● **Original article**

DEPRESSION AND QUALITY OF LIFE IN HYPERTENSIVE ADULTS*

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ABSTRACT: The present study aimed to investigate the relationship between depression and quality of life in hypertensive adults. Quantitative study with cross-sectional design, with 387 adults with hypertension, conducted in 2014-2015, in 18 Basic Health Units (UBS) in the city of Curitiba, State of Paraná. The tools used to assess quality of life and depression were, respectively, the Medical Outcomes Study 36-Item Short Form Health Survey and Beck Inventory. A significant correlation was found between the worst scores of quality of life and the presence of depression, with great differences between the means in the domains emotional aspects (Confidence Interval = 95%: 26.72% - 42.08%) and mental health (Confidence Interval = 95%: 20.21% - 28.73%). Knowledge of this relationship can help nurses in the planning of care for individuals with hypertension, in the improvement of depressive symptoms and quality of life.
DESCRIPTORS: Quality of life; Depression; Hypertension; Nursing.

DEPRESSÃO E QUALIDADE DE VIDA EM ADULTOS COM HIPERTENSÃO

RESUMO: O objetivo deste estudo foi investigar a relação entre a depressão e a qualidade de vida em adultos com hipertensão. Pesquisa quantitativa com delineamento transversal, realizada com 387 adultos com hipertensão, no período de 2014 a 2015, em 18 Unidades Básicas de Saúde da cidade de Curitiba, Paraná. Os instrumentos utilizados para avaliar a qualidade de vida e depressão foram, respectivamente, o Medical Outcomes Study 36-Item Short Form Health Survey e o inventário de Beck. Observou-se correlação significativa entre os piores escores de qualidade de vida e a presença de depressão, com diferenças elevadas entre as médias nos domínios aspectos emocionais (Intervalo de Confiança = 95%: 26,72% – 42,08%) e saúde mental (Intervalo de Confiança = 95%: 20,21% – 28,73%). Conhecer esta relação pode contribuir para o enfermeiro no planejamento do cuidado à pessoa com hipertensão, na melhora dos sintomas depressivos e consequentemente na qualidade de vida.
DESCRITORES: Qualidade de vida; Depressão; Hipertensão; Enfermagem.

DEPRESIÓN Y CALIDAD DE VIDA EN ADULTOS CON HIPERTENSIÓN

RESUMEN: El objetivo del estudio fue investigar la relación entre depresión y calidad de vida en adultos con hipertensión. Investigación cuantitativa, con delineado transversal, realizada con 387 adultos con hipertensión entre 2014 y 2015, en 18 Unidades Básicas e Salud de Curitiba, Paraná. Los instrumentos utilizados para evaluar la calidad de vida y depresión fueron, respectivamente, el Medical Outcomes Study 36-Item Short Form Health Survey y el inventario de Beck. Se observó significativa correlación entre los peores puntajes de calidad de vida y la presencia de depresión, con diferencias elevadas entre las medias en los dominios aspectos emocionales (Intervalo de Confianza = 95%: 26,72% - 42,08%) y salud mental (Intervalo de Confianza = 95%: 20,21% - 28,73%). Conocer dicha relación puede contribuir con el enfermero en la planificación del cuidado al hipertenso, a mejorar los síntomas depresivos y, consecuentemente, en la calidad de vida.
DESCRIPTORES: Calidad de Vida; Depresión; Hipertensión; Enfermería.

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● INTRODUCTION

Hypertension (HBP) is an aggressive, silent disease, which has no cure. It affects 32.5% of the adults and more than 60% of elderly people in Brazil, and has been a major cause of deaths by cardiovascular diseases [1].

In the 2008- 2012 period, HBP has accounted for 479,497 hospitalizations of Brazilians over 20 years of age, which required more than 105 million reais in expenditures in the period and caused 6,425 deaths, of which approximately 20% among the adult population [2].

If not controlled, hypertension can cause complications such as cerebrovascular accident, acute myocardial infarction, dementia, blindness, kidney and heart failure [3], with a negative impact on the quality of life (QoL) of the patients, work productivity and family income [1].

Quality of life is considered a subjective variable, which provides a multi - dimensional perspective to assess the impact of physical and emotional aspects of a person's life [4], and its measurement provides parameters for the planning of care. According to the World Health Organization, QoL is a comprehensive concept involving aspects related to physical health, psychological status level of independence, social relationships, personal beliefs and the environment [5].

