

# Chronic health conditions related to quality of life for federal civil servants

*Condições crônicas de saúde relacionadas à qualidade de vida de servidores federais*  
*Enfermedades crónicas relativos a la calidad de vida de los servidores federales*



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## ABSTRACT

**Objective:** The aim of this study is to correlate the QOL domains of the civil servants to the type and number of chronic health conditions.

**Method:** A transversal, quantitative study, conducted at the Department of Civil Servant Assistance of the Federal University of Rio Grande do Norte with 215 civil servants, during the period from March to May 2011.

**Results:** Among the chronic health conditions studied, there was significant relationship between non-communicable chronic disease and QOL scores, correlating weakly ( $r < -0.376$ ;  $p < 0.008$ ) in the other fields. It was found that the greater the number of chronic conditions, the lower the values on the QOL scale.

**Conclusion:** The quality of life of civil servants is negatively influenced by chronic health conditions, compromising, in general, their daily work and life activities.

**Keywords:** Quality of life. Chronic disease. Occupational health. Nursing.

## RESUMO

**Objetivo:** O objetivo desse estudo é correlacionar os domínios da QV dos servidores com o tipo e a quantidade de condições crônicas de saúde.

**Método:** Estudo transversal, quantitativo, realizado no Departamento de Assistência ao Servidor da Universidade Federal do Rio Grande do Norte com 215 servidores, durante o período de março a maio de 2011.

**Resultados:** Dentre as condições crônicas de saúde estudadas, constatou-se relação significativa entre a doença crônica não transmissível e escores de QV, correlacionando-se de modo fraco ( $r < -0.376$ ;  $p < 0,008$ ) nos demais domínios. Verificou-se que, quanto maior o número de condições crônicas, menores são os valores da escala de QV.

**Conclusão:** A qualidade de vida dos servidores é influenciada negativamente pelas condições crônicas de saúde, comprometendo de forma geral suas atividades diárias de vida e trabalho.

**Palavras-chave:** Qualidade de vida. Doença crônica. Saúde do trabalhador. Enfermagem.

## RESUMEN

**Objetivo:** El objetivo de este estudio es correlacionar las áreas de la calidad de vida de los servidores al tipo y cantidad de problemas de salud crónicos.

**Método:** Estudio cuantitativo transversal, realizado en el Departamento de asistencia a la Universidad Federal de Rio Grande do Norte Server con 215 servidores, en el período de marzo a mayo de 2011.

**Resultados:** Entre las condiciones crónicas de salud, se ha observado una relación significativa entre la enfermedad crónica intransferrible y puntajes QOL y se correlacionó débilmente ( $r < -0.376$ ;  $p < 0,008$ ) en otras área. Se encontró que cuanto mayor es el número de condiciones crónicas, la parte inferior de los valores de escala QOL.

**Conclusión:** La calidad de vida de los servidores está influenciada negativamente por las condiciones de salud crónicas, que afectan en las actividades cotidianas generales de la vida y el trabajo.

**Palabras clave:** Calidad de vida. Enfermedad crónica. Salud laboral. Enfermería.

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## ■ INTRODUCTION

Chronic health conditions have gained singular importance in Brazilian health care, as the country is undergoing a period of transformation that associates an accelerated demographic transition and epidemiological transition expressed by the triple burden of diseases, which are: an unsurpassed agenda of infectious and deficiency diseases, a major load of external causes and a hegemonic presence of chronic conditions<sup>(1)</sup>.

Chronic conditions have had an impact on quality of life for individuals and their families. Permanent change, which lasts throughout life, is called a chronic condition. It has a strong impact on relationships with the physical and social environment and causes the individual to adapt to a new lifestyle<sup>(2)</sup>.

According to the World Health Organization, chronic non-communicable diseases are a major health problem in Brazil, affecting mainly the poor population and the most vulnerable groups. In 2009, of all causes of death registered in Brazil, 66.6% were due to non-communicable diseases<sup>(3)</sup>.

