Teachers' perception of health, remote work, and the students' situation during the COVID-19 pandemic

Percepção dos professores sobre saúde, trabalho remoto e situação de estudantes durante a pandemia da COVID-19

Percepciones de los profesores sobre la salud, el trabajo a distancia y la situación de los estudiantes durante la pandemia de COVID-19

Aline de Sousa Justino¹
ORCID: 0000-0002-4632-484X
Osmar de Oliveira Cardoso¹
ORCID: 0000-0001-6093-7629
Roniele Araújo de Sousa²
ORCID: 0000-0003-3104-5925
Mykaelle Soares Lima¹
ORCID: 0000-0003-2248-8097

¹Universidade Federal do Piauí.
Teresina, Piauí, Brasil.
²Universidade Nova de Lisboa.
Lisboa, Portugal.

Corresponding author:
Aline de Sousa Justino
E-mail:
alinesousajustino@gmail.com

Abstract

Objective: To evaluate the teachers' perceptions regarding their emotions, health and work, as well as the students' situation, during the pandemic. **Methods:** Cross-sectional, quantitative and descriptive study, carried out with teachers from the public education network in the state of Piauí. The bivariate analysis model was applied using Pearson's Chi-square test, considering the significance level at 5% to check associations and to analyze the reliability of the questionnaire. Internal consistency was calculated using Cronbach's alpha coefficient. **Results:** Hopeless was the emotion most perceived by teachers. Conversely, they felt satisfied with their health and work. There was no influence of sociodemographic characteristics on perceived hopeless. In addition, they stated that they had good expectations when the pandemic was over. Regarding the students' situation, it was identified that they partially agreed that there had been harm. **Conclusion:** Feeling hopeless during the pandemic was independent of the individual's sociodemographic characteristics, as well as the teacher's gender, age or race/skin color.

Descriptors: Faculty; Pandemics; COVID-19; Perception; Emotions.

Whats is already known on this?
The literature indicates that there are impacts on the teachers' mental health that trigger emotional changes, such as: fear, anxiety, sleep disturbance, anguish, exhaustion, depression and emotional distancing.

What this study adds?
The study provides scientific evidence that there was a perception of negative emotions by teachers in the state education network of Piauí during the COVID-19 pandemic.

Resumo

Objetivo: *A corrente pesquisa teve como escopo avaliar a percepção dos professores com relação às suas emoções, saúde e trabalho, assim como a situação dos alunos, durante a pandemia.* ***Método:*** *Estudo transversal, quantitativo, descritivo, realizado com docentes da rede pública de ensino do estado do Piauí. Aplicou-se o modelo de análise bivariada pelo teste Qui-quadrado de Pearson, considerando o nível de significância a 5% para verificar as associações e para analisar a confiabilidade do questionário. Calculou-se a consistência interna pelo coeficiente alfa de Cronbach.* ***Resultados:*** *A desesperança foi a emoção mais percebida pelos professores. Em contrapartida, perceberam-se satisfeitos com sua saúde e trabalho. Não houve influência das características sociodemográficas sobre a desesperança percebida. Além disso, afirmaram ter boas expectativas quando a pandemia acabasse. Quanto à situação dos alunos, identificou-se que concordaram parcialmente que houve danos.* ***Conclusão:*** *Sentir desesperança durante a pandemia foi independente das características sociodemográficas que o indivíduo possui, assim como do sexo, idade ou raça/cor de pele do professor.*

Descritores: *Docentes; Pandemias; COVID-19; Percepção; Emoções.*

Resumén

Objetivo: *El alcance de la presente investigación fue evaluar las percepciones de los profesores sobre sus emociones, su salud y su trabajo, así como la situación de los estudiantes, durante la pandemia.* ***Metodos:*** *Estudio transversal descriptivo y cuantitativo, realizado con maestros de la red de educación pública del estado de Piauí. Se aplicó el modelo de análisis bivariado mediante la prueba Chi-cuadrada de Pearson, considerando el nivel de significancia al 5% para chequear asociaciones y analizar la confiabilidad del cuestionario. Se calculó la consistencia interna mediante el coeficiente alfa de Cronbach.* ***Resultados:*** *La desesperanza fue la emoción más percibida por los profesores. En contraste, se sintieron satisfechos con su salud y su trabajo. No hubo influencia de las características sociodemográficas sobre la desesperanza percibida. Además, afirmaron tener buenas expectativas una vez finalizada la pandemia. Respecto a la situación de los estudiantes, se identificó que coincidieron parcialmente en que hubo daños.* ***Conclusión:*** *Sentirse desesperanzado durante la pandemia fue independiente de las características sociodemográficas del individuo, así como del sexo, la edad o la raza/color de piel del profesor.*