Studies demonstrate that the quality of life (QoL) in hypertensive individuals may be influenced by factors such as age, marital status, education, employment status, social support, time elapsed since diagnosis, number of medications taken and the presence of comorbidities, such as anxiety and depression [4,6-9].

Unlike the other factors, depression is an ordinary mental that can cause suffering to the patient and the family. It is characterized by the presence of depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-esteem, disturbed sleep or appetite and lack of concentration [10].

In hypertensive people, depression can generate a cascade of negative actions and results, such as increased risk of non-compliance with treatment, clinical inertia and inappropriate life habits such as sedentary lifestyle and smoking [11-12], and may cause uncontrolled high blood pressure [13].

Depression is generally associated with lower scores in assessments of QOL of hypertensive individuals, mostly due to its negative impact on mood and possibly on functional capacity [4,9].

Thus, investigating the relationship between depression and QoL in hypertensive individuals, which is the objective of this study, can be very useful in the decision making of nurses and other health professionals during the elaboration of a care plan, given the impact of these factors in treatment monitoring and in the development of complications.

● METHOD

Quantitative cross-sectional study conducted from May 2014 to February 2015, in 18 Basic Health Units of a Health District of the City of Curitiba, State of Paraná.

The stratified and systematic sampling was composed of 387 adults who met the following inclusion criteria: diagnosed with hypertension, aged 18-60 years, registered and active in the System of Clinical Management of Hypertension and Diabetes of the referral UBS, and who has obtained the minimum score required at the Mini Mental State Examination [14].

The score of the Mini-Mental State Examination varies according to the respondent's educational level, as follows: illiterate individuals: minimum score of 13 points; individuals with low and medium levels of schooling a score of 18 for people, and for individuals with high level of schooling a minimum score of 26 is required. Individuals who have completed up to eight years of schooling are considered of low and medium levels of schooling and those who have completed more than eight years of education are considered of high level of schooling [15].

In data collection, all researchers were trained to use the standard approach. The tools used in data

collection were a semi-structured questionnaire with sociodemographic variables, the instruments Medical Outcomes Study 36-Item Short Form Health Survey (SF-36) and Beck's Depression Inventory.

The SF-36 is a multidimensional tool to assess QOL translated and culturally adapted to Portuguese [16]. It includes 36 items grouped into eight areas: general health status, physical limitations, pain, functional capacity, emotional aspects, vitality, social functioning and mental health [17]. It score ranges from zero to 100, and the maximum score indicates a better health status and the minimum score a worse health status.

Beck's Depression Inventory has been validated to Portuguese and allows us to analyze the intensity of depression. It contains 21 items describing the somatic and cognitive-affective behavioral manifestations of depression [18]. In the interpretation of the results four degrees of intensity are considered: absence of depression or minimal depression (less than 10 points); mild to moderate depression (from 10 to 18); moderate to severe depression (19-29) and severe depression (30-63) [18].

To facilitate data analysis, the degrees of intensity were grouped in two categories: the individuals who obtained scores up to nine were considered "non-depressed" and those with higher scores than or equal to 10 "depressed." Data was tabulated in Microsoft Excel ® spreadsheet, analyzed by descriptive statistics, and correlation between QOL and depression was performed with Student's t-test for independent sample, using the   Statistical Package for Social Sciences (SPSS) software, version 20.0. Kolmogorov-Smirnov test was used to check data normality. The level of significance was 5%.

This study is part of the thematic project titled "Construction and validation of a tool targeted to the care of hypertension and representations of care of hypertensive adults". WIT was approved by the Research Ethics Committee in Research of the Health Sciences Sector of Universidade Federal do Paraná, under No 220, 068 on March 15, 2013.

● **RESULTS**

Of the 387 people who participated in the study, 295 (76.25%) were women, 266 (68.8%) were married or lived in a consensual union, 135 (34.9%) had completed more than eight years of schooling and 202 (52.3%) had a family income between one and three minimum wages (Table 1).

