COVID-19 pandemic: dissatisfaction with work among teachers in the state of Minas Gerais, Brazil

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Abstract *This article aimed to verify the prevalence and factors associated with dissatisfaction with teaching work among teachers from the state public basic education network in the state of Minas Gerais during the COVID-19 pandemic. This is a websurvey, carried out with these teachers between August and September 2020 via digital form. The dependent variable was job satisfaction during the pandemic, with satisfied people being the reference category. Multinomial Logistic Regression was used. 15,641 teachers from 795 municipalities participated in the study. Regarding work satisfaction, 21.6% were satisfied, 44.7% were indifferent and 33.7% were unsatisfied. The chances of being unsatisfied were higher among those without a spouse (OR=1.23), longer teaching time (OR=1.19), difficulty with remote activities (OR=37.60), without possession of a computer (OR=1.40), smokers (OR=1.27), using alcoholic beverages (OR=1.54), sedentary (OR=1.22) and absent leisure activities (OR=1.49). The changes caused in the educational system in the face of the pandemic impacted the teacher's routine, contributing to the dissatisfaction with the work of this professional.*

Key words *Faculty, Job satisfaction, Health surveys, Pandemics, COVID-19*

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Introduction

The COVID-19 pandemic and measures to prevent the spread of the disease implemented around the world represented a significant challenge to the most diverse sectors of society. In particular, the education sector was immensely affected. Public and private schools at the different stages of education were closed and the activities now developed in person gained a virtual format.

In Minas Gerais, the state government determined the closing of state schools and the suspension of classes, for an undetermined period, from March 20, 2020[1]. Teaching activities were resumed on May 18 through the non-personal study regime, created by the State Department of Education, which provided Tutored Study Plans (PET), a specific application and a TV program, in addition to the use of social networks and the Department's own website in order to integrate the proposed actions[2].

Therefore, teachers found themselves faced with suspended classroom classes without, nevertheless, that this meant interrupting the teaching-learning process. The need for social distancing and the implementation of remote learning made it essential, even if without sufficient knowledge or familiarity, the use of digital information and communication tools[3,4]. The adoption of this teaching modality required teachers to adapt their home environment and restructure their teaching plans in a context of "unrestricted availability"[3] of time to respond to the demands of students and families[3,4].

Far from an ideal setting for the development of remote learning, teachers face different challenges. A study carried out among primary school teachers in Indonesia during the pandemic identified four groups of challenges faced during online teaching, including: technological obstacles – the need to have a cell phone or computer with internet access –, interference from family members during classes, the difficulty in maintaining concentration and participation of students and, finally, the experience of teachers in relation to technological tools and the ability to understand how they work[5].

There is also the difficulty of schools in guiding teachers on the use of strategies capable of mediating the reality of remote education into the students' homes, delegating to the teacher part of the responsibility to deal with dropouts during remote learning and the need for learning to continue to achieve previously established goals[3,5]. The accountability of teachers during the pandemic associated with the lack of training can contribute to work overload, increasing exhaustion, which can influence satisfaction with the work they perform[3,6].

Investigations on work satisfaction reaffirm the fundamental role of psychosocial aspects of work and consider that the feeling of satisfaction is correlated to the interaction between living and working conditions. Thus, both work satisfaction is positive for health, and dissatisfaction can harm workers' health and the organization in which they are inserted[7]. In times of face-to-face work, it is known that the stress caused by the accumulation of multiple tasks, overload, professional devaluation, and low salaries of teachers can trigger a process of permanent dissatisfaction, with feelings of failure and indifference, leading to physical and mental illness and still to the desire to abandon the teaching activity[6,8].

Therefore, understanding the factors that are associated with dissatisfaction with the teaching work can contribute to the implementation of measures that minimize this effect. To this end, the present study aimed to verify the prevalence and factors associated with dissatisfaction with teaching work among teachers from the state public system of basic education in Minas Gerais during the COVID-19 pandemic.

Methods

This study is part of the Project ProfSMoc - Minas Covid Stage "Health and work conditions among teachers of the state education system in the state of Minas Gerais in the COVID-19 pandemic". This is a websurvey, carried out with teachers of basic education (kindergarten, elementary and high school) from public schools in Minas Gerais, Brazil. The state education network in Minas Gerais is composed of approximately 90,000 teachers (data provided by the Minas Gerais State Department of Education - SEE-MG through payroll for the month of July 2020), working in 3,441 schools state public institutions[9]. As it is a websurvey, in an attempt to increase the quality and interpretation of the results obtained[10], this study followed the considerations of the Checklist for Reporting Results of Internet E-Surveys (CHERRIES)[11].

For the sample calculation, a formula considering infinite populations was used. A prevalence of 50% was considered with the intention of obtaining the largest sample size and, consequently,

greater power of inference for different variables. The tolerable error adopted was 3%. In addition, the sample was duplicated (*deff*=2), as the collection came from conglomerates. A 20% increase in the sample size was also carried out to compensate for possible losses (non-response rate) that could compromise the validity of the study. Thus, it was estimated the need to collect data from 2,564 teachers from state schools in the state of Minas Gerais to ensure representation for the entire state.