Descriptores: *Docentes; Pandemias; COVID-19; Percepción; Emociones.*

INTRODUCTION

The year 2020, more precisely in March, began with a historic impact on all aspects of the vitality of millions of citizens across the planetary globe.[1] A new virus associated with a different lung inflammation was noticed in China in December 2019 and titled "SARS-CoV-2", which causes the disease popularly known as COVID-19. Due to the ease of transmission, the virus entailed a large number of infections, quickly causing thousands of deaths around the world. With these data, the World Health Organization (WHO) declared a state of pandemic on the eleventh day of March 2020[2].

As a result, the governments of several countries adopted some containment measures, including social isolation.[2] In addition to isolation, the recommendations could impact not only the economy of the countries, with the prohibition of agglomerations and social events, as well as restrictions on travels and public transportation, but there were also impacts on education, with the closure of educational activities in both schools and universities.[3]

The educational environment needed to adjust to a new model of education as it became a favorable area for the spread and contamination of the new coronavirus.[1] As preventive measures, the Brazilian Ministry of Education (MEC, as per its Portuguese acronym) published Ordinance nº 343, dated March 17, 2020, regulating the transition from in-person education to remote classes while the pandemic persisted.[4]

The closure of schools and the beginning of remote teaching influenced the different aspects of schooling in terms of the teacher/student axis. This required a reorganization of the school environment, which was not in line with the new reality, especially for those who are included in the map of Brazilian social vulnerabilities, since our country has a panorama marked by great social and regional differences between students and teachers who work in the national territory.[5]

The student with few financial and technological resources and in social isolation had the full role in learning and the teacher, the uncertainty regarding their real situation. In search of positive results, psychological pressure and multiple assignments unbalance health, affect the memorization process and undermine the student/teacher's reasoning. As a result, the illness of the teacher's body and mind ends up reflecting on the activities of daily life, with negative effects of a cycle formed by tired and sick individuals.[6]

During the pandemic, the teaching profile was mainly made up of teachers who lived with their families, including school-age children. The atypical demands imposed by remote teaching contrasted with the figure of the teacher responsible for his/her child adapting to remote teaching versus the teacher mediating the teaching-learning process versus the teacher also being a student, when qualification was

required to manipulate digital intelligence, thus contributing to the increased level of stress, disorientation and overload. The student showed lack of motivation, study overload, tiredness and stress.[7]

Occupational stress has directly reflected social changes at all levels of education in recent times. Teachers' perceptions and complaints tend to be interpreted as common disorders in the work environment, often going unnoticed, because they do not recognize that the emotions triggered were through that environment considered as the provider of family income.[8]

Therefore, it is necessary to know and reflect on the teachers' health and practice during remote teaching influenced by the COVID-19 pandemic, as well as the emotions felt, that is, how they perceived themselves during this new teaching process, noticed positive consequences or negative effects on their health and how they viewed the students' situation, so that society can understand the dimension and importance of fair teaching. Therefore, it is up to the public authorities to develop strategies for a more equal, accessible and motivating education, without harm to the mental, physical and social health of these stakeholders.

The scope of the current research was to evaluate teachers' perceptions regarding their emotions, health and work, as well as the students' situation, during the pandemic.

METHODS

It refers to a cross-sectional, quantitative and analytical study, carried out with teachers from the public school network in Piauí. The research took place in the respective state, which has a teaching staff made up of 37,800 teachers, 3,094 elementary schools and 662 high schools, according to IBGE 2021, without specifying private and/or public ties. In Piauí, the State Department of Education of Piauí – SEDUC/PI is responsible for 809 basic education schools.[9]

In order to optimize and decentralize the work, Regional Education Managements (GRE, as per its Portuguese acronym) were established, located in municipalities with the largest population, with a set of 21 Managements; 16 in the countryside of the state and 05 in the capital Teresina. The GRE are formally linked to the Department of Education, and their purpose is to develop the programming, direction, instruction, surveillance, inspection and management of educational activities in their respective areas of competence.[10] The sample was made up of teachers from the state education network of Piauí from different modalities: professional education, Youth and Adult Education (EJA, as per its Portuguese acronym), elementary education, secondary education and other teaching modalities.