Table 1 – Sociodemographic characteristics of the participants (n=387). Curitiba, PR, Brazil, 2016 (continues)

VARIABLE	n (%)
Gender	
Male	92 (23.8)
Female	295 (76.2)
Marital status	
Single	52 (13.4)
Married/Consensual union	266 (68.8)
Divorced/Separated	34 (8.8)
Widowed	35 (9)
Years of schooling	
No schooling	14 (3.6)
1 to 4	130 (33.6)
5 to 8	108 (27.9)
Higher than 8	135 (34.9)
Family income (minimum wages)*	
No income	1 (0.3)
<1	18 (4.7)
1 to 3	202 (52.3)

4 to 5	120 (31)
>5	45 (11.7)

*Wage equivalent to 724,00 reais.

The frequency of participants with depression was 168 (43.4%). Regarding QOL results in the SF-36 questionnaire, the lower means obtained by the participants concerned the following areas: pain, vitality, general health status and physical aspects. The best average score was obtained in the social functioning domain (Table 2).

Table 2 - Mean, median and standard deviation of the values obtained for the domains of the tool SF-36. Curitiba, PR, Brazil, 2016

SF-36 domain	Mean	Median	Standard deviation
Functional Capacity	73.2	80	25.3
Physical Aspects	65.8	100	41.3
Pain	58.8	61	28
General Health Status	64.8	72	23.2
Vitality	63.8	65	22.3
Social Aspects	77.9	88	25.8
Emotional Aspects	73	100	40
Mental health	70.3	76	23.5

Comparison of the scores of the SF-36 domains among depressed and non-depressed participants showed that the scores were significantly lower in all domains for the depressed individuals. The greater differences between the means were obtained in the emotional aspects (95% CI: 26.72% - 42.08%), mental health (95% CI: 20.21% - 28.73%), physical aspects (95% CI: 15.85% - 32.10%) and vitality (95% CI: 19.14% - 27.07%) (Table 3).

Table 3 - Comparison of the mean values of the SF-36, according to the Beck's Depression Inventory. Curitiba, PR, 2016

Domains SF-36	Categorization according to Beck's Depression Inventory		Difference between the means (CI 95%)	p-value
	Non-depressed[a]	Depressed[b]		
	Mean (SD)	Mean (SD)		
Functional capacity	79.38 (23.33)	65.12 (25.55)	14.26 (9.30 a 19,23)	< 0.01
Physical aspects	76.26 (36.65)	52.23 (43.24)	24.02 (15.85 a 32,10)	< 0.01
Pain	65.65 (27.44)	49.77 (26.31)	15.88 (10.44 a 21.31)	< 0.01
General health status	71.29 (19.81)	56.40 (24.53)	14.89 (10.33 a 19,45)	< 0.01
Vitality	73.79 (17.45)	50.68 (21.21)	23.10 (19,14 a 27.07)	< 0.01
Social aspects	86.36 (20.71)	66.96 (27.67)	19.39 (14.37 a 24.42)	< 0.01
Emotional aspects	87.98 (29.48)	53.57 (43.47)	34.40 (26.72 a 42.08)	< 0.01
Mental health	80.88 (16.34)	56.40 (24.13)	24.72 (20.21 a 28.73)	< 0.01

Legend: a = score up to 9 points. b = greater or equal to 10 points. SD = Standard Deviation. CI = Confidence Interval. Statistical test: T-Student independent samples.
Source: the author (2016)

● DISCUSSION

The present study had three main findings. The first concerns the percentage of hypertensive adults who suffered from depression, the second concerns the most affected QoL domains, and the third concerns the possible relationship between decreased QoL and the presence of depression in hypertensive individuals.

The sociodemographic aspects of this sample support the national literature on the characteristics of individuals with hypertension [1]. Regarding QoL, it is known that it is associated with educational level (schooling) and although such comparison has not been made here, it may have influenced the scores of SF-36, since 33.6% of the participants have completed one to four years of schooling [6].

The variable depression can also be related to education. However, there is no consensus in the literature regarding this association, since data is heterogeneous and dependent on the population investigated [19].

The presence of depression in hypertensive individuals found in this study was also identified in international studies based on different methodologies, populations and samples [20-21].

A systematic review with meta-analysis of observational studies that used the databases PubMed, Web of Knowledge, China National Knowledge, Internet (CNKI), Wanfang and Weipu to determine the prevalence of depression in hypertensive individuals identified 41 studies with a total of 30,796 participants and found that the average prevalence of hypertensive persons with depression was 26.8% (95% CI: 21.7% -32.3%). Of all the studies included in this review, 9-% were cross-sectional, like the present study [21].

