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RESEARCH ARTICLE

Sleep quality and associated factors in teachers

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ABSTRACT

Sleep is an essential part of life, accounting for about one third of an individual's life expectancy and plays an important role in quality of life and professional performance. This study focuses specifically on primary school teachers, a group that often faces high levels of stress. Restorative sleep is vital for dealing with this stress, and when its quality is unsatisfactory, it can contribute to the development of burnout. The aim of the study was to assess the prevalence of poor sleep quality among state schoolteachers in Minas Gerais and to identify the factors associated with this condition. The cross-sectional study included 1,907 teachers who took part in a web survey. It included sociodemographic variables, work characteristics, lifestyle, and health conditions. The data was collected between October and December 2021, using validated instruments such as the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality. The results showed that 39.1% of teachers reported poor or very poor sleep quality. The main variables associated with poor sleep quality included working more than 40 hours a week (OR = 1.618), low control over work (OR = 1.235), professional dissatisfaction (OR = 2.234), poor diet (OR = 3.240), smartphone dependence (OR = 2.265) and high fear of COVID-19 (OR = 1.532). It was noted that mental health problems, such as anxiety (OR = 1.728), were also significantly related to sleep quality. In addition, although sleep quality varied with age, older teachers had fewer sleep problems. The study suggests that working conditions and psychosocial factors play a crucial role in sleep quality, highlighting the importance of interventions that consider the specific needs of teachers. The recommendations include carrying out regular psychological assessments and applying sleep hygiene practices in order to mitigate these problems and improve the quality of life of this group.

KEYWORDS: Sleep quality, school teachers and public health.

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Introduction

Human beings spend an average of one third of their lives sleeping, which is why personal satisfaction with the physiological experience of sleep is a fundamental characteristic of individuals that has a direct impact on their quality of life and work. Sleep should be restorative, re-

establishing the body's basic functions and preparing it to face the challenges of everyday life.^{1,2}

Regarding teachers, this aspect takes on considerable particularities, given that this is the professional category that suffers most from the repercussions of stress when compared to other professions.³ Sleep is an important component of recovery from stress, and when it doesn't occur satisfactorily, it contributes to a condition of burnout known as Burnout.⁴

Factors of various kinds are associated with the quality of teachers' sleep,^{5,6} but those that fall within a block of variables defined as working conditions seem to have a more direct impact on the experience of sleep. Aspects such as working hours, overtime, high demands, and low control over the work process seem to increase the likelihood of a negative sleep experience.⁶

The aim of this study was to estimate the prevalence of self-reported poor and very poor sleep quality and associated factors among public school teachers in the state of Minas Gerais, Brazil.

Material and Methods

This study represents a cross-sectional (baseline) section of the ProfSMinas Project "Health and Working Conditions of Basic Education Teachers in the State of Minas Gerais: Longitudinal Study". This is an epidemiological, cross-sectional, analytical, web survey-type study carried out with basic education teachers from public schools in the state of Minas Gerais, Brazil.

Participants and procedures

Ensuring total control over the number of participants in the data collection is difficult as this is a web survey.⁷ Even so, the sample size was calculated. A formula based on the prevalence of a disease or event was used, considering an infinite population, a prevalence of 50% of the event of interest, a tolerable error of 3%, with a 20% increase in sample size to compensate for possible losses (non-response rate). We therefore estimated the need to collect data from at least 1282 teachers.

To compose the sample, the steps in the flowchart shown in figure 1 were followed. Only those who held a teaching position at the time of collection and who agreed to take part in the survey were included. Teachers who were not performing their teaching duties and those who had retired were excluded from the survey.

Data collection took place from October to December 2021. An online data collection form was made available to participants via the Google Forms platform, based on validated instruments/scales. The link to the form was provided by the State Department of Education SEE-MG via the teachers' institutional email. The teacher's SEE registration number was requested in order to avoid duplicate responses.