Chronic diseases begin and evolve slowly. They last for more than three months and, in some cases, they tend to present in a definitive and permanent manner. They have a number of causes, which vary over time, including heredity, lifestyle, exposure to environmental factors and physiological factors. Therefore, there are no determined regular or predictable patterns for chronic conditions<sup>(1)</sup>.

To this end, chronic conditions cause various symptoms and loss of functional capacity, which is evaluated from the presence and extent of the restrictions imposed on physical capacity. This scale directly affects quality of life and is influenced by age and the presence of chronic comorbidities, which act to diminish functional capacity and, consequently, quality of life<sup>(4-5)</sup>.

The impact of chronic conditions on quality of life (QOL) is demonstrated by the relationship between QOL domains by number of chronic conditions, in which the higher the number of chronic comorbidities in one individual, the lower the QOL scores using an analysis of pain, fatigue, anxiety, depression, physical function, satisfaction with participation in social roles and satisfaction with participation in social activities domains<sup>(5)</sup>.

Another item that influences the quality of life is the ability to work, which decreases over the years. It is thus correlated to the current scenario of the aging population, resulting in a greater burden of chronic diseases on Brazilian health care, with a decreased ability to work at older ages, which, combined, cause negative effects on quality of life<sup>(1, 6)</sup>.

Several factors affect the quality of life of workers, including the weekly work hours, age, sex, time basis (full-time, part-time and hourly), type of title, quality of services, satisfaction with the team, relationships at work, working conditions, work shift, and others, which affect the psychological, social relationship, spiritual/religious/personal belief aspects, environment and physical domains<sup>(7-8)</sup>.

Given the aforementioned, and understanding the quality of life as a measure of outcome, which can be used as an indicator for the evaluation of health promotion actions, this study is justified by the benefits granted to the civil servants and the institution, such as recognition of the principal quality of life domains that are affected, as well as major chronic conditions present in this population, allowing for targeted interventions, changes in lifestyle and consequent improvement of QOL. Accordingly, in order to

Face these considerations, the main question of this study is formulated: What is the relationship between the quality of life domains for civil servants with chronic diseases? To answer this question, the purpose of the study was to correlate the quality of life domains of the servers with the type and number of chronic health conditions.

## ■ METHODS

This study derived from a dissertation presented in the Graduate Nursing Program at the Federal University of Rio Grande do Norte (UFRN)<sup>(9)</sup>. It is a descriptive, transversal study with a quantitative approach, conducted at the Department of Civil Servant Assistance – DAS of UFRN, in the city of Natal / RN.

The target population for this study consisted of civil servants assisted by a member of the multidisciplinary team, at the DAS outpatient clinic and the Dean of Human Resources (PRH/UFRN). The sample was made up from the spontaneous demand for the DAS healthcare service and accessibility, totaling 215 civil servants of UFRN, carriers of morbidities defined as chronic conditions at the end of data collection, which lasted three months, from March 1 to May 27 2011, during which it was possible to obtain a sufficient number of subjects for the sample.

To calculate the sample from civil servants with a chronic health condition, the Barbetta formula was used<sup>(10)</sup>, as follows:

N = population size

E<sub>0</sub> = tolerable sampling error (5%)

n<sub>0</sub> = first approximation of the sample size

$$n_0 = \frac{1}{E_0^2}$$

n = size of the sample

$$n = \frac{N \cdot n_0}{N + n_0}$$

Calculation of the number of civil servants with chronic health conditions:

N = 465 (155x3)

n = 400

So:  $n = 465 \times 400 / 465 + 400 = 215.02$

For sample selection, the following inclusion criteria were elected: being an active or inactive civil servant of the UFRN staff, having at least one chronic health condition, seeking out DAS for outpatient care of any kind, having the cognitive ability to respond to the instrument.

Data collection occurred at the DAS outpatient clinic, individually, respecting the privacy of each participant and, after, the Informed and Clear Consent form was signed. An interview was held for application of the socio-demographic, environmental, labor and health characterization form, and then the SF-36 questionnaire.

