

Article

Not peer-reviewed version

Occupational Factors on QOL of University Teachers

Flavio Henrique Rodrigues Silva , [Maria Alves Barbosa](#) , Celmo Celeno Porto ,
Eliane Gouveia de Morais Sanchez , Luiz Almeida Silva , [Ludmila Grego Maia](#) , Marianne Lucena Silva ,
[Hugo Machado Sanchez](#) *

Posted Date: 20 August 2025

doi: 10.20944/preprints202508.1505.v1

Keywords: work; professor; teacher; health; evaluation



Preprints.org is a free multidisciplinary platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This open access article is published under a Creative Commons CC BY 4.0 license, which permit the free download, distribution, and reuse, provided that the author and preprint are cited in any reuse.

Disclaimer/Publisher's Note: The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

Article

Occupational Factors on QOL of University Teachers

Flavio Henrique Rodrigues da Silva ¹, Maria Alves Barbosa ¹, Celmo Celeno Porto ¹,
Eliane Gouveia de Morais Sanchez ², Luiz Almeida da Silva ³, Ludmila Grego Maia ², Marianne
Lucena da Silva ⁴ and Hugo Machado Sanchez ^{2,*}

¹ Federal University of Goiás (UFG)

² Federal University of Jataí (UFJ)

³ Federal University of Catalão (UFCAT)

⁴ Federal University of Brasília (UnB)

* Correspondence: hmsfisio@ufj.edu.br;

Abstract

Analyze which aspects related to work may interfere with the QOL and work (QWL) of academic teachers from different fields of knowledge and verify the correlation between QOL and QWL. Cross-sectional study, in which we've used a sociodemographic questionnaire with questions related to work, WHOQOL-bref and TQWL-42 of 284 academic teachers from the different fields. QOL and QWL didn't differ in between areas of knowledge and they were impacted by work-related factors as follows: better remuneration, the statutory agreement, not to have to move from the home city to act as a professor, better lighting, comfortable temperature, less noises, material resources, fewer students in class, we've also observed that QOL and QWL are interrelated. So, QOL and QWL are influenced by organizational factors and related to teaching function and don't differ among teachers of different areas of knowledge that were evaluated, moreover it was concluded that the work and professors' lives are interdependent.

Keywords: work; professor; teacher; health; evaluation

1. Introduction

The term quality of life (QOL) has a broad concept, for it results from the interaction between biological, social and psychological elements within society and individual, and can be changed according to the socio-cultural environment which it is inserted in [1]. The QOL Group of the World Health Organization (WHO) defines QOL as the perception that the individual has of the own position in life, in the cultural context and in the value system in which the one lives and in relation to the own goals, expectations, standards and concerns [2].

QOL of a person is related to their job satisfaction and other variables related to their occupational activity, thus it determines the quality of work life (QWL) [3]. QWL can be defined by the way it is perceived by the individual, emphasizing the subjective aspects related to satisfaction with the workplace, working conditions, the physical environment, material resources, salary, work organization, health and worker safety [4]. It also comprises the personal and social expectations, pride and pleasure in the own work, physical and emotional well-being, self-esteem, company's image in public opinion, opportunities and career prospects and respect for workers' rights [5].

Teachers are essential workers for the whole society, as they have a prominent role in the intellectual training and they are responsible for creating social bonds, by encouraging autonomy, critical thinking and responsibility through a theoretical and practical, intellectual and/or administrative activity [6]. The teacher is one of the professionals with more emotional and intellectual weariness for he/she deals with a quite heterogeneous public, with a high students turnover, the pressure for scientific updating and qualification, numerous institutional activities and the large volume of extracurricular work, among other duties [5].

Several factors related to teaching work can directly affect, in a negative way, on teachers' QOL and QWL, such as physical conditions and inadequate or deficient facilities, lack of teaching resources, excessive bureaucratic functions, rules and inadequate administrative procedures, insufficient remuneration, long working hours, lack of professional recognition, professional devaluation, lack of career planning, among others [7,8].

The teaching work overload, added to the high rates of involvement with administrative activities, research and extension, require the accomplishment of many of these tasks at home, resulting in little time for personal activities, rest and leisure [9]. These overworks have been intensified thanks to technological innovations that go beyond the physical barriers between the personal world and the professional one, providing a workspace anywhere, which further enhances the teaching workload, representing a health risk to them [10].

Due to the fact that superior education is crucial to the development of the country, an alternative to these problems would be the promotion of teachers' QWL, providing a more healthy and stimulating work environment, reducing the risk factors for health and achieving a balance between professional and personal being [6]. Despite the importance of teaching activity, little is known about the occupational factors that may impact on their QOL and QWL regardless of their area of expertise.

Therefore, the objective of this study was to analyze which aspects related to work may interfere with QOL and QWL of professors who work with different fields of knowledge, as well as to investigate the association between QOL and QWL.

2. Materials and Methods

This is a cross-sectional descriptive observational study carried in a public higher education institution (HEI) located in a State in central-western Brazil. The HEI has teachers in arrangements statutory and non-statutory working, the non-statutory and contracted according to the number of classes given. This study was approved by the Research Ethics Committee of University of Rio Verde (Opinion n° 042821). Writing Informed consent was obtained from all individual participants included in the study.