(Figure1)

Measures

The dependent variable "sleep quality" was obtained by answering the question, "During the last month, how would you rate the quality of your sleep in general?". This question was taken from the Pittsburgh Sleep Quality Index (IQSP),⁸ and this procedure was based on the work of Kottwitz, who measured the quality of sleep among Swiss teachers.⁶

The independent variables were organized into four thematic blocks, inspired by adaptations of the theoretical models presented by Amaral (2017)⁹ to investigate sleep quality and by Vieira et al (2020)¹⁰ who considered the influence of teaching work on health outcomes.

The first block was made up of sociodemographic and economic characteristics: gender, age, self-declared skin color, area of work (whether rural or urban), marital status, family income, and whether they are the main breadwinner.

The second block was made up of work characteristics: weekly working hours, work shift, whether they had another job, type of employment relationship, and job satisfaction. The variables control over work, social support and psychological demand were assessed using the “Job Stress Scale”, in its abridged version validated for Portuguese.¹¹

The behavior and lifestyle variables made up the third block: alcohol consumption, smoking; dietary assessment, which used an instrument based on the Food Guide for the Brazilian population, containing 24 questions, with answers presented on a four-point Likert scale (0 to 3). The total score was categorized as up to 31 points = inadequate diet, between 31 and 41 points = needs modification, and above 41 = healthy diet.¹² The question “physical activity habit for at least 6 months” was based on the transtheoretical model of behavior change for health, which proposes that change towards physical activity is divided into 5 stages. Subsequently, this question was dichotomized into insufficiently active/sedentary, covering the first four stages, and active, the last stage.¹³⁻¹⁵ Smartphone dependence was measured using the SPAI-BR, which is a smartphone dependence screening instrument made up of 26 items with yes and no answer options. The total score is obtained from the sum of the items, ranging from 0 to 26 points, and the cut-off point must be 9 or more positive responses to identify addiction. The interviewees were then categorized as dependent or non-dependent.¹⁶

The fourth block presents the variables relating to clinical and health conditions: fear of COVID-19, obtained from the Fear of COVID-19 scale,^{17,18} which is an instrument for investigating people's fear of COVID-19. The scale has 7 items that are answered on a Likert-type scale (1 to 5 points). The total score is obtained from the sum of the items (7 to 35 points), and the higher the score, the greater the fear. This variable was dichotomized into “a lot of fear” (cut-off point 27) and “little/moderate fear”. Other variables in the block: self-rated health and quality of life,¹⁹ medical diagnosis of depression and/or anxiety, symptoms of common mental disorder (CMD). CMD was measured using the Self Reporting Questionnaire (SRQ-20), which assesses elements relating to mental health. It is a questionnaire made up of 20 questions with dichotomous answers (yes or no) about the presence of physical and psychological symptoms in the last 30 days. The score ranges from 0 to 20 points. The cut-off point for classifying suspected CMD was set at 7 or more positive responses,²⁰ medical diagnosis of Chronic Non-Communicable Disease (CNCD), Body Mass Index (BMI), which was calculated from the teachers' self-reported weight and height and classified according to the World Health Organization²¹, and reports of back pain.

Statistical Analysis

The data was analyzed using the Statistical Package for the Social Sciences, version 24.0®. Initially, a descriptive analysis was carried out on all the variables considered. Bivariate analyses were then carried out using Pearson's Chi-Square Test. Variables with a p value ≤ 0.25 in the bivariate analysis were selected for multiple modeling. Hierarchical ordinal logistic regression with proportional odds was used in the multiple models. The selected variables were entered into the multiple modeling grouped by thematic block, following the order in which the blocks were entered. The backward step method was then used to enter the variables into the partial models. The magnitude of the associations between the independent variables and the outcome was verified using Odds Ratios (OR) with a 95% confidence interval. The quality of the final model was assessed using the parallel lines test.