Administratively, SEE-MG divides the state into six hubs and each hub is subdivided into Regional Teaching Superintendencies (SREs). In all, the state has 45 SREs. Access to the number of teachers to which the SRE the teacher was related was provided by SEE-MG. Thus, the sample was estimated ensuring proportionality of teachers by SRE, estimating the minimum number of teachers to be investigated in each of them.

A previous pilot study was carried out with 20 teachers from five different cities in Minas Gerais for testing, correctness of the data collection instrument and estimation of the time needed for completion. Before starting data collection, authorizations were obtained from the SEE-MG and the 45 SREs. The research was disseminated on SEE-MG's social media, raising awareness of the participation of teachers in the research. Data collection took place from August 20th to September 11th, 2020, through a digital form made available via the Google Forms® platform. The form link was sent by SEE-MG to the institutional e-mail of all teachers in the state, featuring a "closed"[11] data collection to the teachers of the state public network. To avoid the automatic filling of the form by computer systems, a *reCAPT-CHA* was used, which presented tests on images, preventing the form from being successfully sent by a robot. The form contained 144 questions, divided into 4 sections: sociodemographic characteristics, working conditions, health, and lifestyle. For some questions the situation before and during the pandemic was asked. In general, the form was based on the survey "ConVid - Research on Behaviors" carried out by the Oswaldo Cruz Foundation and partners[12] and incorporated other validated instruments. All questions on the form were mandatory, minimizing loss of information. Participants had the option to review their responses at all times before submitting the form. The study also guaranteed the anonymity of the teachers, and the data collection form took approximately 25 minutes to complete.

The study included teachers working in the teaching role in 2020, those working in early childhood education, elementary school and/or high school (attached to any state public school in Minas Gerais) and those who agreed to participate in the survey. Teachers who were working in a position other than the teaching function in the school context (directors, coordinators, among others), retirees and those who answered "no" when asked if they accepted to participate in the study, did not participate in the survey. There was no restriction on participation for those who were on sick leave.

Work satisfaction during the pandemic was the dependent variable adopted ("During social isolation due to the new coronavirus pandemic, how do you feel about your work as a teacher?"). The answer options followed a Likert scale with three options: "satisfied", "neither satisfied nor unsatisfied" and "unsatisfied". For the category "neither satisfied nor unsatisfied", the term "indifferent" was adopted. Independent variables were organized into three thematic blocks, listed below.

1. *Sociodemographic and economic profile*: gender, age, census area (referring to the location of the state school where the teacher worked), family income before the pandemic (considering the current minimum wage of R$ 1,045.00 at the time of data collection), income family during the pandemic, other paid work, marital status, and child(ren).

2. *Occupational profile*: years of teaching, weekly hours of teaching work, type of connection with the school, if you have a graduate degree, remote work during the pandemic, difficulties with remote activities and if you have a computer.

3. *Behaviors/Habits during the pandemic*: smoking, alcohol consumption, physical activity, and leisure activities.

Data were organized, audited, and analyzed using the Statistical Package for Social Sciences (SPSS®) version 22.0. Descriptive data statistics (simple and relative frequency) were conducted. To analyze the factors associated with work satisfaction during the pandemic, bivariate analyzes were previously performed, using Pearson's chi-square test. In this analysis, the variables that revealed a descriptive level lower than or equal to 20% ($p \leq 0.20$) were selected to initially compose the multiple models. In the multiple models, the Multinomial Logistic Regression was adopted, considering work satisfaction during the pandemic as the reference category. The models were manually adjusted. All variables that presented $p \leq 0.20$ entered the model together, being

removed one by one, keeping in the final model only the variables that presented a descriptive level below 5% (p<0.05). Odds Ratio (OR), 95% confidence interval and descriptive level were estimated. The goodness of fit of the model was assessed by the coefficient of determination (Pseudo R²).

The ProfSMoc Project - Minas Covid Stage was submitted and approved by the Research Ethics Committee of the State University of Montes Claros (Unimontes). All participating teachers received, along with the data collection form, the Informed Consent Form informing about the study methodology, its objectives and reliability of the information and indicated "yes" to the question related to agreement to participate in the research. The research also complied with Resolution Nº 466/2012 of the National Health Council/Ministry of Health, which deals with research with human beings.

Results

The form was accessed by 16,210 teachers, of which 15,641 agreed to participate in the survey, resulting in a recruitment[11] rate of 96.5% and a completeness[11] rate of 100%. There was participation of teachers from 795 cities in Minas Gerais (93.2%). Among them, 81.9% were female, 97.4% were up to 60 years old and 59.5% had a family income between three and five minimum wages. As for the occupational profile, 62% reported more than 10 years of teaching experience and 54% were public/employed. Regarding behavior/life habits during the pandemic, 40.6% consumed alcoholic beverages and 43.8% were not practicing physical activity (Table 1).

