories: single, married and Divorced/separated/ widowed, employment status, smoking status and health insurance and Clinical related (date of diagnosis of hypertension, PA taken at the time of the interview (controlled if SBP and / or DBP ≤ 140 mmHg and 90 mmHg respectively), height, weight, medication in the last month number of tablets per dose, adherence to treatment, presence of side effects, knowledge concerning HBP) characteristics.

• Methods of HRQOL evaluation

Quality of life was measured using the Moroccan Arabic version of SF 12 questionnaire[11]. The SF 12 questionnaire is a shortened version of the SF-36 (from the Medical Outcome Study of Ware and Sherborne 1992) (4). The SF-12v2 is a questionnaire consisting of twelve questions that measure eight health domains to assess physical and mental health[12]. Physical health-related domains (PCS) include General Health (GH), Physical Functioning (PF), Role Physical (RP), and Body Pain (BP). Mental health-related scales (MCS) include Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH).

• Statistical analysis

Data entry was done using Excel. We followed the method described in the SF12v2® manual to compute the score for each domain as well as the physical and mental composite scores[12]. PCS12 scores range from 0 to 100, where higher scores indicate better physical and mental health. The descriptive statistics technique was used for the description of clinical, socioeconomic, and demographic variables such as age, place of residence, date of the diagnosis of hypertension, medication, adherence to treatment, marital status, education level and profession. The Mann Whitney U test was used for the physical and mental composite scores for binary variables and Kruskal-Wallis test for more than two groups, after the Kolmogorov-Smirnov test to analyze the distribution. The correlation of spearman test was used for Association between the physical and mental composite scores and the quantitative variables. The P value of equal or less than 0.05 was considered significant. Data analysis was performed using the statistical software package SPSS 17.0.

• Ethical approval

Ethical approval was obtained from the ethics committees in the University Hospital Center Hassan II in Fez- Morocco under N. 21/17 and the agreement of the Ministry of health. All the subjects were informed of the conditions related to the study; and gave their written- informed consent. Anonymity and confidentiality were respected for all participants.

Results

A total of 404 subjects were included in the study. Most of them were women (71.3%). Most than third (83.7%) of the subjects indicated that they lived in the urban area and 58.2% were over 60 years old, 68.8% were married,55.1% were illiterate and the monthly household income was <4000 dirhams (<375 €) for 77.2% of the population.

The group was characterized by a mean time of follow-up of 7.2 (5.9) years of hypertension, the majority of the subjects were overweight, 46.9% of participants had blood pressure controlled and 56.2% had one or more comorbidities. (Table I)

• Health-related quality of life

Table II presents the mean scores of the SF 12 scales. The respective mean score for the Mental and social and physical scales were 49.90(SD=0.23) and 52.71

(SD= 9.6).

Concerning domains, the best score was found for social aspect, the mean score was 75.0 (SD=27.8), followed by emotional aspect 62.5 (SD=25.7) and functional capacities 62.5 (SD=24.1) while the physical pains scored the lowest, the mean score was 32.1(SD=28.6).

• Comparison of socio-demographic and clinical data with quality of life

1. Quality of physical life (PCS)

In the physical scales we found that older patients (aged more than 60 years old) described better physical functions than younger patients (53.66 versus 51.16; P=0.008). The mean score of the PCS for women were better than hypertensive men (53.88 versus 50.38; P=0.001).

Those who lost a spouse had better score physical scale when compared with subjects who were married or single (p=0.002).

For the other socio-economic variables, we observed that patient with a primary school level, without profession and with a low income had a better physical scale score (table III).

Regarding the clinical variables, we observed that patient in overweight and described comorbidities had a better mean score.

When analyzing the effect of duration of follow-up, we obtained than quality of life mean score increase with the duration of follow-up (r=0.143; p=0.005). The number of drugs taken by day did not influence the physical scale domain (table IV).

2. Quality of mental and social life (MCS)

A significant association was not seen between a lot a socio-demographics variable except for residence. Those who reported living in family or in relationship had a better mean score for physical scale. These results are reported in table III.

When analyzing clinical variables, a negative correlation (r= -1.58; p=0.002) was found between MCS score and duration of follow-up.

Those who reported a history of familial hypertension had a worse mean score for mental domain (p=0.010). (Table IV).

Table I: Basic socio-demographics and clinical characteristics of groups of participants

Gender	
Women	71.3%
Men	28.7%
Age range	
<60years	41.8%
≥60years	58.2%
Habitat type	
Rural	16.3%
Urban	83.7%
Marital status	
Single	5.3%
Married	68.8%
Divorceed	4.2%
Widowed	19.6%
Level of studies	
Without	55.1%
Primary	22.5%
Secondary	11.9%
Tertiary	9.4%
Profession	
Farmer	7.2%