The first block to be included in the modeling was the socio-demographic variables, with the variables that were not contributing to the quality of the model's fit being removed one by one, in order to have a partially adjusted model. Next, the work characteristics block was introduced and proceeded in the same way, keeping, however, the socio-demographic variables that remained significant at the first stage. Then the third block was added, the behavioral and lifestyle variables, keeping what had remained significant in the first and second partial models. Finally, the block of variables related to clinical and health conditions was added, and the variables that lost

significance within this block were removed. The parallel lines test was carried out at each stage to check that the principle of homogeneity of the slopes was not violated. The Odds Ratio (OR) of the independent variables that remained in the final model, their 95% confidence intervals, and descriptive level (p value) were estimated.

Ethical issues

The research was approved by the Research Ethics Committee of the State University of Montes Claros - Unimontes (Opinion 4.964.125/2021). All participants signed an informed consent form. This work was funded by the Minas Gerais State Research Foundation (FAPEMIG) under grant APQ-00901-22.

Results

A total of 1,982 forms were collected from basic education teachers in state schools in Minas Gerais. Of the forms collected, 75 were excluded because they did not meet the inclusion criteria. After this procedure, 1,907 forms were considered valid and were used in this study. State schools from 352 municipalities in Minas Gerais (41.3%) were represented. Of the total number of schools, the majority, 3,058 (89.4%), were located in the urban areas of the municipalities.

The majority were women aged between 40 and 59. They are professionals who live on a monthly income of 3-5 minimum wages, are the main breadwinners in the household, and their marital status is defined as being in a union, self-declared white, and work mainly in urban areas (Table 1). With regard to sleep quality, 29.5% of teachers rated their sleep quality as poor and 9.6% as very poor.

In the bivariate analysis, variables related to the working conditions of these teachers were associated with a poorer quality of sleep, such as working more than 40 hours a week, the type of employment contract, low control over work, low social support, low psychological demand, and job dissatisfaction (Table 1).

With regard to behaviors and habits, inadequate diet or diet in need of modification, insufficient physical activity or sedentary lifestyle, and dependence on smartphones in the bivariate analysis were associated with poor or very poor sleep quality (Table 1).

With regard to clinical and health conditions, in the bivariate analysis, increased fear of COVID-19 and poor/very poor self-rated health were associated with worse sleep quality. Some medical diagnoses were associated with a self-reported negative sleep quality condition in these teachers, such as diabetes, cardiovascular disease, reflux, respiratory problems, depression, anxiety, common mental disorder and back pain (Table 1).

Table 2 shows the final adjusted model in which variables from the four blocks remained. It can be seen that being female, the main breadwinner, working more than 40 hours a week, having little control over work, low social support, high psychological demand, dissatisfaction with work, having an inadequate diet or needing to change it, smartphone dependency, fear of COVID-19, poor or very poor self-rated health, anxiety, common mental disorder, and back pain significantly increased the chance of being in a worse sleep category. Body mass index was kept as an adjustment factor so as not to violate the assumption of homogeneity of slopes.

Discussion

The prevalence of self-reported poor and very poor sleep quality among the teachers in this study was 39.1%. Sleep-related problems in the Brazilian population were reported by 28.9% of individuals in a population-based study.²² Freitas et al²³ identified a 61.3% proportion of poor sleep quality among higher education teachers. Silva et al²⁴ pointed to a 63.6% prevalence of poor sleep quality among medical students. Another study pointed to poor sleep quality in 64.3% of nurses in a hospital unit. Lima et al²⁶ found a 67% prevalence of loss of sleep quality among climacteric women, especially post-menopausal women. Machado et al reported sleep problems in the rural

population of the municipality of Pelotas in southern Brazil.²⁷ In general, the teachers in this study seem to have worse sleep quality than the Brazilian population.