Regarding work satisfaction during the pandemic, 21.6% (3,375) of the teachers were satisfied, 44.7% (6,995) were indifferent and 33.7% (5,271) were unsatisfied. The prevalence of dissatisfaction with work was higher among men, those aged 21 to 40 years, who had been teaching for 21 years or more, and those who had a workload of more than 40 hours per week. Other data from the bivariate analysis are described in Table 1. All independent variables were associated with work satisfaction at a significance level of 20%.

During multiple modeling, the variables: children, weekly hours of teaching work and remote work during the pandemic were removed for presenting p-value greater than 5%. Table 2 shows the variables that remained in the final multiple models after adjustments.

The chances of being indifferent (when compared to satisfied) were higher in teachers who taught in rural areas (OR=1.18), in those who had a decrease in family income during the pandemic (OR=1.41), in those who lived without a spouse (OR=1.13), in those who had between 11 and 20 years of teaching (OR=1.16) and 21 years of teaching or more (OR=1.28), in those who had little (OR=2.24), moderate (OR=4.19) or a lot (OR=6.63) difficulty with remote activities, in those who had a computer with shared use (OR=1.16), in those who consumed alcoholic beverages (OR=1.29), in those who were not practicing physical activity (OR=1.12), in those who had their leisure activity reduced (OR=1.21) and in those who were not performing leisure activities (OR=1.47). As protective factors are men (OR=0.86), those aged 41 to 60 years (OR=0.8) and over 60 years (OR=0.62), those who had paid work in another institution (OR=0.86) and those who were hired or assigned (OR=0.83).

In relation to those who were unsatisfied, when compared to those who were satisfied, the chances were higher in teachers who lived without a spouse (OR=1.23), in those who had 21 or more years of teaching (OR=1.19), those who had little (OR=2.03), moderate (OR=7.00) or a lot (OR=37.60) difficulty with remote activities, among those who had a computer with shared use (OR=1.15) and among those who did not have a computer (OR=1.40), among smokers (OR=1.27), in those who drank alcoholic beverages (OR=1.54), in those who were not practicing physical activity (OR=1.22), in those who had their leisure activity decreased (OR=1.33) and in those who were not performing leisure activities (OR=1.49). As protective factors were found teachers aged 41 to 60 years (OR=0.77) and over 60 years (OR=0.51), those who were hired or assigned (OR=0.59), those who did not have a graduate degree (OR=0.62) and those who had specialization (OR=0.47) and, between those who did not change their leisure activities (OR=0.76).

Discussion

The data from the present study showed that approximately half of the investigated teachers felt indifferent about their satisfaction with the teaching work during the pandemic and a third of them were unsatisfied. Indifference suggests an intermediate stage between feelings of satisfaction and dissatisfaction, bringing with it an

Table 1. Descriptive and bivariate analysis of satisfaction with teaching work, according to sociodemographic and economic profile, occupational profile, and behaviors/habits during the pandemic among teachers. ProfSMoc Project - Minas Covid Stage, 2020 (n=15,641).

Variables	n (%)	Satisfied n (%)	Indifferent n (%)	Unsatisfied n (%)	p*
Sociodemographic and Economic Profile					
Gender					
Female	12,817 (81.9)	2,728 (21.3)	5,866 (45.8)	4,223 (32.9)	0.000
Male	2,824 (18.1)	647 (22.9)	1,129 (40.0)	1,048 (37.1)	
Age					
From 21 to 40 years old	6,447 (41.2)	1,321 (20.5)	2,900 (45.0)	2,226 (34.5)	0.000
From 41 to 60 years old	8,793 (56.2)	1,937 (22.0)	3,922 (44.6)	2,934 (33.4)	
Over 60 years old	401 (2.6)	117 (29.2)	173 (43.1)	111 (27.7)	
Census Area					
Urban	13,565 (86.7)	2,939 (21.7)	5,992 (44.2)	4,634 (34.2)	0.001
Rural	2,076 (13.3)	436 (21.0)	1,002 (48.3)	637 (30.7)	
Family Income					
From 1 to 2 salaries	3,969 (25.4)	86 (20.2)	176 (41.3)	164 (38.5)	0.000
From 3 to 5 salaries	9,301 (59.5)	377 (19.4)	825 (42.4)	743 (38.2)	
From 6 to 9 salaries	1,945 (12.4)	1,956 (21.0)	4,191 (45.1)	3,154 (33.9)	
10 or more salaries	426 (2.7)	956 (24.1)	1,803 (45.4)	1,210 (30.5)	
Change in Family Income					
Increased	304 (1.9)	68 (22.4)	124 (40.8)	112 (36.8)	0.000
Kept equal	8,947 (57.2)	2,188 (24.5)	3,978 (44.5)	2,781 (31.1)	
Decreased	6,390 (40.9)	1,119 (17.5)	2,893 (45.3)	2,378 (37.2)	
Other Paid Work					
No	10,269 (65.7)	2,200 (21.4)	4,661 (45.4)	3,408 (33.2)	0.001
Yes, in another institution	3,815 (24.3)	874 (22.9)	1,669 (43.7)	1,272 (33.3)	
Yes, out of teaching	1,557 (10.0)	301 (19.3)	665 (42.7)	591 (38.0)	
Marital Status					
With a spouse	10,453 (66.8)	2,293 (21.9)	4,716 (45.1)	3,444 (32.9)	0.016
Without a spouse	5,188 (33.2)	1,082 (20.9)	2,279 (43.9)	1,827 (35.2)	
Child(ren)					
Yes	11,350 (72.6)	2,439 (21.5)	5,157 (45.4)	3,754 (33.1)	0.008
No	4,291 (27.4)	936 (21.8)	1,838 (42.8)	1,517 (35.4)	

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idea of gradation in terms of negative feelings related to work. Thus, it was observed that almost 80% of the teachers investigated were not satisfied with their work during the pandemic.