The sample was stratified random probability, which is made according to the knowledge area, sex and age. Because of the stratification were made sample calculations for each/sex/age of the areas of expertise of teachers. The teacher population in HEI was of 386 servers and from this number the sample calculation was carried out through the OpenEpi®, with confidence grade of 95%, that resulted in a minimum sample of 193 teachers for representativeness in relation to the total HEI population, all teachers of IES were invited, but the returned was 284 validated questionnaires, ie excluding teachers who fulfilled the exclusion criteria. The study included teachers with more than six months of academic teaching regardless of their employment. Teachers who fulfilled the exclusion criteria were left out, as follows: incomplete questionnaires, teachers exercising exclusively administrative activity, during license period and academic of *Stricto Sensu* post-graduate programs in teaching stage. When one of the three instruments were answered incompletely, other questionnaires the same teacher were excluded.

Data collection occurred in 2014 simultaneously in all courses of HEI. Therefore, we used three instruments, a questionnaire on sociodemographic aspects, a specific instrument for assessment of QWL, the Total Quality of Work Life (TQWL-42) and the generic instrument proposed by the WHO to assess QOL, called WHOQOL-bref.

The first instrument corresponds to a questionnaire designed by the authors in order to collect sociodemographic data. The questionnaire was built in the structured format and with categorized nominal data. After being drawn up it was refined by three judges, who are researchers of the field concerned here or experts in the proposed method. After the refinement we proceeded up the necessary corrections and two pre-tests took place. Pre-tests resulted in adjustments so that we obtained the final version used in this study.

The second instrument, TQWL-42, was built and validated by Pedroso et al [11] to quantify the QWL in different populations. This instrument is based on major classical models of QWL in the literature and grounded in WHOQOL-100. This instrument has 42 Likert-type questions and is

divided into 5 spheres, Sphere 1: Biological/Physiological; Sphere 2: Psychological/Behavioral; Sphere 3: Sociological/Relational; Sphere 4: Economic/Policy; Sphere 5: Environmental/Organizational.

The third instrument, the WHOQOL-bref, was created by WHO in 1998 and validated for portuguese by Fleck et al [12], it has 26 Likert-type questions divided into four domains, Domain 1: physical; Domain 2: psychological; Domain 3: social relationships; Domain: 4: environmental. The Likert scale of both instruments uses graded from 0-5 and the maximum possible score on WHOQOL-BREF 20 points and TQWL-42 5 points.

All questionnaires were self-administered in this study, however in any doubt; researchers were available to assist respondents, converting the application in an assisted one.

To check the reliability of the two instruments in the population that's the aim of this study we made the calculation of Cronbach's Alpha, which determined mean $\alpha=0.80$ for the TQWL-42 (0.78 in Biological/Physiological sphere, 0.84 Psychological/Behavioral, 0.78 Sociological/Relational, 0.81 Economic/Policy and 0.79 in Environmental/Organizational sphere) and mean $\alpha=0.85$ regarding the WHOQOL-bref (0.90 Physical domain, 0,86 on Psychological, 0.83 in Social relationships and 0.81 on Environmental domain).

Collected data were transferred to an Excel® and in a sequence for SPSS® 20.0. After the descriptive analysis, Shapiro-Wilks test was performed in order to determine whether data were normal or non-normal. Done that, to compare the scores of the domains (QOL) and spheres (QWL) together used the Kruskal-Wallis test for both the total sample and for teachers stratified by knowledge area. To determine the association between the independent variables with QOL and QWL, comparing the scores of QOL and QWL among the strata of these variables was made using the Mann-Whitney U when the variable presented two strata and the Kruskal-Wallis test when the variable presented more than 2 layers. Spearman's correlation coefficient was performed to associate the number sociodemographic with the scores obtained in TQWL-42 and WHOQOL-BREF, as well as to correlate the QOL and QWL. Moreover, the simple linear regression was made, the model used the workload of administrative variables for association with QOL and number of students in practical classes for association with QVT. Results were considered statistically significant with $p<0.05$.

3. Results

The sample of this present study consisted of 284 teachers; such a sample was chosen after excluding up 11 questionnaires by inadequate filling and 29 due framework of exclusion. At the mean ages was: Agricultural 41.29 ± 9.23 , health: 39.21 ± 7.75 , exact: 37 ± 11.22 , human: 39.38 ± 10.39 .

QOL analysis of teachers showed an overall score of 15.20 ± 1.74 and 3.42 ± 0.41 for QWL (Table 1). These scores represent intermediate satisfaction with QOL and QWL by teachers.

Table 1. Mean values and comparison of the scores of QOL domains and spheres of QWL (N=284).

	Domains/spheres	Mean \pm SD
QOL	Physical	15,84 \pm 2,29 ^a
	Psychological	15,70 \pm 2,25 ^a
	Social relationships	15,63 \pm 2,70 ^a
	Environmental	14,38 \pm 1,93
	Overall score QOL	15,20 \pm 1,74
QWL	Biological/Physiological	3,30 \pm 0,48 ^b
	Psychological/Behavioral	3,78 \pm 0,49 ^{b,c,d}
	Sociological/Relational	3,46 \pm 0,60 ^{b,c}
	Economic/Policy	3,07 \pm 0,59
	Environmental/Organizational	3,42 \pm 0,53 ^b
	Overall score QWL	3,42 \pm 0,41

^a higher compared to the Environmental domain; ^b higher compared to the Economic/Policy sphere; ^c higher compared to the Biological/Physiological sphere; ^d higher compared to the Sociological/Relational and Environmental/Organizational spheres. Analysis by Kruskal-Wallis. Results of comparisons considering $p<0,05$.