With regard to age, the study by Garjado et al²² carried out with the Brazilian population shows that sleep quality worsens with advancing age. In this study, older teachers were less likely to be in a category of poorer sleep quality, a situation that points in the same direction as the study by Pereira et al²⁸ which found good subjective sleep quality in 73% of the sample of individuals over 60 years old. This suggests that with advancing age, the factors that negatively impact sleep quality seem to fade away, or the perceived condition becomes more resigned in the face of greater acceptance of limitations.²⁹

Among women, there is also an increased chance of being in a category of poorer sleep quality compared to men. Lima et al²⁶ presented a group of proximal variables in relation to sleep quality in climacteric women, including intense climacteric symptoms such as hot flushes (PR: 1.18 95%CI: 1.10-1.27), and others such as anxiety (PR: 1.17 95%CI: 1.10-1.27), depression (PR: 1.08 95%CI: 1.01-1.15) and arthritis/arthrosis (PR: 1.07 95%CI: 1.01-1.14). Hypoestrogenism appears to be the most common physiological finding and seems to be implicated in the genesis of the condition that impacts sleep quality in women. Among the teachers investigated, there was a predominance of women (77.2%) who may be in the climacteric phase due to their age (61.5% between 40 and 59 years).

Being the main breadwinner in the household represented an increase in the chance of being in a worse sleep category (OR = 1.243). Moreira et al³⁰ found a prevalence of worse IQSP scores (5.96) in women compared to men (3.90) and attributed this finding to the overload of work performed by women (mother/housewife and professional). One study pointed to a disadvantage in the living conditions and health of female teachers who were the main breadwinners compared to female co-breadwinners,³¹ and financial responsibility for the household may be implicated in this association. In the period of this study, there was an association between reduced income among public school teachers and difficulty sleeping (PR = 1.21 p<0.001).³²

Work-related psychosocial aspects associated with sleep quality were pointed out by Kottwitz et al,⁶ such as emotional dissonance, social exclusion, and the experience of failure in school. Freitas et al²³ listed the most frequent complaints of teachers: the need to maintain more than one employment relationship and high psychological demands with low control over work. These characteristics were strongly associated with the outcome of poor sleep quality.

This set of factors seems to point to a common mechanism, stress, which triggers organic reactions engendered by adrenaline and noradrenaline, which in turn modulates a state of continuous alertness, preventing the relaxation necessary for restful sleep. In addition, the high level of cortisol promotes an organic environment of oxidative stress. With prolonged exposure to this biophysical state, the individual will soon reach a state of physical and psychological exhaustion.³³

Two behaviors/lifestyle habits remained strongly associated with poorer sleep quality: poor diet (OR: 3.240) and smartphone dependence (OR: 2.265). In a study conducted in South Korea at a sleep clinic, participants considered to be more stressed consumed more grains, meat, and eggs, and had poorer sleep quality compared to less stressed participants who consumed more vegetables and had better sleep quality (p = 0.023).³⁴ In another study, higher protein intake in weight loss diets was associated with better sleep quality in North American adults.³⁵ North American data shows that there is a scarcity of studies on the impact of diet on sleep.³⁴

Smartphone addiction reduced sleep time among adolescents from public schools in northeastern Brazil (OR = 0.715 - 95%CI: 0.538-0.949)³⁶ A study conducted in Indonesia, also among adolescents, showed a positive correlation between smartphone use at night and sleep disorders (r=0.374).³⁷ Exposure to screen light is a factor that acts as a signal to the circadian timing system, which mimics daylight conditions by sending information that it is still daytime. This impairs the release of melatonin, which has an impact on sleep latency.²² Smartphone addiction is

a problem that has become very prominent today and deserves attention and measures aimed at the rational use of this device.

In the set of variables related to clinical aspects, fear of COVID-19 was a factor that increased the chance of being in a worse sleep category (OR = 1.532 95%CI 1.220-1.925). According to Barros et al³⁸ anxiety triggered by the fear of acquiring the disease could be at the root of sleep disorders or aggravate previous ones. In relation to self-rated health, the more negative the self-perception, the greater the chance of being in a worse category of poor/very poor sleep quality. Garbin et al³⁹ point out that negative self-rated health is more related to disability than established chronic or acute illnesses. The individual considers their health condition to be bad to the extent that they are unable to carry out certain activities, i.e. the limitation(s) imposed by a health condition seem to have an impact on sleep quality.