Remote work as a result of the COVID-19 pandemic did not inaugurate the situation of intensification of teaching work[8,13,14], however it brought even more workload for teachers[3], with transformation of pedagogical approaches into virtual meetings, from home visiting room to classroom, in addition to the need to learn new ways of teaching[4]. Situations capable of causing greater dissatisfaction with work among teachers.

Among the factors associated with indifference and dissatisfaction, two groups of results stand out for each one: the variables that showed a positive association and those that behaved as protective factors.

Greater chances of indifference and dissatisfaction with work were observed among teachers who lived without a spouse, those who had been teaching for 21 years or more, those who faced some degree of difficulty with remote activities, sharing the computer with someone at home, those who consumed alcoholic beverages, those who did not practice physical activities and

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Variables	n (%)	Satisfied n (%)	Indifferent n (%)	Unsatisfied n (%)	p*
Occupational Profile					
Teaching Years					
From 1 to 10 years	5,941 (38.0)	1,358 (22.9)	2,608 (43.9)	1,975 (33.2)	0.004
From 11 to 20 years	5,788 (37.0)	1,240 (21.4)	2,633 (45.5)	1,915 (33.1)	
21 years or more	3,911 (25.0)	777 (19.9)	1,754 (44.8)	1,380 (35.3)	
Weekly Hours of Teaching Work					
Up to 19 hours	3,613 (23.1)	813 (22.5)	1,587 (43.9)	1,214 (33.6)	0.003
From 20 to 39 horas	9,554 (61.1)	2,058 (21.5)	4,349 (45.5)	3,147 (32.9)	
40 hours or more	2,472 (15.8)	504 (20.4)	1,058 (42.8)	910 (36.8)	
Relationship with the School					
Public employee/Full-time worker	8,440 (54.0)	1,574 (18.6)	3,635 (43.1)	3,231 (38.3)	0.000
Hired/Assigned	7,201 (46.0)	1,801 (25.0)	3,360 (46.7)	2,040 (28.3)	
Have a post-graduate degree					
Master and/or doctor	692 (4.4)	112 (16.2)	251 (36.3)	329 (47.2)	0.000
Specialization	11,115 (71.1)	2,522 (22.7)	5,041 (45.2)	3,552 (32.0)	
No	3,834 (24.5)	741 (19.3)	1,703 (44.4)	1,390 (36.3)	
Remote Work During the Pandemic					
Yes	15,520 (99.2)	3,351 (21.6)	6,955 (44.8)	5,214 (33.6)	0.006
No	121 (0.8)	24 (19.8)	40 (33.1)	57 (47.1)	
Difficulties with Remote Activities					
No difficulty	1,472 (9.4)	768 (52.2)	510 (34.6)	194 (13.2)	0.000
Few	4,184 (26.8)	1,313 (31.4)	2,122 (50.7)	749 (17.9)	
Moderate	6,777 (43.3)	1,108 (16.3)	3,435 (50.7)	2,234 (33.0)	
A lot	3,208 (20.5)	186 (5.8)	928 (28.9)	2,094 (65.3)	
Have a computer					
Yes, personal use	7,757 (49.6)	1,926 (24.8)	3,412 (44.0)	2,419 (31.2)	0.000
Yes, shared use	7,310 (46.7)	1,350 (18.5)	3,371 (46.1)	2,589 (35.4)	
No	574 (3.7)	99 (17.2)	212 (36.9)	264 (45.8)	
Behaviors/Habits during the pandemic					
Smoker					
No	14,123 (90.3)	3,082 (21.8)	6,382 (45.2)	4,659 (33.0)	0.000
Former smoker	665 (4.2)	130 (19.5)	292 (43.9)	243 (36.5)	
Yes	853 (5.5)	163 (19.1)	321 (37.6)	369 (43.3)	
Alcohol Consumption					
No	9,290 (59.4)	2,258 (24.3)	4,221 (45.4)	2,811 (30.3)	0.000
Yes	6,351 (40.6)	1,117 (17.6)	2,774 (43.7)	2,460 (38.7)	
Physical Activity Practice					
Yes	8,798 (56.2)	2,045 (23.2)	3,943 (44.8)	2,810 (31.9)	0.000
No	6,843 (43.8)	1,330 (19.4)	3,052 (44.6)	2,461 (36.0)	
Leisure Activity					
Increased	876 (5.6)	238 (27.2)	372 (42.5)	266 (30.4)	0.000
Has not changed	3,005 (19.2)	920 (30.6)	1,345 (44.8)	740 (24.6)	
Decreased	5,033 (32.2)	1,031 (20.5)	2,184 (43.4)	1,818 (36.1)	
Not performing	6,727 (43.0)	1,186 (17.6)	3,094 (46.0)	2,447 (36.4)	

*Variables selected to initially compose the multiple models, with a descriptive level less than or equal to 20% (p≤0.20).