The instrument for evaluating health-related quality of life, the Medical Outcome Study 36-Item Short Form (SF-36) questionnaire is calculated based on the values of the questions and transformed into scores by domains, where zero corresponds to the minimum value and 100 the maximum. Thus, the closer the values of the SF-36 scales are to zero, the more dissatisfied we find the civil servant regarding that domain<sup>(11)</sup>.

The SF-36 is a multidimensional instrument, consisting of 36 questions inserted into eight domains: functional capacity (10 items), limitations on physical aspects (4 items), pain (2 items), general health (5 items), vitality (4 items), social functioning (2 items), emotional aspects (3 items) and mental health (5 items), plus a comparative question between current health and health from a year prior<sup>(11)</sup>.

From the results of the domains, we calculated the scores of the physical health domain, taking the average from the functional capacity, physical aspect, pain, general health and vitality domains, allowing us to broadly view the relationship of the civil servants with the physical aspects and the interference of chronic conditions on them<sup>(11)</sup>.

Before surveying the morbidities, the diseases found in categories as established by WHO for chronic health condition were reclassified, as follows: chronic non-communicable diseases (doenças crônicas não transmissíveis – DCNTs), persistent mental illness (transtorno mental persistente – TMP), structural and continuous physical disability (deficiência física contínua e estrutural – DFCE) and

long-term communicable diseases (doenças transmissíveis de longo prazo – DTLPs).

The study followed the basic precepts of the Ethical and Legal Aspects of Scientific Research, established in resolution No. 196/1966 by the National Health Council, the project being assessed by the Ethics Committee of the Onofre Lopes University Hospital (Hospital Universitário Onofre Lopes – HUOL), with a concurring opinion and Protocol CEP/HUOL 488/2010 and CAAE nº 0046.0.294.000.10.

The data collected was entered into and arranged in a spreadsheet using Microsoft Excel 2007 and exported to statistical *software* used for performing descriptive and inferential analyses of the data – *Statistical Package for Social Science* (SPSS) version 15.0. As a result, the inferential statistics allowed the identification of correlations existing between the influence of chronic health conditions on the quality of life of the active and inactive civil servants, using the Kruskal-Wallis test, and Pearson correlation coefficient (r) and the level of statistical significance was of 5%, (p-value < 0.05), using the Spearman's rank correlation coefficient (ρ).

## ■ RESULTS

Of the 215 civil servants studied, 153 were active, with male predominance of (59.1%), in the average age range of 58.3 years ± 8.04, married or in a common-law marriages (72.6%), Catholic (76.3%) and mixed-race (50.7%).

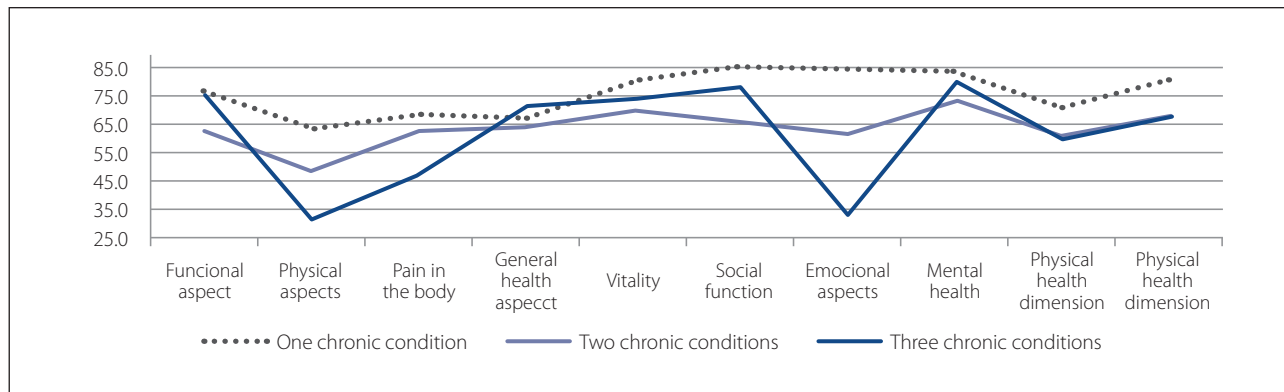
We analyzed the quality of life by domains, regarding the presence of one, two or three chronic health conditions. (Figure 1)

According to the results of the Spearman correlation, the correlation was verified as weak and negative in most domains, demonstrating that the greater the number of chronic conditions, the lower the values from the domains of the quality of life scale are.