Back pain remained associated with the chance of being in the worst sleep category (OR = 2.029 [1.526-2.697]). Alves et al⁴⁰ identified an association between severe chronic pain (6 months or more) and worse sleep quality among elderly people assisted by the Family Health Units of a municipality in São Paulo. Machado et al⁴¹ observed the presence of back pain strongly associated with poorer quality of life among university professors, and this included repercussions on sleep. Two factors seem to be correlated: ergonomics and working hours outside of class. Ergonomics in schools seems to be an unsolvable issue, given that chairs, tables, and blackboards are usually standardized in classrooms.

CMD among primary school teachers in Uberlândia was studied by Machado and Limongi.⁴² The authors found a prevalence of 43.9% of CMD and among the related factors were the use of medication to sleep, being female, and psychological/moral violence in the school territory practiced by students towards teachers. In this study, the issue of sleep seems to be part of a set of symptoms that point to the onset of CMD. These authors recommend frequent psychological assessment of teachers.

The multiple hierarchical ordinal logistic regression model revealed the influence of certain variables on the probability of being in a category of poorer sleep quality when compared to other individuals from the same population who do not have the factor in question. The grouping of these variables showed that the influence can be proximal or distal as we include or remove blocks of variables.

Face-to-face classes were suspended until the middle of the second semester of 2021, when they gradually began to be resumed in basic education in Brazil, when the data for this study was collected.

This study has some limitations. The fact that exposure and outcome were observed at the same time limits inferences of causality, but this is a limitation of the cross-sectional design. Furthermore, as it is a web survey, there is no sample control by the researchers, and it is a self-report. However, the size of the sample obtained by the return of respondents to the instrument makes generalizations feasible.

New longitudinal approaches should be carried out in order to better understand the relationship between exposure and outcome with regard to teachers' sleep quality, as well as to provide public policymakers with information on how to intervene in the factors associated with poorer sleep quality, either by minimizing and/or eliminating such predictors. In this direction, some aspects seem to be emerging, such as the psychological assessment of teachers, which should be considered within the scope of periodic examinations, which currently take into account the approach of speech therapy and clinical medicine. In addition, recommendations regarding sleep hygiene should be administered. These are some strategies for improving teachers' quality of sleep and quality of life.

This study indicates that there is a significant proportion of public elementary school teachers in the state of Minas Gerais with self-reported poor and very poor sleep quality, which may have

been determined by sociodemographic variables, habits and behaviors, clinical and health conditions, and, above all, working conditions that need to be monitored more closely.