In a study on anxiety and depression in patients with 204 chronic diseases, in Greece, the authors found that 36.3% of the sample had hypertension and 54% had some degree of depression [22]. On the other hand, in 2014, a cross-sectional study conducted in the state of Minas Gerais with 172 elderly hypertensive individuals identified symptoms of depression in 30.2% of the sample [23].

The mean number of hypertensive individuals was higher than the means found in previously described studies the HA and depression was higher than the average are found in the above studies. However, according to the meta-analysis that investigated this relationship, the heterogeneity in the prevalence of depression in hypertensive individuals can be attributed to different methods of assessment [21], considering that when the instruments are self-declared there may be an overestimation or underestimation of results.

Depression symptoms may affect QoL [24], adherence to drug and non–drug treatments in hypertensive individuals, in addition to predispose them to adopt inappropriate habits, particularly mood swings caused by this condition [11], which may cause them to be more susceptible to the onset of complications.

The relationship between depression and hypertension control has not been examined in this study. However, it is believed that depressed individuals have greater difficulty adhering to treatment, as shown in a case-control study conducted in Pakistan to investigate the association between uncontrolled hypertension with depressive and anxiety disorders. This study included 590 patients in two outpatient facilities with blood pressure above 140/90 mmHg. The results showed association between uncontrolled hypertension and a history of depression [24].

A study conducted in Rio Grande do Sul with 302 patients to investigate the association between symptoms of anxiety or depression, hypertension and its impact on QoL, using the Beck's depression inventory and SF-36 demonstrated that depression and anxiety have an impact on QoL [25].

The present study obtained results similar to the previously referred study results in QoL scores obtained by depressed and non-depressed individuals, in all areas. Although this is a cross-sectional study that does not allow establishing a cause-effect relationship, it can be inferred that depression had a negative impact on the QoL of the patients investigated.

There are few studies on the relationship of QoL of hypertensive patients with depression. However,

there are studies on the association of QoL of patients with other chronic diseases such as diabetes and chronic kidney disease and depression.

Cross-sectional study conducted in northern Ira to investigate the relationship between QoL and depression in patients with type II diabetes used the WHO Quality of Life-BREF (WHOQOL-BREF) tool. The results showed that the average QoL of patients with depression was significantly lower in three (physical health, psychological health and environment) of the four domains of the tool when compared to non-depressed individuals [26].

Although the instrument used for the assessment of QoL in the aforementioned study is not the SF-36, it can be seen that the difference between the scores obtained by depressed and non-depressed individuals in the domain Psychological Health of WHOQOL-BREF was significant ($p < 0.001$), similar to the result obtained in this study for the domains Mental Health ($p < 0.01$) and Emotional Aspects ($p < 0.01$).

Corroborating these results, a cohort study of 198 patients with type II diabetes, in Timisoara, Romania, shows that depression is a factor that may reduce the QoL of individuals with diabetes, and such impact can be intensified depending on the severity of depression [27].

Regarding chronic kidney disease, a correlational, cross-sectional study of 2016 conducted in a Renal Replacement Therapy Unit of the State of São Paulo, associated anxiety and depression with decreased QoL in depressed patients undergoing hemodialysis [28].

A study conducted in India with adults diagnosed with severe and very severe obstructive pulmonary disease revealed that patients with severe depression obtained a lower score in QoL in all the domains compared to individuals with moderate or mild depression. Also, the number of exacerbations and hospitalizations caused by the disease were correlated with the severity of depression and all domains of QoL [29].

Therefore, studies that relate QoL and depression, in different chronic diseases, show similar results to those obtained in the present study and describe other effects that have not been investigated.

The limitation of this study concerns its design, cross-sectional, which does not make possible to establish a cause and effect relationship.

● **FINAL CONSIDERATIONS**

This study suggests that depression is significantly associated with deterioration in the QoL of hypertensive patients in all the domains of the SF-36.

Given that this relationship can affect the follow-up of drug and non-drug treatment, nurses and the multidisciplinary team must know hypertensive patients and assess their health status to establish, together, individualized and effective interventions, that contribute to improve the depressive symptoms and hence the quality of life. However, there is lack of strong scientific evidence to demonstrate this relationship and therefore assist the professionals in the decision-making process.

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