When analyzing the variance between chronic health conditions and the average quality of life scores, we observed a statistical significance between most areas, with the exception of the physical aspect (ρ = 0.154), pain in the body (ρ = 0.469) and general health aspect (ρ = 0.461) domains, which showed no statistical significance. (Table 1)

In an analysis of the behavior of the variance for categories of chronic conditions, it was found that Chronic non-communicable diseases + persistent mental illness and persistent mental illness presented the lowest scores (maximum average of 64.9 points), regardless of the domains, with the exception of the functional aspect (77.1 points).

In relation to the categories of non-communicable chronic diseases with structural and continuous physical



**Figure 1** – Averages of the domains of the SF-36 according to the number of chronic conditions of the civil servants cared for at the DAS/UFRN. Natal/RN, 2011

Source: Research data, 2011.

**Table 1** – Averages of the domains of the SF-36 according to the chronic health condition categories of the civil servants cared for at the DAS/UFRN. Natal/RN, 2011 (n = 215)

Domains of the SF-36	Categories of chronic health conditions						ANOVA (p-value)
	DCNT <sup>1</sup> (n=143)	TMP <sup>2</sup> (n=7)	DFCE <sup>3</sup> (n=2)	DCNT + DFCE (n=30)	DCNT +TMP (n=29)	DCNT, TMP + DFCE (n=4)	
Domains	%	%	%	%	%	%	
Mental Health	84.7	53.7	100.0	83.6	62.3	80.0	0.001
Social Function	87.1	53.8	69.0	71.4	59.6	78.2	0.001
Emotional Aspects	86.7	19.0	100.0	82.2	40.2	33.2	0.001
Vitality	80.5	55.0	87.5	77.8	61.7	73.7	0.001
Functional aspect	75.2	77.1	100.0	60.1	64.8	75.0	0.016
Pain in the body	68.4	63.7	80.5	63.8	60.9	47.5	0.469
General Health Aspect	67.0	60.8	76.0	68.5	59.1	71.5	0.461
Physical Aspects	63.9	60.7	62.5	48.3	49.1	31.2	0.154

Source: Research data, 2011.

Notes: <sup>1</sup> chronic non-communicable disease; <sup>2</sup> persistent mental illness; <sup>3</sup> structural and physical disability

disability and chronic non-communicable diseases with persistent mental illness and structural and continuous physical disability, it was found that the average varied for both, interfering negatively on quality of life, respectively, in the physical aspect domains (48.3 and 31.2 points), pain in the body (63.8 and 47.5 points), physical health domains (63.8 and 67.7 points) and emotional aspects (33.2 points) for just the three chronic health conditions.

It was also identified that, despite the small number of civil servants affected by persistent mental illness (n = 7) and chronic non-communicable disease + persistent mental illness (n = 29), these categories are most related to a decrease of the quality of life scores.

For a better understanding of which chronic health condition interferes the most with the quality of life of the civil servants, we decided to analyze the correlations by category and by domains of the SF-36. (Table 2)

Among the chronic health conditions studied, the statistical analysis showed a significant relationship between chronic non-communicable disease and quality of life scores, correlating weakly, negatively and significantly in the other domains.