Source: Elaborated by the authors.

among those who were not performing leisure activities during the pandemic or reduced the time allocated to them.

Teachers who lived without a spouse had greater chances of indifference and dissatisfaction with work. A previous study showed that the experience of living with a partner is positively associated with the professional growth of individuals[15]. The social distancing scenario provided by the pandemic itself has impacts on people's mental health[16]. This fact, associated with the loss of the face-to-face relationship that involves teaching, could explain the impact on teacher satisfaction, especially among those who do not have a partner, by intensifying the feeling of loneliness provided by social distance.

Teachers who had 21 years of experience in teaching or more had greater chances of both indifference and dissatisfaction with their work. A possible explanation may be the fact that the professional, already tired by years of work, still needed to adapt to a new teaching modality imposed by distance, which would imply new work

challenges. A study among municipal teachers in Vitória da Conquista, Bahia, showed that longer teaching time is associated with higher prevalence of mental fatigue and nervousness, factors that contribute to professional dissatisfaction[17]. The results of the present study also showed a greater chance of indifference among teachers who worked in the profession between 11 and 20 years old.

It was observed that greater chances of indifference and dissatisfaction with work were associated with facing some degree of difficulty with remote activities developed during the pandemic. A study with Indonesian teachers showed that for many of them the use of technology has been an arduous exercise, which causes anxiety in this adaptation phase during the pandemic[5]. Used to traditional teaching practices that include the use of blackboard, brush and slide projector, teachers are faced with the challenge of preparing and presenting different themes using digital communication and information technologies[4,5].

Regarding having a computer, the results

Table 2. Multinomial Logistic Regression, with satisfaction with teaching work as a reference category. ProfSMoc Project - Minas Covid Stage, 2020 (n=15,641).

Variables	Indifferent		Unsatisfied	
	OR (95% CI)	p	OR (95% CI)	p
Sociodemographic and Economic Profile				
Gender				
Female	1		1	
Male	0.86 (0.76-0.96)	0.012	1.01 (0.89-1.15)	0.800
Age				
From 21 to 40 years old	1		1	
From 41 to 60 years old	0.80 (0.72-0.89)	0.000	0.77 (0.69-0.87)	0.000
Over 60 years old	0.62 (0.47-0.81)	0.001	0.51 (0.37-0.70)	0.000
Census Area				
Urban	1		1	
Rural	1.18 (1.04-1.35)	0.009	1.02 (0.88-1.18)	0.773
Change in Family Income				
Increased	1		1	
Kept equal	1.01 (0.74-1.38)	0.938	0.76 (0.54-1.06)	0.115
Decreased	1.41 (1.03-1.93)	0.032	1.24 (0.88-1.75)	0.202
Other Paid Work				
No	1		1	
Yes, in another institution	0.86 (0.78-0.95)	0.005	0.90 (0.80-1.01)	0.074
Yes, other than teaching	1.06 (0.91-1.24)	0.420	1.17 (0.99-1.38)	0.065
Marital Status				
With a spouse	1		1	
Without a spouse	1.13 (1.02-1.24)	0.011	1.23 (1.11-1.37)	0.000

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Table 2. Multinomial Logistic Regression, with satisfaction with teaching work as a reference category. ProfSMoc Project - Minas Covid Stage, 2020 (n=15,641).

Variables	Indifferent		Unsatisfied	
	OR (95% CI)	p	OR (95% CI)	p
Occupational Profile				
Teaching Years				
From 1 to 10 years	1		1	
From 11 to 20 years	1.16 (1.12-1.47)	0.005	1.04 (0.93-1.18)	0.440
21 years or more	1.28 (1.04-1.29)	0.000	1.19 (1.02-1.39)	0.022
Relationship with the school				
Public employee/Full-time worker	1		1	
Hired/Assigned	0.83 (0.76-0.91)	0.000	0.59 (0.53-0.65)	0.000
Have a graduate degree				
Master and/or doctor	1		1	
Specialization	0.79 (0.62-1.01)	0.063	0.47 (0.36-0.60)	0.000
No	0.93 (0.72-1.19)	0.581	0.62 (0.48-0.81)	0.000
Difficulties with Remote Activities				
No difficulty	1		1	
Few	2.24 (1.96-2.56)	0.000	2.03 (1.69-2.45)	0.000
Moderate	4.19 (3.66-4.79)	0.000	7.00 (5.85-8.37)	0.000
A lot	6.63 (5.36-7.95)	0.000	37.60 (30.07-47.01)	0.000
Have a computer				
Yes, personal use	1		1	
Yes, shared use	1.16 (1.06-1.27)	0.001	1.15 (1.04-1.28)	0.006
No	0.97 (0.75-1.25)	0.835	1.40 (1.06-1.83)	0.015
Behaviors/Habits during the pandemic				
Smoker				
No	1		1	
Former smoker	1.04 (0.83-1.30)	0.694	1.06 (0.83-1.35)	0.621
Yes	0.90 (0.73-1.10)	0.325	1.27 (1.03-1.58)	0.026
Alcohol Consumption				
No	1		1	
Yes	1.29 (1.18-1.42)	0.000	1.54 (1.39-1.71)	0.000
Physical Activity Practice				
Yes	1		1	
No	1.12 (1.03-1.23)	0.007	1.22 (1.10-1.34)	0.000
Leisure Activity				
Increased	1		1	
Has not changed	0.97 (0.80-1.18)	0.787	0.76 (0.61-0.95)	0.018
Decreased	1.21 (1.01-1.46)	0.043	1.33 (1.08-1.64)	0.008
Not performing	1.47 (1.22-1.77)	0.000	1.49 (1.20-1.84)	0.000