Professionals	6.9%
Workers	28.4%
Without	44.6%
Retired	11.5%
Outcome	
<375 €	77.2%
≥375 €	22.8%
Insurance	
Mutual	41.3%
RAMED	52.6%
Without	6.0%
Alcohol	
Yes	5.8%
No	94.2%
Tobacco	
No smoking	81.0%
Ex Smoker and smoker	19.0%
During of follow up (mean±standard-deviation)	7.23 (±5.90)
PA controled	
Yes	46.9%
No	53.1%
BMI	
<30	34.2%
≥30	65.8%
Comorbidities	
Yes	56.2%
No	43.8%
Number of tablets / day (mean ± standard deviation)	1.65 (±1.20)
Treatment	
Diuretics	89.0%
ICE	15.7%
Calcium inhibitors	49.7%
Beta-blockers	9.6%
ARBs	16.0%
History of family HTA	
Yes	43.1%
No	56.9%
Knowledge class	
Good	43.8%
Bad	56.2%
Treatment adherence	
Adherent	52.3%
No adherent	47.7%

Table II: Quality of life characteristics of groups of participants

Physical score PF	60.4±30.0
Limit score due to physical condition RP	62.5±24.1
Physical pains BP	32.1±28.6
Perceived health score GH	50.0±23.5
Vitality VT	50.0±24.2
Life score and relationship with other SF	75.0±27.8
Limit score due to psychic state RE	62.5±25.7
Psychic health score MH	50.0±19.2
Quality of social life MCS	49.90 (±0.23)
Physical Quality of Life PCS	52.71 (±9.6)

Table III: Univariate analysis of socio-demographics variables with PCS and MCS

Characteristics	PCS		MCS	
	Mean(SD)	p*	Mean(SD)	p*
Gender		0.001		0.494
Women	53.64(9.49)		49.90(0.25)	
Men	50.38(9.31)		49.90(0.08)	
Age range		0.008		0.808
<60 years	51.16 (9.73)		49.89(0.32)	
≥60years	53.66 (9.24)		49.94(0.07)	
Habitat type		0.645		0.584
Rural	52.34 (8.14)		49.84(0.51)	
Urban	52.85(9.84)		49.89(0.08)	
Marital status		0.002**		0.080**
Single	52.92 (11.93)		49.88(0.06)	
Married	51.55(9.23)		49.90(0.26)	
Divorceed	52.21 (9.19)		49.93(0.09)	
Widowed	56.05(9.13)		49.90(0.07)	
Level of studies		0.001**		0.425**
Without	53.50(9.51)		49.90(0.28)	
Primary	53.79(9.87)		49.94(0.08)	
Secondary	50.25(7.50)		49.94(0.07)	
Tertiary	47.99(10.04)		49.90(0.08)	
Profession				
Farmer	53.52 (8.15)		49.88(0.08)	
Professionals	47.11(9.30)	0.002**	49.90(0.08)	0.210**
Workers	52.88 (9.22)		49.90(0.08)	
Without	54.07(9.33)		49.89(0.31)	
Retired	50.06(10.52)		49.90(0.08)	
Income		0.000		0.582
<375€	53.20(9.20)		49.88(0.27)	
≥375€	48.60(8.90)		49.90(0.08)	
Insurance		0.066**		0.555**
Mutual	51.61(10.60)		49.90(0.08)	
RAMED	53.66(8.72)		49.90(0.29)	
Without	52.16(7.64)		49.89(0.08)	
Alcohol		0.953		0.236
Yes	52.30 (9.60)		49.90(0.23)	
No	52.69(6.43)		49.88(0.06)	

		0.153		0.304
Tobacco				
No smoking	53.00(9.69)		49.90(0.24)	
Smoking and ex Smoker	51.23 (9.13)		49.90(0.08)	

*Test Mann-Withney **Test Kruskall-Wallis *** Spearman's correlation coefficient

Table IV: Univariate analysis clinical variables with PCS and MCS

Characteristics	PCS		MCS	
	Mean(SD)	p*	Mean(SD)	p*
Duration of follow up				
	0.143*	0.005**	-1.58*	0.002**
PA controlled		0.225		0.601
Yes	52.23(9.87)		49.90(0.31)	
No	53.25 (9.06)		49.90(0.07)	
BMI range		0.033		0.169
No overweight	51.05 (9.96)		49.91(0.08)	
Overweight	53.32 (9.40)		49.88(0.28)	
Comorbidities		0.001		0.112
Yes	54.17 (9.70)		49.90(0.07)	
No	51.00 (9.15)		49.90(0.34)	
History of familial HBP		0.616		0.010
Yes	53.31(9.72)		49.89(0.07)	
No	53.55(4.81)		49.91(0.04)	
Number of tablets / day	0.019***	0.712	-0.092***	0.078
Treatment		0.780**		0.749**
Diuretics	51.80(9.43)		49.90(0.07)	
ICE	53.65(8.45)		49.90(0.08)	
Calcium inhibitors	52.39(9.62)		49.87(0.31)	
Beta-blockers	53.26(9.78)		49.90(0.06)	
ARBs	52.52(10.76)		49.89(0.08)	
Class knowledge				
Good	52.41(9.45)		49.90(0.31)	
Bad	52.94(9.62)	0.528	49.89(0.07)	0.388

*Test Mann-Withney **Test Kruskall-Wallis *** Spearman's correlation coefficient

Discussion

Our study aimed to assess the quality of life in hypertensive patients. With a total of 404 patients, they presented scores of QoL physical and mental domains of 52.71±9.6 and 49.90±0.2, respectively. We showed a poorer health related quality of life (grouped in PCS and MCS). The best quality of life score is 100 points, these scores indicate than hypertensive patients have an alteration of their HRQoL. This finding are in according with many studies realizing assessment of QoL in hypertensive patient[13–17]. The alteration of QOL in hypertensive patients can be the result of change in physical and psychological functions [13] due to the mains symptoms of the disease.