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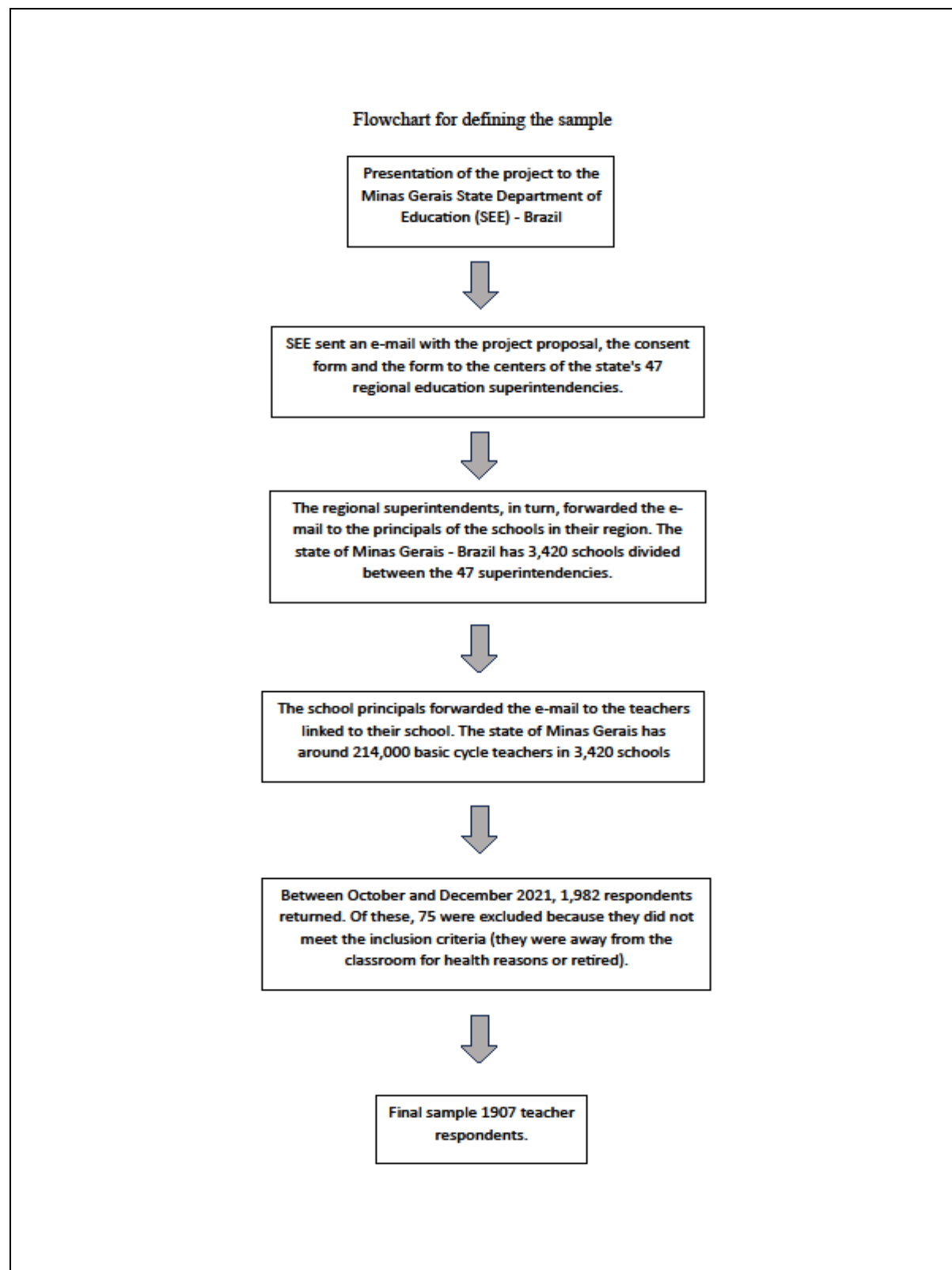


Figure 1. Flowchart defining the final sample of teachers taking part in the study

Table 1. Characterization of the sample and bivariate analysis for levels of sleep quality in public school teachers in the state of Minas Gerais, Brazil, 2021 (n = 1.907)

Variables	Characterization		Sleep Quality						
	N	%	Very good/good	%	Bad	%	Very Bad	%	p value
Socio-economic factors									
Age									
Up to 39 years*	627	32.9	356	56.8	209	33.3	62	9.90	0.047**
40 to 59 years	1173	61.5	730	62.2	328	28.0	115	9.80	
60 years and over	106	5.6	73	68.9	27	25.5	6	5.70	
Gender									
Male*	434	22.8	283	65.2	115	26.5	36	8.30	0.102**
Female	1473	77.2	877	59.5	449	30.5	147	10.0	
Area									
Rural*	202	10.6	139	68.8	51	25.2	12	5.90	0.031**
Urban	1705	89.4	1021	59.9	513	30.1	171	10.0	
Skin Color									
White*	1040	54.5	625	60.1	312	30.0	103	9.9	0.753
Non-White	867	45.5	535	61.7	252	29.1	80	9.2	
Income									
6 minimum wages or more*	342	17.9	202	59.1	109	31.9	31	9.1	0.201**
3 to 5	1089	57.1	647	59.4	332	30.5	110	10.1	
Up to 2	476	25.0	311	65.3	123	25.8	42	8.8	
Marital status									
With union*	1160	60.8	726	62.6	328	28.3	106	9.1	0.146**
Without union	747	39.2	434	58.1	236	31.6	77	10.3	