Source: Elaborated by the authors.

showed that greater chances of indifference and dissatisfaction were associated with the shared use of the equipment, and even greater dissatisfaction occurred among teachers who did not have a computer. The teacher was responsible for adapting the home environment for remote work[4], an adaptation that foresees the need for equipment and accessories. Loss in teaching activities can be expected in the absence of equipment or when the computer needed to be shared, for example, with a school-age child, also in remote education.

In the present study, alcohol consumption was significantly associated with indifference

and dissatisfaction with work. Also, smoking was associated with a greater chance of work dissatisfaction. Alcohol and tobacco are among the most used legal psychoactive substances, often associated with situations of anxiety and stress[18]. Considering the circumstances under which teachers are usually subjected, such as intense cognitive demand, journeys that exceed 40 hours a week, teaching, researching, participating in deliberative meetings, and guiding students, behaviors such as the consumption of alcohol and tobacco would be sought as escape mechanisms from the tensions experienced[18]. The context of the COVID-19 pandemic demanded greater availability of time from teachers, contributing to higher levels of stress[3], favoring substance use and feelings of dissatisfaction with the work performed.

The results obtained in this study showed associations both between indifference and dissatisfaction with work and the absence of physical activity, as well as with the reduction and absence of leisure activities. Activities performed outside of work have a potential effect on the recovery of tensions accumulated during the performance of professional tasks, and reducing the time devoted to them can have negative effects on physical and mental health[19] and possible repercussions on work satisfaction. This corroborates the observed result of less dissatisfaction with work among teachers who reported that there was no change in the time allocated to leisure activities.

Teachers who worked in schools located in rural areas were more likely to be indifferent to work satisfaction. This finding may represent a feeling of resilience to the difficulties faced by teachers and be justified by the precarious working conditions of rural schools, which have a very modest collection of bibliographic and audiovisual resources[20], which may have made it difficult the realization of remote learning. A study conducted in rural schools in the state of Goiás highlighted that the challenges in relation to teaching faced during the pandemic are a reflection not only of the lack of access to the internet signal, but also of the lack of monitoring by the family regarding school activities[21]. Although this lack of monitoring by the family is not an exclusive reality in the rural context, the study demonstrates that, even before the pandemic, families in the countryside already had difficulties in monitoring the children's learning, and adherence to remote teaching brought even greater difficulties[21]. The challenges imposed by the pandemic to teachers in rural areas can intensify negative feelings related to work. Further studies are needed to assess the relationship between family and school in different urban and rural contexts.

Another variable associated only with a greater chance of indifference was the reduction in family income during the pandemic. The remuneration of the teaching profession is one of the aspects that can generate professional satisfaction or, on the other hand, generate dissatisfaction[22]. Furthermore, it can be expected that the reduction in income due to the unemployment of one of the family members as a result of the pandemic, for example, would act as a factor of frustration and dissatisfaction.

Being older and being hired/assigned acted as protective factors in this study for both indifference and dissatisfaction with work. Teachers over 41 years of age had a lower chance of indifference and dissatisfaction when compared to those aged between 21 and 40 years. A Portuguese study showed a directly proportional relationship between age and work satisfaction, such that the older the age, the more satisfied the teacher feels about work. Older teachers, in general, are more involved with the profession, given that, in most cases, these teachers are effective and find greater relational support in the school environment, in addition to having an already established reputation and an appreciation by the school[23].

Regarding the link with the school, teachers hired or assigned also showed lower chances of both indifference and dissatisfaction with work. This result is divergent from what was found in a study carried out before the pandemic with teachers in the state of Paraná, which showed that, among the aspects that generate dissatisfaction at work, is the situation of being temporary. This requires that teachers work in several schools, meet different demands, and accept classes available in different establishments, moving, sometimes in a single shift, between distant schools[24].