The correlation between the chronic health condition categories and quality of life showed that persistent mental illness and chronic non-communicable disease with persistent mental illness had a statistically significant cor-

**Table 2** – Correlation between the scores of the domains of the SF-36 and the categories of chronic health conditions of the civil servants cared for at the DAS/UFRN. Natal/RN, 2011 (n = 215)

Domains of the SF-36	Chronic health condition categories											
	DCNT <sup>1</sup>		TMP <sup>2</sup>		DFCE <sup>3</sup> TMP		DCNT + DFCE		DCNT + TMP		DCNT, TMP + DFCE	
	R	(p)	r	(p)	r	(p)	R	(p)	r	(p)	r	(p)
Mental health	-0.248	(0.001)	0.160	(0.019)	-0.152	(0.026)	-0.019	(0.783)	0.319	(0.001)	0.008	(0.906)
Social Function	-0.355	(0.001)	0.141	(0.038)	0.024	(0.723)	0.101	(0.140)	0.293	(0.001)	0.036	(0.597)
Emotional Aspects	-0.376	(0.001)	0.284	(0.001)	-0.063	(0.356)	-0.046	(0.498)	0.378	(0.001)	0.147	(0.031)
Vitality	-0.226	(0.001)	0.068	(0.319)	-0.053	(0.436)	-0.019	(0.779)	0.307	(0.001)	0.010	(0.887)
Functional aspect	-0.180	(0.008)	-0.046	(0.506)	-0.136	(0.047)	0.183	(0.007)	0.125	(0.068)	0.001	(0.987)
Pain in the body	-0.109	(0.112)	0.018	(0.791)	-0.048	(0.486)	0.034	(0.619)	0.085	(0.214)	0.087	(0.204)
General Health Aspect	-0.074	(0.279)	0.049	(0.472)	-0.040	(0.564)	-0.036	(0.604)	0.128	(0.062)	-0.009	(0.897)
Physical Aspects	-0.173	(0.011)	-0.014	(0.837)	-0.012	(0.858)	0.117	(0.087)	0.096	(0.162)	0.091	(0.183)

Source: Research data, 2011.

Notes: <sup>1</sup> Chronic non-communicable disease; <sup>2</sup> Persistent mental illness; <sup>3</sup> Structural and continuous physical disability.

relation for both, in the mental health and social function domains, emotional aspects and mental health domain.

It was demonstrated that structural and continuous physical disability contributed to poor quality of life, having a weak, negative and significant correlation only for the mental health domain ( $r = -0.151$ ;  $p = 0.026$ ), functional aspect ( $r = -0.136$ ;  $p = 0.047$ ) and the mental health domain ( $r = -0.049$ ;  $p < 0.001$ ).

## DISCUSSION

We observed that the higher the number of chronic conditions, the lower the values of the domains of the quality of life scale, where the most affected domains were the physical and emotional aspects. This implies that the presence of two or more chronic conditions caused the most difficulty to the performance of daily activities and caused changes in work as a result of impaired physical health and emotional problems.

Studies show that patients with two or more chronic conditions suffer changes that have a major impact on their quality of life, compared to those patients who have only one chronic condition. These findings corroborate the results of our study, since afflicted the civil servants afflicted with a chronic health condition had better overall total scores, followed by those with two, and three chronic health conditions, who had a lower mean total score<sup>(12-13)</sup>.

By analyzing the variance between chronic health conditions and the average quality of life scores, the results show that the mental health, emotional, social function, vitality, functional aspect, mental health and physical health domains are statistically significant. It was also found that despite the small number of civil servants affected by Persistent Mental Illness (TPM) along with Chronic Non-communicable Diseases (NCDs), these categories are most related to a decrease in the quality of life scores.

A study performed with individuals from 27 different countries, with and without mental health issues, showed, in its results, that people with mental disorders may be at a greater risk of losing their jobs, and have difficulties in getting a new job, compared with those who do not have mental health issues<sup>(14)</sup>.

One has to think that mental disorders affect civil servants in the full production phase of development by increasing 4-14 times the odds of the employees declaring that their capacity to work is insufficient, as the study of 423 doctors at a hospital in the Netherlands shows, limiting them to work and daily activities<sup>(15)</sup>.