When comparing, through the Mann-Whitney U test, QOL between sexes, there was no difference, however when comparing QWL, it was found that men (QWL=3.47±0.4) reported a significantly QWL ($p=0.025$) higher if compared to women (QWL=3.35±0.42) (Table 2).

Table 2. Categorized sociodemographic data, QOL and QWL spread over area of knowledge (N=284).

Variables	Health/biology (N=113)	Human (N=82)	Exact (N=51)	Agricultural (N=38)	QOL (N=284)	QWL (N=284)
Sex						
Male	50 (44,2%)	48 (58,5%)	40 (78,4%)	27 (71,1%)	15,37±1,69	3,47±0,40 ^a
Female	63 (55,8%)	34 (41,5%)	11 (21,6%)	11 (28,9%)	14,95±1,79	3,35±0,42
Age						
20-30	24 (21,2%)	20 (24,4%)	21 (41,2%)	2 (5,3%)	---	---
31-40	65 (57,5%)	24 (29,3%)	14 (27,5%)	11 (28,9%)	---	---
41-50	14 (12,4%)	26 (31,7%)	11 (21,6%)	11 (28,9%)	---	---
More than 51	10 (8,8%)	12 (14,6%)	5 (9,8%)	14 (36,8%)	---	---
Title						
Graduation	7 (6,2%)	6 (7,3%)	9 (17,6%)	0 (0%)	15,31±1,73	3,47±0,43
Expert	49 (43,4%)	40 (48,8%)	23 (45,1%)	1 (2,6%)	15,11±1,8	3,37±0,4
Master	49 (43,4%)	32 (39%)	18 (35,3%)	18 (47,4%)	15,16±1,9	3,5±0,55
PhD.	8 (7,1%)	4 (4,9%)	1 (2%)	19 (50%)	15,23±0,94	3,58±0,32
Salaries						
1-2 salaries	13 (11,5%)	9 (11%)	4 (7,8%)	0 (0%)	15,40±1,74	3,41±0,40
2-3 salaries	13 (11,5%)	20 (24,2%)	6 (11,8%)	4 (10,5%)	14,77±1,48	3,26±0,39
3-5 salaries	32 (28,3%)	22 (26,8%)	26 (51%)	4 (10,5%)	14,95±1,64	3,57±0,43 ^b
5-10 salaries	34 (30,1%)	25 (30,5%)	13 (%25,5)	8 (21,1%)	15,30±1,75	3,42±0,45
More than 10	21 (18,6%)	6 (7,3%)	2 (3,9%)	22 (57,9%)	15,7±2,03 ^b	3,39±0,38
Public student						
Graduation	113 (100%)	82 (100%)	51 (100%)	38 (100%)	15,16±1,77	3,43±0,41
Expert	13 (11,5%)	9 (11%)	4 (7,8%)	6 (15,8%)	15,47±1,62	3,39±0,45
Strictu sensu	0 (0%)	0 (0%)	0 (0%)	8 (21,1%)	15,28±1,38	3,14±0,43
Type of contract						
Statutory	37 (32,7%)	23 (28%)	11 (21,6%)	28 (73,7%)	16,51±1,29 ^c	3,84±0,12
Non-statutory	68 (60,2%)	58 (70,7%)	38 (74,5%)	7 (18,4%)	15,05±1,54	3,44±0,40
Works in more than one HEI						
Yes	12 (10,6%)	4 (4,9%)	5 (9,8%)	2 (5,3%)	14,81±1,75	3,34±0,35
No	101 (89,4%)	78 (95,1%)	46 (90,2%)	36 (94,7%)	15,25±1,74	3,42±0,42

Travelling to teaching						
Yes	14 (12,4%)	2 (2,4%)	2 (3,9%)	4 (10,5%)	15,08±1,64	3,27±0,41
No	99 (87,6%)	80 (97,6%)	49 (96,1%)	34 (89,5%)	15,21±1,76	3,43±0,42 ^d
Other remunerated activities						
Yes	71 (62,8%)	54 (65,9%)	18 (35,3%)	6 (15,8%)	15,24±1,76	3,44±0,45
No	42 (37,2%)	28 (24,1%)	33 (64,7%)	32 (84,2%)	15,14±1,74	3,39±0,38
Conducting ongoing obtain title						
Yes	33 (29,2%)	23 (28%)	18 (35,3%)	10 (26,3%)	15,18±1,81	3,45±0,41
No	80 (70,8%)	59 (72%)	33 (64,7%)	28 (73,7%)	15,20±1,73	3,41±0,42

^a compared to the female; ^b compared to the a 2-3 salaries; ^c compared to the Non-statutory; ^d compared to the Travel. Analysis by Mann-Whitney and Kruskal-Wallis tests. Results of comparisons considering $p < 0.05$.

Comparing areas of QOL and QWL, using Kruskal-Wallis, there was no difference, women with $p=0.843$ in comparison of QOL and $p=0.198$ in QWL.

In table 1, domains analyzed by the QOL questionnaire and spheres of QWL questionnaire are shown. In the comparative analysis between domains of QOL it can be seen that the environmental domain score was significantly lower ($p=0.000$) when compared to physical, psychological and social relations domains. Regarding the spheres that comprise the QWL, it was found that the score of the Economic/Political sphere was significantly lower ($p=0.000$) than the score of the other spheres, as well as the score for Biological/Physiological sphere was lower when compared to Psychological/Behavioral ($p=0.005$) and Sociological/Relational ones ($p=0.000$). Moreover, it was found that the score of Psychological/Behavioral sphere was statistically higher ($p=0.000$) than those obtained in the Sociological/Relational and Environmental/Organizational spheres.