The results showed that male teachers are less likely to be indifferent to work satisfaction. A longitudinal study carried out with Egyptian elementary school teachers assessed the satisfaction of these professionals in relation to the salary increase, showing that, after this increase, teachers rated their work satisfaction significantly higher than female teachers[25]. A review on the satisfaction of higher education teachers indicated that, in some studies, female teachers had higher levels of satisfaction than male teachers. However, it also emphasizes that there are studies that claim there is no relationship between gender and professional satisfaction of teachers[26]. A possi-

ble explanation for the difference in satisfaction between teachers (male or female) would be the fact that women frequently work double or triple work hours, in order to accumulate tasks due to the need to reconcile domestic, family and professional activities[27,28]. During the pandemic, due to the transfer from the classroom to the visiting room, the reconciliation of extra-labor and labor tasks became even more challenging, which may explain the lower impact on male teachers in relation to work satisfaction, since domestic activities are culturally, in most cases, women's attributions. It should be highlighted the predominance of the female population among teachers, the majority characteristic in this field nationwide.

Teachers who reported having another paid work at another school institution were less likely to be indifferent to work satisfaction. In general, multiple employment relationships are indicated as occupational overload factors, with risks to the health of the worker[14].

Compared with professors who had a master's and/or doctorate degree, those who had specialization and those who had not completed a graduate degree had a lower chance of dissatisfaction with their work. It is understood that continuing education is a necessary element for the teaching activity, providing a greater degree of training[29], which could affect levels of satisfaction with work. The higher level of training constitutes an element of dissatisfaction in the face of precarious working conditions and outdated wages, frequent situations for the investigated professional category[8,14], added to the challenges imposed by the work process during the pandemic.

Some limitations need to be considered. Websurveys[11] present the possibility of selection bias, as they depend on internet access. Furthermore, responses are based on self-report. However, this type of research also has advantages, such as the possibility of remote data collection (especially during a time of pandemic, when it is extremely important to maintain social distance), reach a larger population, reach a large geographic coverage, quick planning, and publication of results[11]. Other strengths of the study are the methodological rigor, the robustness of the sample, the support of the SEE-MG, the good distribution of the sample across the state, the representativeness of 93.2% of Minas Gerais municipalities and coverage of 13.3% of teachers active in rural areas.

Conclusion

Approximately 80% of the teachers in the present study were not satisfied with their teaching work during the pandemic. This "non-satisfaction" is related to the intensification of attributions related to teaching and the changes caused in the educational system in view of the COVID-19 pandemic.

The present study observed that the chances of being unsatisfied were greater among teachers who lived without a spouse, those with longer teaching time, who had difficulty with remote classes, who did not have a computer or had the use of the same shared, smokers, those who consumed alcoholic beverages, those who did not practice physical activity and those who had reduced leisure activities and absent during the pandemic.

Thus, the present study indicates that the changes caused in the educational system caused by the COVID-19 pandemic, directly impacted the teacher's work routine, causing harm to them and contributing to dissatisfaction with the work of the teachers in this period. Public policies and all spheres of education management must be remodeled for this context, in order to enable teachers to work satisfactorily, providing quality education and protecting the health of this worker.

The results obtained in this investigation have the potential to contribute to the broader and more up-to-date discussion on the subject, based on the production of relevant knowledge in the field of teaching worker's health, due to the difficulties and scarcity of studies of such nature, scope, and breadth with teachers. Surveillance measures on the work and health of teachers must be adopted, especially in the context of the pandemic. The continuous monitoring of the health of education professionals needs to be directed from the perspective of collective health and health surveillance of workers and is configured as an important procedure to protect their lives professionals. Programs that work with teacher illness in the context of public policies are needed, from the perspective of articulation between health and education policies in the country.

Collaborations

RRV Silva contributed to the project conceptualization, data collection, data interpretation, writing and final review. REC Barbosa contributed to the project conceptualization, data collection, writing and final review. NSS Silva contributed to the project conceptualization, data collection and organization, statistical analysis, data interpretation, writing and final review of the article. L Pinho contributed to the project conceptualization, research data collection and final review of the article. TB Ferreira contributed to data interpretation and writing. BB Moreira contributed to data interpretation and writing. MFSF Brito contributed to the project conceptualization, data interpretation, writing and final review. DS Haikal contributed to the project conceptualization, data collection and organization, writing and final review of the article.

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References

1. Minas Gerais. Deliberação do Comitê Extraordinário COVID-19 nº 15, de 20 de março de 2020. *Dispõe sobre a suspensão das atividades educacionais e dá outras providências.* Belo Horizonte: Secretaria de Estado de Fazenda de Minas Gerais; 2020.

2. Agência Minas. *Secretária de Educação detalha Regime de Estudo não Presencial na rede estadual de ensino* [Internet]. 2020 [acessado 2021 abr 28]. Disponível em: http://agenciaminas.mg.gov.br/noticia/secretaria-de-educacao-detalha-regime-de-estudo-nao-presencial-na-rede-estadual-de-ensino.

3. Saraiva K, Traversini C, Lockmann K. A educação em tempos de COVID-19: ensino remoto e exaustão do docente. *Prax Educ* 2020; 15: 1-24.

4. Souza KR, Santos GB, Rodrigues MAS, Felix EG, Gomes L, Rocha GL, Conceição RCM, Rocha FS, Peixoto RB. Trabalho remoto, saúde docente e greve virtual em cenário de pandemia. *Trab Educ Saude* 2021; 19:e00309141.