Main provider

No*	765	40.1	481	62.9	221	28.9	63	8.2	0.170**
Yes	1142	59.9	679	59.5	343	30.0	120	10.5	

Work Condition

Working hours

< 40 hours per week*	1253	65.7	829	66.2	338	27.0	86	6.9	<0.001**
> 40 hours per week	654	34.3	331	50.6	226	34.6	97	14.8	

Night Shift

No*	1348	70.8	838	62.2	387	28.7	123	9.1	0.151**
Yes	555	29.2	319	57.5	176	31.7	60	10.8	

Type of Relationship

Permanent*	1096	57.5	594	54.2	364	33.2	138	12.6	<0.001**
Contracted/designated	811	42.5	566	69.8	200	24.7	45	5.5	

Other job

No*	1277	67.0	785	61.5	367	28.7	125	9.8	0.515
Yes	630	33.0	375	59.5	197	31.3	58	9.2	

Control over work

High*	982	51.5	553	56.3	305	31.1	124	12.6	<0.001**
Low	925	48.5	607	65.6	259	28.0	59	6.4	

Social Support

High*	834	43.7	403	48.3	310	37.2	121	14.5	<0.001**
Low	1073	56.3	757	70.5	254	23.7	62	5.8	

Psychological demand

High*	725	38.0	537	74.1	154	21.2	34	4.7	<0.001**
Low	1182	62.0	623	52.7	410	34.7	149	12.6	

Job satisfaction

Satisfied*	1592	83.5	1048	65.8	432	27.1	113	7.1	<0.001**
Dissatisfied	315	16.5	112	35.6	133	42.2	70	22.2	

Behaviors/Habits

Smoker

No*	1583	83.0	938	62.1	450	28.4	150	9.5	0.066**
Yes	115	6.0	57	49.6	44	38.3	14	12.2	
Ex-smoker	209	11.0	120	57.4	70	33.5	19	9.1	

Alcoholism

Never/almost never*	1274	66.8	795	62.4	364	28.6	115	9.0	0.134**
Monthly frequency (2x/month)	456	23.9	272	59.6	136	29.8	48	10.5	
Weekly frequency	177	9.3	93	52.5	64	36.2	20	11.3	

Nutrition

Healthy*	971	50.9	708	72.9	217	22.3	46	4.7	<0.001**
Needs modification	738	38.7	385	52.2	265	35.9	88	11.9	
Inadequate	198	10.4	67	33.8	82	41.4	49	24.7	

Physical Activity

Yes (active)*	286	16.9	194	67.8	73	25.5	19	6.6	0.023**
No (insufficient/sedentary)	1407	83.1	836	59.4	433	30.8	138	9.8	

Dependence on the smartphone

No*	1554	81.5	1039	66.9	398	25.6	117	7.5	<0.001**
Yes	353	18.5	121	34.3	166	47.0	66	18.7	

Medical and health conditions

Fear of COVID-19

Little/moderate*	1313	68.9	898	68.4	330	25.1	85	6.5	<0.001**
A lot	594	31.1	262	44.1	234	39.4	98	16.5	

Self-assessment of health

Excelent*	931	48.8	693	74.4	196	21.1	42	4.5	<0.001**
Regular	913	47.9	452	49.5	341	37.3	120	13.1	
Bad/poor	63	3.3	15	23.8	27	42.9	21	33.3	

Diabetes

No*	1789	93.8	1104	61.7	519	29.0	166	9.3	0.007**
Yes	118	6.2	56	47.5	45	38.1	17	14.4	

Hypertension

No*	1483	77.8	922	62.2	424	28.6	137	9.2	0.080**
Yes	424	22.2	238	56.1	140	33.0	46	10.8	

Cardiovascular disease

No*	1830	96.0	1129	61.7	528	28.9	173	9.5	0.001**
Yes	77	4.0	31	40.3	36	46.8	10	13.0	