In the comparison among domains that form the QOL it was found that, in all areas, the Physical domain was statistically higher ($p=0.004$) than the Environmental domain. Comparing the Social Relations domain and Environmental one it was found that the Social Relations domain was statistically higher ($p=0.004$) in areas of health, human and agricultural, while in the comparison between Social Affairs and Psychological domains, this last one was significantly higher ($p=0.002$) in health/human/agricultural areas (Table 3).

Table 3. Mean values and comparison of scores of the domains and spheres in each area of knowledge (N=284).

Domains/spheres	Health/biology (N=113)	Human (N=82)	Exact (N=51)	Agricultural (N=38)
Physical	15,77±2,31	15,78±2,27	15,94±2,49	16,06±2,09
Q Psychological	15,54±2,39	16,00±2,11	15,28±2,30	16,12±1,99
O Social relationships	15,56±2,84	15,77±2,51	15,32±2,95	15,96±2,41
L Environmental	14,47±1,88 ^{a, b}	14,36±1,94 ^{a, b}	14,06±2,19	14,54±1,67 ^{a, b}
Overall score QOL	15,15±1,84	15,24±1,63	14,98±1,98	15,4±1,55
Biological/Physiological	3,26±0,53 ^e	3,27±0,46	3,44±0,47	3,29±0,41
Psychological/Behavioral	3,77±0,56 ^{c, f, g}	3,82±0,46 ^{c, f, g}	3,74±0,45 ^{c, g}	3,74±0,40 ^{c, f}
Q Sociological/Relational	3,48±0,62 ^{d, e}	3,52±0,57 ^e	3,35±0,61 ^e	3,26±0,57
W Economic/Policy	3,09±0,60	3,08±0,57	3,09±0,55	2,93±0,65
L Environmental/Organizational	3,43±0,59 ^e	3,44±0,50 ^e	3,38±0,51	3,46±0,42 ^e

Overall score QWL	3,42±0,47	3,44±0,39	3,45±0,4	3,36±0,31
-------------------	-----------	-----------	----------	-----------

^a lower compared to the physical domains, ^b lower compared to the Psychological and Social relationships domains, ^c higher compared to the Biological/Physiological and Economic/Policy spheres, ^d higher compared to the Biological/Physiological sphere, ^e higher compared to the Economic/Policy sphere, ^f higher compared to the Sociological/Relational sphere, ^g higher compared to the Environmental/Organizational sphere. Analysis by Kruskal-Wallis. Results of comparisons considering $p < 0.05$.

Regarding the QWL, it was found that the scores of Psychological/Behavioral sphere was statistically higher ($p=0.004$) than those obtained in Biological/Physiological and Economic/Political spheres in all areas. The Sociological/Relational sphere was significantly higher ($p=0.031$) than the Biological/Physiological one, in health; and for Biological/Physiological sphere it was significantly higher ($p=0.027$) than the Economic/Policy in exact sciences. Scores of Psychological/Behavioral sphere were higher statistically ($p=0.004$) than the Sociological/Relational one, in health/human/agricultural areas; and also higher than the Environmental/Organizational sphere ($p=0.005$) in health/human/exact areas. Finally, the Economic/Political sphere was statistically lower compared to the Sociological/Relational ($p=0.010$) in health/human/exact areas, and also lower than the Environmental/Organizational sphere in health/human/agricultural ones (Table 3).

Table 2 shows the values of QOL and QWL comparisons for each variable related to work. In variable: income, it was observed that teachers with incomes above 10 minimum wages ($QOL=15.7\pm 2.03$) had a significantly better QOL ($p=0.017$) if compared to those whose income was of 2-3 minimum wages ($QOL=14.77\pm 1.48$). Regarding the QWL, it was found that teachers with income of 3-5 wages ($QWL=3.57\pm 0.43$) had a significantly better QWL ($p=0.015$) when compared to teachers earning 2-3 minimum wages ($QWL=3.26\pm 0.39$).

The same table also shows the significant difference ($p=0.005$) in the perception of QOL among teachers with statutory regulation at work ($QOL=16.51\pm 1.29$) and teachers with an employment contract ($QOL=15.05\pm 1.64$). Regarding the QWL, teachers who don't have to drive away from the home city to work as teachers ($QWL=3.43\pm 0.42$) reported a statistically better perception ($p=0.049$) compared to the ones who have to travel long distances ($QWL=3.27\pm 0.41$). Other analysis of sociodemographic data related in table 2 were not relevant.

As for the work environment, it was found that teachers who work in environments with better lighting ($QWL=3.48\pm 0.41$) reported a statistically better QWL ($p=0.000$) than those who work in environments with regular lighting ($QWL=3.32\pm 0.41$) or insufficient lighting ($QWL=3.03\pm 0.35$). Regarding the influence of temperature on QWL, it was noted that teachers who work in environments that provide greater thermal comfort ($QWL=3.50\pm 0.4$), showed a significantly better QWL ($p=0.001$) than those who informed to work in an uncomfortable work environment ($QWL=3.31\pm 0.4$). As for the noise in the teaching activity, both QOL as QWL influenced, so that in QOL, teachers who work with little noise interference ($QOL=15.46\pm 1.7$) reported a significantly better QOL ($p=0.048$) than those who work with moderate noise ($QOL=14.92\pm 1.7$); while in QWL it was found that workers who worked without noise interference ($QWL=3.71\pm 0.39$) or with little noise ($QWL=3.52\pm 0.41$) demonstrate a significantly better QWL ($p=0.000$) compared to those who reported working with moderate noise ($QWL=3.34\pm 0.4$) or excessive noise ($QWL=3.3\pm 0.4$) (Table 4).