5. Rasmitadila, Aliyyah RR, Rachmadtullah R, Samsudin A, Syaodih E, Nurtanto M, Tambunan ARS. The perceptions of primary school teachers of online learning during the COVID-19 pandemic period: a case study in Indonesia. *J Ethn Cult Stu* 2020; 7(2):90-109.

6. Wagner L, Carlesso JPP. Profissão docente: um estudo do abandono da carreira na contemporaneidade. *Res Soc Develop* 2019; 8(6):e386968.

7. Marqueze EC, Moreno CRC. Satisfação no trabalho: uma breve revisão. *Rev Bras Saude Ocup* 2005; 30(112):69-79.

8. Gasparini SM, Barreto SM, Assunção AA. O professor, as condições de trabalho e os efeitos sobre sua saúde. *Educ Pesqui* 2005; 31:189-199.

9. Secretaria de Estado de Educação de Minas Gerais. *Relação de estabelecimentos de ensino ativos em Minas Gerais* [Internet]. 2020 [acessado 2020 nov 02]. Disponível em: https://www2.educacao.mg.gov.br/parceiro/lista-de-escolas.

10. Boni RBD. Websurveys nos tempos de COVID-19. *Cad Saude Publica* 2020; 36(7):e00155820.

11. Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *J Med Internet Res* 2004; 6(3):e34.

12. Instituto de Comunicação e Informação Científica e Tecnológica em Saúde (ICICT). Fundação Oswaldo Cruz (Fiocruz). *ConVid - Pesquisa de Comportamentos. Maio, 2020* [Internet]. [acessado 2020 nov 02]. Disponível em: https://www.convid.fiocruz.br/.

13. Assunção AA, Oliveira DA. Intensificação do trabalho e saúde dos professores. *Educ Soc* 2009; 30:349-372.

14. Araújo TM, Pinho OS, Masson MLV. Trabalho e saúde de professoras e professores no Brasil: reflexões sobre trajetórias das investigações, avanços e desafios. *Cad Saude Publica* 2019; 35(Supl. 1):e00087318.

15. Gottman JM, Silver N. The seven principles for making marriage work: a practical guide from the country's foremost relationship expert. New York: Three River Press; 2007.

16. Lima RC. Distanciamento e isolamento sociais pela COVID-19 no Brasil: impactos na saúde mental. *Physis* 2020; 30(2):e300214.

17. Reis EJ, Araújo TM, Carvalho FM, Barbalho L, Silva MO. Docência e exaustão emocional. *Educ Soc* 2006; 27(94):229-253.

18. Franco LC, Monteiro PS. Padrão do consumo de álcool e tabaco entre os professores universitários. *Rev Baiana Enferm* 2016; 30(2):1-11.

19. Barbosa REC, Assunção AA, Araújo TM. Musculoskeletal pain among healthcare workers: an exploratory study on gender diferences. *Am J Ind Med* 2013; 56(10):1201-1212.

20. Ferreira LG. *Professores da zona rural em início de carreira: narrativas de si e desenvolvimento professional* [tese]. São Carlos: Universidade Federal de São Carlos; 2014.

21. Pereira AMF, Almeida MZCM. Escolas rurais de Rio Verde-GO: os desafios dos professores ao processo de ensino e aprendizagem em meio a pandemia. *Human Tecnol* 2020; 27(1):50-66.

22. Rabelo AO. A remuneração do professor é baixa ou alta? Uma contraposição de diferentes referenciais. *Educ Rev* 2010; 26(1):57-87.

23. Furtado SCO, Medeiros T. Satisfação profissional dos professores em pré-reforma. *Rev Port Educ* 2019; 32(2):24-39.

24. Larocca P, Girardi P. Trabalho, satisfação e motivação docente: um estudo exploratório com professores da educação básica. In: *I Seminário Internacional de Representações Sociais, Subjetividade e Educação - SIRSSE.* Curitiba: Pontifícia Universidade Católica do Paraná; 2011. p. 1932-1948.

25. Sabry M. Longitudinal effects of pay increase on teachers job satisfaction: a motivational perspective. *J Int Soc Res* 2010; 3(10):1-21.

26. Pocinho M, Fragoeiro JG. Satisfação dos docentes do ensino superior. *Acta Colomb Psicol* 2012; 15(1):87-97.

27. Marcacine PR, Castro SDS, Castro SSD, Meirelles MCCC, Haas VJ, Walsh IAPD. Qualidade de vida, fatores sociodemográficos e ocupacionais de mulheres trabalhadoras. *Cien Saude Colet* 2019; 24(3):749-760.

28. Gomes KK, Sanchez HM, Sanchez EGDM, Sbroggio Júnior AL, Arantes Filho WM, Silva LA, Barbosa MA, Porto CC. Qualidade de vida e qualidade de vida no trabalho em docentes da saúde de uma instituição de ensino superior. *Rev Bras Med Trab* 2017; 15(1):18-28.

29. Kamazaki SGC, Capellini VLMF, Oliveira AAS, Pedro KM. Formação de professores em educação especial na modalidade EaD: alguns apontamentos sobre seis cursos de especialização. *EaD Foco* 2017; 7(3):29-41.