Reflux

No*	1574	82.5	1020	64.8	418	26.6	136	8.6	<0.001**
Yes	333	17.5	140	42.0	146	43.8	47	14.1	

Respiratory issues

No*	1459	76.5	956	65.5	382	26.2	121	8.3	<0.001**
Yes	448	23.5	204	45.5	182	40.6	62	13.8	

Depression

No*	1658	86.9	1091	65.8	455	27.4	112	6.8	<0.001**
Yes	249	13.1	69	27.7	109	43.8	71	28.5	

Anxiety

No*	1171	61.4	880	75.1	244	20.8	47	4.0	<0.001**
Yes	736	38.6	280	38.0	320	43.5	136	18.5	
Common mental disorder									
Absent*	1222	64.1	982	80.4	212	17.3	28	2.3	<0.001**
Present	685	35.9	178	26.0	352	51.4	155	22.6	
BMI									
Eutrophic*	654	34.7	411	63.7	173	26.8	61	9.5	0.075**
Overweight	746	39.1	459	61.5	221	29.6	66	8.8	
ObesAge	466	24.4	259	55.6	155	33.3	53	11.2	
Back pain									
No*	646	33.9	545	84.4	81	12.5	20	3.1	<0.001**
Yes	1261	66.1	615	48.8	483	38.3	163	9.6	

* Reference category

** Variable with p-value ≤ 0.25 for the multiple model

Table 2. Hierarchical ordinal logistic regression model for predictor variables of sleep quality Age in public school teachers in the state of Minas Gerais, Brazil, 2021 (n = 1.907)

PSYC

Variable	Models			
	Model 1	Model 2	Model 3	Model 4
Socio-economic factors	OR [IC _{95%}]	P-value		
Age				
Up to 39 years*	1			
40 to 59 years	0.808 [0.666-0.979]	0.030		
60 years and over	0.577 [0.373-0.893]	0.014		
Gender				
Male*	1			
Female	1.294 [1.037-1.615]	0.023		
Main supplier				
No*	1			
Yes	1.243 [1.031-1.498]	0.023		
Work Condition				
		OR [IC _{95%}]	P-value	
Working hours				
< 40 hours per week*		1		
> 40 hours per week		1.618 [1.324-1.977]	<0.001	
Type of relationship				
Civil service employee*		1		
Hired/designated		0.685 [0.559 -0.840]	<0.001	
Control over work				
High *		1		
Low		1.235 [1.015-1.503]	0.034	
Social support				

High *	1	
Low	1.598 [1.299-1.965]	<0.001
Psychological demand		
Low*	1	
High	1.868 [1.509-2.312]	<0.001
Job satisfaction		
Satisfied*	1	
Dissatisfied	2.234 [1.720-2.902]	<0.001

Behaviors/Habits

	<i>OR [IC_{95%}]</i>	<i>P-Value</i>
Nutrition		
Healthy*	1	
Needs modification	2.008 [1.625-2.481]	<0.001
Inadequate	3.240 [2.343-4.479]	<0.001
Dependence on the smartphone		
No*	1	
Yes	2.265 [1.785-2.875]	<0.001

	<i>OR [IC_{95%}]</i>	<i>P-Value</i>
<i>Medical and health conditions</i>		
Fear of COVID-19		
Little/moderate*	1	
A lot	1.532 [1.220-1.925]	<0.001

Self-assessment of health			
Excelente/Good*	1		
Regular	1.413	[1.120-	0.004
	1.783]		
Bad/Poor	2.711	[1.567-	<0.001
	4.690]		
Anxiety			
No*	1		
Yes	1.728	[1.365 -	<0.001
	2.188]		
Common mental disorder			
Absent*	1		
Present	4.413	[3.388-	<0.001
	5.747]		
Back pain			
No*	1		
Yes	2.029	[1.526-	<0.001
	2.697]		
BMI			
Eutrophic*	1		
Overweight	0.936	[0.727-	0.604
	1.203]		
Obese	1.074	[0.810-	0.627
	1.417]		

*Reference category