Another factor that impacted QOL and QWL was resources for teaching, in this case those ones who understood that resources for activity were ideal ($QOL=15.67\pm 1.58$) showed a statistically better QOL ($p=0.042$) compared to those who said they had insufficient resources ($QOL=14.77\pm 2.18$), similarly the result obtained in the evaluation of QWL, in which teachers who reported having ideal resources ($QWL=3.64\pm 0.38$) reported a significantly better QWL ($p=0.000$) compared to those with acceptable resources ($QWL=3.40\pm 0.38$) and insufficient resources ($QWL=3.24\pm 0.49$), as well as those who reported having reasonable resources towards those with insufficient resources (Table 4). Other analysis of related to work data related in table 4 were not relevant.

Table 4. Categorized data related to work QOL and QWL spread over area of knowledge (N=284).

Variables	Health/biology (N=113)	Human (N=82)	Exact (N=51)	Agricultural (N=38)	QOL (N=284)	QWL (N=284)
-----------	---------------------------	-----------------	-----------------	------------------------	----------------	----------------

Number of disciplines	3,19±1,89	3,06±1,89	4,37±2,03	3,05±1,11	----	----
Work shift						
Matutinal	8 (7,1%)	1 (1,2%)	0 (0%)	1 (2,6%)	16,01±2,21	3,72±0,56
Daytime	13 (11,5%)	2 (2,4%)	0 (0%)	30 (78,9%)	15,62±1,55	3,47±0,45
Vespertine	6 (5,3%)	1 (1,2%)	1 (2%)	1 (2,6%)	15,91±1,01	3,44±0,27
Morning and evening	24 (21,2%)	27 (32,9%)	6 (11,8%)	2 (5,3%)	15,08±1,94	3,47±0,49
Afternoon and evening	10 (8,8%)	3 (3,7%)	11 (21,6%)	1 (2,6%)	14,71±1,95	3,43±0,71
Evening	8 (7,1%)	34 (41,5%)	21 (41,2%)	0 (0%)	15,06±1,79	3,41±0,39
Integral	44 (38,9%)	14 (17,1%)	12 (23,5%)	3 (7,9%)	15,38±1,96	3,42±0,34
Temperature						
Comfortable	47 (41,6%)	33 (40,2%)	20 (39,2%)	20 (52,6%)	15,35±1,68	3,50±0,4 ^a
Reasonable	41 (36,3%)	38 (46,3%)	22 (43,1%)	9 (23,7%)	14,96±1,79	3,39±0,43
Uncomfortable	23 (20,4%)	11 (13,4%)	9 (17,6%)	9 (23,7%)	15,34±1,83	3,31±0,4
Unbearable	2 (1,8%)	0 (0%)	0 (0%)	0 (0%)	15,73±1,63	3,02±0,13
Lighting						
Enough	73 (64,6%)	55 (67,1%)	35 (68,6%)	32 (84,2%)	15,31±1,65	3,48±0,41 ^b
Regular	36 (31,9%)	25 (30,5%)	16 (31,4%)	6 (15,8%)	15,06±1,88	3,32±0,41
Inadequate	4 (3,5%)	2 (2,4%)	0 (0%)	0 (0%)	13,91±2,30	3,03±0,35
Noises						
None	4 (3,5%)	6 (7,3%)	2 (3,9%)	3 (7,9%)	15,46±1,7	3,71±0,39 ^c
Few	42 (37,2%)	26 (31,7%)	19 (37,3%)	15 (39,5%)	15,37±2,12 ^g	3,52±0,41 ^d
Moderate	57 (50,4%)	42 (51,2%)	24 (47,1%)	20 (52,6%)	14,92±1,70	3,34±0,4
Excessive	10 (8,8%)	8 (9,8%)	6 (11,8%)	0 (0%)	15,27±1,46	3,3±0,4
Physical space of lectures						
Ideal	93 (82,3%)	73 (89%)	45 (88,2%)	33 (86,8%)	15,12±1,75	3,33±0,52
No ideal	20 (17,7%)	9 (11%)	6 (11,8%)	5 (13,2%)	15,21±1,75	3,43±0,40
Physical space of practices						
Ideal	58 (66,7%)	36 (66,7%)	16 (53,3%)	29 (80,6%)	15,30±1,65	3,36±0,37
Not ideal	29 (33,3%)	18 (33,3%)	14 (46,7%)	7 (19,4%)	15,07±1,85	3,46±0,44
Physical space of research						
Ideal	23 (50%)	26 (55,3%)	11 (55%)	19 (61,3%)	15,39±1,60	3,34±0,34

Not ideal	23 (50%)	21 (44,7%)	9 (45%)	12 (38,7%)	15,13±1,46	3,40±0,40
Resources for teaching						
Ideal	21 (18,6%)	5 (6,1%)	11 (21,6%)	6 (15,8%)	15,67±1,58 ⁱ	3,64±0,38 ^{e,f}
Acceptable	74 (65,5%)	67 (81,7%)	30 (58,8%)	19 (50%)	15,18±1,63	3,40±0,38
Inadequate	18 (15,9%)	10 (12,2%)	10 (19,6%)	13 (34,2%)	14,77±2,18	3,24±0,49

^a compared to the Uncomfortable ; ^b compared to the regular and Inadequate; ^c compared to the moderate and excessive; ^d compared to the moderate; ^e compared to the Inadequate; ^f compared to the acceptable. Analysis by Mann-Whitney and Kruskal-Wallis tests. Results of comparisons considering $p < 0.05$.