In Brazil conducted a study in the Family Health Unit was conducted, using 113 patients with TMP to assess the quality of life and the perception of disease among hypertensive patients. There was impairment in all domains of the quality of life scale, suggesting that the chronicity of hypertension can lead to impairment of the individual's quality of life<sup>(16)</sup>.

A study conducted in Australia, with the objective of examining the impact that depression and cardiovascular disease have on the worker's life, shows that the presence of these comorbidities, simultaneously or separately, interferes with the workday. When presented simultaneously (depression and cardiovascular disease), the probability of generating losses at work is eight times higher, as the result of absenteeism<sup>(17)</sup>.

The results show a significant correlation between chronic health condition categories and quality of life domains. Among the chronic conditions, chronic non-communicable disease and quality of life scores correlate weakly and negatively, particularly in the mental health domain. The correlation between the chronic health condition categories and quality of life showed that persistent mental illness and chronic non-communicable disease with persistent mental illness had a statistically significant correlation, revealing a decrease in the quality of life with relation to psychosocial capacity. And yet, it is clear that structural and continuous physical disability contributed to worsening the quality of life.

A study conducted in the Netherlands, for the purpose of evaluating the contribution of chronic non-communicable diseases to the total burden of disability in mobility and daily activities among older people, demonstrates, in its results that those primarily responsible for fostering the inability were cardiovascular diseases and arthritis<sup>(18)</sup>.

A study conducted in South Carolina, in order to evaluate the association between the presence of COPD (chronic obstructive pulmonary disease) and quality of life scores, showed, in its results, that patients with COPD reported 14 days or more of mentally unhealthy days, and 14 days or more of limitations to their activities, in the last 30 days, as compared to respondents who did not have COPD, demonstrating that individuals with chronic obstructive pulmonary disease have a lower quality of life compared to those without the disease<sup>(19)</sup>.

A study on quality of life as related to DFCE, done with paraplegic individuals, following the methodology adopted by the WHO, showed a statistically significant difference between the domains studied, where the environmental and physical obtained the worst evaluation scores, and the highest scores in the evaluation belonged to the psychological and social relationships domains<sup>(20)</sup>.

Finally, the amount of information generated by the values of various domains indicates the presence of a correlation between CCS categories with all the quality of life scales analyzed for the civil servants, within the different aspects of the SF-36. Thus, we can infer that the presence of CCS negatively affects the quality of life, causing active

and inactive civil servants impairment of their daily activities, over the years, due to the affected morbidity.

## ■ CONCLUSION

With relation to the quality of life of the SF-36, coupled with the presence of the CCS number, in one, two or three, we verified a weak and negative correlation between the domains, presenting as statistically significant to the functional aspect, physical, vitality, social function, emotional, mental health, physical health and mental health domains, indicating that the greater the number of chronic conditions, the lower the values on the Quality of Life Scale. The most affected domains were the physical and emotional aspects, especially for those affected with three CCS.

When analyzing the variance of chronic health condition categories, in relation to the SF-36 scores, it was found that the respondents affected with DCNT+TMP or TMP obtained the lowest levels of quality of life and the DFCE category had the highest quality of life scores.

When analyzing correlations of the CCS category with the domains of quality of life scores, they indicated that DCNT presented a relevant distribution in the study group, and a weak and negative ( $r < -0.376$ ), but significant ( $p < 0.008$ ) correlation with the mental health, social functioning, emotional functioning, vitality, physical features and functional aspect domains, as well as in the areas mental and physical health.

Among the CCS categories, it was found that TMP and DCNT+TMP showed a weak and statistically significant correlation, leading to a drop of the SF-36 scores in several domains.

From this, we concluded that understanding the quality of life of UFRN civil servants, with chronic health conditions, measured using the generic SF-36 instrument, provides indicators for tracking and identification of health care needs, subsidizing the decisions made regarding priorities in the health care and nursing actions intended for civil servants, as well as resource allocation.

Finally, as for the limitations of the study, the difficulty in the application of the instrument with regards to the structural similarity of the sixth and tenth questions stands out, resulting in doubt among the study subjects.

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