We found that HRQoL score for physical components was better in women. This finding are in contrary with research who found that women have poorer HRQoL because they are more awareness of their health status [18,19]. Hypertension is responsible of physical and psychological distress and we observed that better domain score is the social aspect. We

also observed that most than half of women are married (p<0.000). This difference can result to the fact that women receive more support than men and are less emotionally affected by their disease. Good relationships with family can improve social support and health related quality of life[20]. Xu and al found that living with family members was also positively associated with HRQoL, particularly for female patients[20].

When analyzing the age range, we found that older patients had better HRQoL for physical component compared to younger patient. Our result are at odds with some studies that show a decrease and negatively link in quality of life with age[14,21–24,24,25]. In fact, the phenomenon of aging is accompanied by biological and physiological changes which are responsible for a decrease in the physical and congenital functions of the individual. The subject is thus exposed to the development of comorbidities that have an impact on the quality of life[26,27]. In different domains, we observed that older patients had a better score in their perceived general health score and in pain score. It can be due by the fact that young are more concerned about their own health status and the disease will bring them some psychological and physical burden.

Patients with high level of education had higher HRQoL scores in MCS component but concerning PCS component, patients without instruction had better HRQoL score. The level of education is the main element which influence the knowledge of disease and the treatment adherence[28]. So a treatment adherence decreases the symptom of the disease.

In PCS domain, patient without profession had better HRQoL score than others. This result suggests that the job can be a risk factor for HRQoL and requires future investigation in hypertensive population.

When analyzing clinical variables, we observed that duration of follow-up influences positively the HRQoL in PCS domain but negatively in MCS component. In comparing HRQoL of patients with controlled and uncontrolled blood pressure, it was not

a significant association concerning the 2 components physical and mental.

Patient in overweight and who presented one or more comorbidities had better HRQoL than patients in normal weight and without comorbidities. In general, overweight and obesity were negatively associated with worse HRQoL. Xiao et al found that those who had a higher body mass index had a higher score of role-physical and mental health[29]. Some research showed that overweight and moderately obese elderly or patients who were overweight or obese lived longer and responded better to treatment. It's the "obesity paradox". This phenomenon is called «obesity-HRQoL paradox» and more frequent in the subjects with chronic conditions[30].

The number of antihypertensive drugs had no significant difference in any component.

Patients with a history of family high blood pressure had a worse HRQoL score concerning mental component. In fact, a study conducted in China indicated that family history of HBP might exert stress on family members, which could result in anxiety, depression, and other mental disorders. Psychological disorders would adversely impact the HRQoL of the family members with a history of HBP [29].

In summary, HRQoL among hypertensive patients is related to socio-economic factors such as female gender, elderly, single people, level of studies, profession, income and overweight patient and comorbidities in clinical variables for physical score and living alone, duration of follow-up and history of family HBP for mental score.

Our study is based on a large representative sample of hypertensive subjects followed in the health centers of the city of Fez.

The collect tool is a tool that has benefited from cross-cultural validation and it use in chronic disease has been already demonstrated.

So we encounter a limit based on the blood pressure measure. In fact, blood pressure studied was that taken at the time of the interview. It may be biased by the setting conditions. So measure had been repeated

in the end of the interview and we considered an average of the 2 measures for all participants.

Conclusion

Many risk factors have been described as influencing the quality of life of patients with high blood pressure. A recommendation is made to government to reduce social inequalities, facilitate care access and promote therapeutic education.

WHAT IS ALREADY KNOW

- Hypertension is a major health problem in Morocco
- Hypertension treatment has side effects and no treated, hypertension is responsible of many complications as sequelea
- Hypertension treatment and complications which can influence quality of life

WHAT THIS STUDY ADDS

- Hypertensive Moroccan patients have a poor quality of life
- Many risk factors influence it
- Quality of life can be improve in reducing social inequalities, facilitating care access and promoting therapeutic education.

AUTHORS CONTRIBUTIONS

Angéla Christie Filankembo Kava, Nabil Tachfouti, Samira El Fakir: concept and design, writing and revision of manuscript. Amina Alaoui, Maryam Atassi, Passy Conde, Nada Otmani: revision of manuscript. Angéla Christie Filankembo Kava, Passy Conde, Noura Qarmiche: data collection/interpretation, table creation, writing and revision of manuscript. Angéla Christie Filankembo Kava, Samira El Fakir: Literature search, writing and revision of manuscript

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