According to Table 5, it was verified a significant moderate positive correlation between QOL and QWL, we could still find significant correlations between QOL and working hours in administrative functions and between QOL and age. In addition, there was a negative correlation between the QWL and the number of students in practical classes.

Table 5. QOL and QWL correlation with the quantitative variables (N=284).

Variables	QOL		QWL	
	Correlation	P value	Correlation	P value
QOL	----	----	0,564	0,000*
QWL	0,564	0,000*	----	----
Age	0,119	0,045*	-0,012	0,845
Career longevity	0,069	0,251	-0,006	0,926
Number of practical classes	-0,087	0,147	-0,131	0,070
Number of lectures	-0,075	0,206	-0,027	0,651
Workload of stage	-0,016	0,792	0,032	0,588
Workload of research	0,076	0,206	-0,007	0,911
Workload of extension	0,020	0,741	-0,023	0,706
Workload of administrative	0,143	0,016*	0,058	0,328
Other workloads	0,130	0,115	0,064	0,286
Number of students in practical classes	-0,057	0,335	-0,140	0,018*
Extra teaching hours	-0,009	0,879	0,075	0,208

* $p < 0,05$; Analysis by Spearman coefficient Correlation.

Through the simple linear regression we could verify that the number of students in practical classes it's associated to the QWL, so the higher the number of students in practical classes the worse the QWL. Furthermore, it was found that the workload for administrative activity it's associated to the QOL, so that the higher workload the better the QOL (Table 6).

Table 6. Simple linear regression analysis to determine association of QOL and QWL with independent variables.

Dependent variable	Factors	β	P value
QOL	Workload of administrative	0,024	0,023*
QWL	Number of students in practical classes	-0,39	0,018*

* $p < 0,05$; CH.

4. Discussion

The simultaneous analysis of the QOL and QWL in the teaching population isn't common; however, its importance is unquestionable because it is a group of employees responsible for training people with critical skills, of transformations and changes.

In this current study it was found that QOL and QWL are related, and these are influenced by factors related to work, whether structural or organizational. As in the study by Koetz et al [6] the QOL perceived by teachers in this study was seen as reasonably satisfactory, for the university teaching is a very stressful profession, as most often teachers face long working hours, double or triple, with few rest breaks and meals. They are also required high levels of concentration to perform the tasks, causing suffering to teachers and damaging their QOL [13].

By comparing the QWL between the sexes, it was found that the female refers worst perception of this variable, such difference refers to the fact that women face triple working hours, that keep them away from the social life, besides of exposing them to more physical/mental problems, it still adds the fact that they have greater concern for the formation of the own personality, cognitive processes and other humanistic aspects [14], moreover they suffer an emotional division between the demands of the work and the needs of the family, causing an increasing sense of guilt [15,16].

In QOL assessment, it was observed that the Environmental domain had lower score than the others; this fact can be explained by urban violence rates in the city where the study was conducted, low opportunities for personal growth in the institution and occupational factors that affect the work [17].

The decrease of QOL in the Environmental domain was also reflected in Policy/Economic of QWL, since in this it expresses self-esteem in the workplace and because what is evaluated in the field and sphere are in part coincident, like the possibility of growth in personal and/or professional level and the social importance of the work. These factors are closely linked to political, economic and social factors, making them inseparable in the psychological aspect. Moreover, it reflects the lack of opportunities for growth in the analyzed HEL, since most of the teachers had unstable employment, given the employment relationship. Another factor that influenced this sphere was the remuneration, since the lower-paid teachers reported less satisfaction with QOL, so that they come to understand that their work has such a low importance.

In this study, it was verified that those teachers with higher income had higher scores both QOL and QWL. The fact that there are two types of employment ties in the studied institution is cause for discontents and professional dissatisfaction, due the difference in wages and recognition. Low pay causes the accumulation of jobs, stress, physical exhaustion and low motivation [16,18]. In addition, the influence of remuneration on QOL and QWL can be explained by the fact that a good income allows housing, keeping healthy habits such as food, leisure, transport and it also implies self-esteem, sense of appreciation and enjoyment at work [19,20].

Associated with the income is the type of teachers' employment tie, and in this item we can also perceive a difference between those with stable employment (statutory regime), and are better paid, compared to those who have unstable employment (employment contract) and are worse paid. The job security generates psycho-emotional reactions and allows the employee extra peace of mind at work and personal planning, moreover, the teacher is able to teach fewer classes, which reduces the workload to be completed in household [6]. Conversely, teachers without employment stability feel fear, uncertainty and increased pressure from supervisors, students and even from colleagues [9].

The perception of QWL is also influenced by working conditions, related to lighting, temperature, ventilation, noise, space availability and materials for development of work [9,13].

Results of this present study demonstrate the impact on the perception of QWL and QOL by teachers, whose function performance was set in environments with insufficient temperature, lighting, teaching materials and too much noise. Among the items related to working condition, thermal comfort and noise are taken by workers as those with most negative influence the execution of the work, especially when this is essentially mental/cognitive [21]. The increase in temperature leaves to lack memory, difficulties in concentration and symptoms in the throat [22].

As well as the temperature, noise at work also negatively influence the performance and worker well-being, causes irritability, loss of concentration, anxiety, difficulty in communication, loss of sleep

quality, increased blood pressure, reduces the performance accuracy and interferes with memory and abandonment of the function [23].

The lighting also influenced the QWL of teachers. The decrease in lighting affects the performance, psychological and biological factors in workers. In addition, the appropriate illumination improves reaction/response time and the concentration; reduces errors and makes the working environment more comfortable and enjoyable, culminating in a better QWL [24]. As for low light levels, this situation may increase the demand for concentration, tension of eye and neck muscles, causing bad posture, greater energy expenditure (cerebral and muscle), resulting in fatigue and discomfort [25,26].

We may add to the items mentioned above, the lack of material resources for implementation of the teaching function, a fact that also caused decreased QWL in professors. The lack of resources for teaching causes in the teacher a feeling of disrespect and helplessness, as he/she took the time and concentration to plan the class; but when facing a room or lab without any necessary conditions, the teacher gets frustrated and is impelled to modify his/her method immediately to adapt to the situation that prevailed. This may explain the better perception of QOL in teachers who also perform administrative activities or other activities in the HEI unrelated to class. In both cases, they teach fewer classes and therefore they have less contact with students, lesson planning/evaluations, extra classroom activities and lack of material for the teaching occupation.

Another unique finding was in relation to the analysis among different areas of knowledge, it was verified in this current study that there were no differences when comparing the overall score of QOL and QWL among the areas, showing that despite the particularities of each area, the duties inherent in teaching are similar for all, a fact that didn't affect the interpretation of these variables by teachers.

However, peculiarities of the areas were exposed when comparing domains, where it was observed that psychological and relational domains were better assessed than the environmental one in all areas except in the exact sciences one, this fact can be explained by the lower average age of these teachers, suggesting professionals just beginning their careers; such an inference is confirmed by the fact that they take a larger number of subjects and don't exercise other paid activities. These characteristics identified may also explain why exact sciences teachers didn't realize the slighter economic/political and sociological/relational sphere, as teachers in other areas have done [27].

Regarding the QWL, teachers of agricultural sciences didn't report a lower perception of environmental/organizational and economic/policy spheres, this fact can be elucidated due the fact that those teachers are older, which gives them maturity, and we may add the fact of them belonging to the area with the highest number of teachers with PhD, with consequent better remuneration stability [4,8,28].

It was also observed in this present study that the Sociological/Relational sphere was bigger than the Biological/Physiological one in teachers of the health area. This difference can be explained by the fact that teachers in this area possess a humanistic education focused on caring for people, as they deal daily in their professions with the disease and various social and cultural situations of patients.

Given the current research findings which indicate occupational factors impacting on QOL or QWL, it is important to emphasize the positive correlation between QOL and QWL found in this study. This finding can be elucidated by the fact that some aspects linked to QWL, such as income, job satisfaction, the institution's image in public opinion, working conditions and physical environment directly influence the QOL of the individuals, by providing them with health, satisfying emotional life, self-esteem, balance between work and leisure, comfort, safety, motivation [9,29].

5. Conclusions

From the results obtained so far, it was concluded that QOL and QWL are interdependent, that men have a better perception of those patterns and that there was no difference between QOL and QWL among the areas of knowledge. Besides, it was also concluded that organizational factors that are related to teaching function influence the QOL and QWL. These findings are only for a subset of professors in Brazil, and as there are no other studies with the same analysis of variables in the

father's, it is understood that their results can extrapolate the region where the study was done, for example, in the interdependence between QOL and QWL.

Author Contributions: Conceptualization and methodology, MAB, CCP and HMS; formal analysis, EGM, LAS, LGM and MLS; investigation, HMS, FHRS, EGM; resources, FHRS, HMS, EGMS, LAS, LGM and MLS; data curation, LAS.; writing—original draft preparation, HMS, MAB, CCP, MLS, EGMS; writing—review and editing and visualization, CCP and LGM; X.X.; supervision, HMS, MAB and CCP. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by Ethics Committee) This study was approved by the Research Ethics Committee of University of Rio Verde (Opinion nº 042821). Informed consent was obtained from all subjects involved in the study.

Informed Consent Statement: Written informed consent has been obtained from the patient(s) to publish this paper.

Data Availability Statement: We encourage all authors of articles published in MDPI journals to share their research data. In this section, please provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. Where no new data were created, or where data is unavailable due to privacy or ethical restrictions, a statement is still required. Suggested Data Availability Statements are available in section “MDPI Research Data Policies” at <https://www.mdpi.com/ethics>.

Acknowledgments: acknowledge for UFG.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Buss PM. Promoção de saúde e qualidade de vida. *Ciência & Saúde Coletiva*. 2000; 5(1), 163-177.
2. The Whoqol Group. Development of the World Health Organization WHOQOL-bref. *Quality of Life Assesment. Psychol Med*. 1998; 28, 551-558.
3. Campos MO, Neto JFR. Qualidade de vida: um instrumento para promoção de saúde. *Revista Baiana de Saúde Pública*. 2008; 32(2), 232-240.
4. França ACL. Qualidade de vida no trabalho: conceitos, abordagens, inovações e desafios nas empresas brasileiras. *Revista Brasileira de Medicina Psicossomática*. 1997; 1(2), 79-83.
5. Rose RC, Beh L, Uli J, Idris K. An Analysis of Quality of Work Life (QWL) and Career- Related Variables. *American Journal of Applied Sciences*. 2006; 3(12), 2151-2159.
6. Koetz L, Rempel C, Périco E. Quality of life of professors of higher education community institutions in the state of Rio Grande do Sul, Brazil. *Ciência & Saúde Coletiva*. 2013; 18(4),1019-1028.
7. Contaífer T, Bachion MM, Yoshida T, Souza JT..Estresse em professores universitários da área de saúde. *Revista Gaúcha de Enfermagem*. 2003; 24(2), 215-225.
8. Hart PM. Teacher quality of work life: integrating work experiences, psychological distress and morale. *Journal of Occupational and Organizational Psychology*. 1994; 62(2), 1-15.
9. Lima MFEM, Lima-Filho DO. Work and health conditions of university professors. *Ciências & Cognição*. 2009; 14(3), 62-82.
10. Carlotto MSA. Síndrome de Burnout e o trabalho docente. *Revista Psicologia em Estudo*. 2002; 7(1), 21-29.
11. Pedroso B, Pilatti LA, Gutierrez GL, Picinin CT. Construção e validação do TQWL-42: um instrumento de avaliação da qualidade de vida no trabalho. *Revista de Salud Publica*. 2014; 16:885-896.
12. Fleck MPA, Louzada S, Xavier M, Chachamovich E, Vieira G, Santos L et al. Aplicação da versão em português do instrumento abreviado de avaliação da qualidade de vida "WHOQOL-bref". *Revista de Saúde Pública*. 2000; 34(2), 178-183.
13. Gasparini SM, Barreto SM, Assunção A. O professor, as condições de trabalho e os efeitos sobre sua saúde. *Revista Educação e Pesquisa*. 2005; 31(2), 189-199.
14. Pereira EF, Teixeira CS, Andrade RD, da Silva-Lopes A. O trabalho docente e a qualidade de vida dos professores na educação básica. *Revista de Salud Pública*. 2014; 16(2), 221-231.

15. Fernandes MH, Rocha VM. Impact of the psychosocial aspects of work on the quality of life of teachers. *Revista Brasileira de Psiquiatria*. 2009; 31(1), 15-20.
16. Oliveira RAO, Garcia AL, Gomes MJ, Bittar TO, Pereira AC. Gender and perceived quality of life. *Ciência & Saúde Coletiva*. 2012; 17(3), 741-747.
17. Pukeliene V, Starkauskiene V. Quality of Life: Factors Determining its Measurement Complexity. *Inzinerine Ekonomika-Engineering Economics*. 2011; 22(2), 147-156.
18. Krueger P, Brazil K, Lohfeld L, Edward HG, Lewis D, Tjam E. Organization specific predictors of job satisfaction: findings from a Canadian multi-site quality of work life cross-sectional survey. *BMC Health Services Research*. 2002; 2(6), 1-8.
19. Silvério MR, Zuleica M, Brodbeck IM, Grosseman S. Ensino na área da saúde e sua repercussão na qualidade de vida docente. *Revista Brasileira de Educação Médica*. 2010; 34(1), 65-73.
20. Sinha C. Factors Affecting Quality of Work Life. *Australian Journal of Business and Management Research*. 2012; 1(11), 31-40.
21. Frontczak M, Andersen RV, Wargocki P. Questionnaire survey on factors influencing comfort with indoor environmental quality in Danish housing, *Building and Environment*. 2012; 50, 56-64.
22. Maula H, Hongisto V, Östman L, Haapakangas A, Koskela H, Hyönä J. The effect of slightly warm temperature on work performance and comfort in open-plan offices - a laboratory study. *Indoor Air*. 2016; 26(2):286-97.
23. Szalma JL, Hancock PA. Noise Effects on Human Performance: A Meta-Analytic Synthesis. *Psychological Bulletin*. 2011; 137(4), 682-707.
24. Vimalanathan K, Babu TR. The effect of indoor office environment on the work performance, health and well-being of office workers. *Journal of Environmental Health Science & Engineering*. 2014; 12(113), 1-8.
25. Fonken LK, Nelson RJI. Illuminating the deleterious effects of light at night. *Medicine Reports*. 2001; 3(18), 1-7.
26. Rugej D, Gomišček G, Sevšek F. The Influence of Very Low Illumination on the Postural Sway of Young and Elderly Adults. *PLoS One*. 2014; 9(8), 1-9.
27. Liliy S, Julia K, Elena K, Oksana Y, Anastasia F. The Higher Education Impact on the Quality of Young People Working Life. *Procedia: Social and Behavioral Sciences*. 2015; 191, 2412-2415.
28. Abelsen B, Olsen JA. Does an activity based remuneration system attract young doctors to general practice? *BMC Health Services Research*. 2012; 12(68), 1-8.
29. Seidl EMF, Zannon CMLC. Qualidade de vida e saúde: aspectos conceituais e metodológicos. *Caderno de Saúde Pública*. 2004; 20(2), 580-588.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.