In order to describe the teachers' profile and check the association, "emotions" was selected as the dependent variable. In turn, the independent variables were: gender; age; marital status; color/race; children; number of children; number of people living in the house; person who looks after your children when you need to work; person who looks after your home when you need to work; training area; graduate studies; lato sensu; stricto sensu; length of experience in teaching; type of contract; work modality (01 modality; ≥02 modalities); school; zone; number of schools you work in; hours per week spent preparing classes; weekly hours spent managing the school; hours per week spent providing support to students; tools with internet access; perception of health; and, finally, the students' situation, being evaluated in this variable: interaction process, loss of contact, social inequalities, impacts on mental health and continuity of learning; and expectations.

In order to collect data, a virtual questionnaire was used with questions adapted from the Quality of Life at Work Assessment Questionnaire QWLQ-78.[9] The questionnaire was designed using Google® Forms, with 48 questions divided into three sections: the first was based on sociodemographic characteristics; the second, on the teachers' perception of their health and remote work; and the last was focused on the teachers' perception of the students' situation during the COVID-19 pandemic.

Collection took place from September 29th to December 10th, 2020, via email. Firstly, with the 17,412 electronic addresses made available by SEDUC/PI (full name; email), where duplicate email addresses with typing errors were excluded, thus totaling 10,002 entries. The next step was to send an explanatory message about the research and a link that redirected the questionnaire to the 10,002 email addresses.

Opportunely, a message was sent to the 21 GRE coordinators, via email and the WhatsApp application (provided by SEDUC/PI), explaining the research and requesting it to be disseminated to principals. Subsequently, it was sent to teachers and from teacher to teacher, through a chain sampling procedure, seeking to obtain a statewide sample, configuring itself as a non-probabilistic convenience sample, with a return of 538 email addresses; of these, the following were included: teachers working in

the state education network (permanent and others), who answered the questionnaire only once and agreed to participate in the research. Conversely, the following were excluded: teachers who refused to participate in the research and duplicate participants. Finally, a sample of 509 teachers was obtained.

Data organization and tabulation took place using Microsoft Office Professional Plus Excel 2016 software (Microsoft Corp., United States). Statistical analysis was performed using Stata version 14 (StataCorp LP, CollegeStation, USA). In order to answer the hypothesis "there was a perception of negative emotions by teachers in the state education network of Piauí during the COVID-19 pandemic" and to test the association of the nominal categorical variables "hopeful/hopeless" (emotion) with the independent variables, bivariate analysis was carried out using Pearson's Chi-square test, considering the significance level at 5%, where "p" represents the probability of being null (when p > 0.05) or true (when p ≤ 0.05).[11]

In order to analyze the reliability of the questionnaire, internal consistency was calculated using Cronbach's alpha coefficient. Therefore, the questionnaire showed high reliability (α = 0.8797) to analyze the health perception, the teacher's work and the student's situation. The results must be between 0 and 1, where reliability is considered very low (0.30), low (0.30 < 0.60), moderate (0.60 < 0.75), high (0.75 < α ≤ 0.90) and very high (α > 0.90).[12]

Furthermore, in order to characterize the teacher's profile, sociodemographic information was crossed with each type of emotion felt by the teacher during the COVID-19 pandemic. This same analysis was used in the answers about expectations regarding health when the pandemic is over; perception of health and work; and perception of the student's situation.

In order to classify the teacher's perception of health, a Likert-style response scale of 1 to 5 points was established, with the objective of standardizing the analysis of the results. Answers related to health and work ranged as follows: extremely satisfied (68 to 80 points); very satisfied (55 to 67 points); more or less satisfied (42 to 54 points); little satisfied (29 to 41 points); and not at all satisfied (16 to 28 points). The same interpretation applied to the teachers' perception of the students' situation, being: I completely agree (27 to 30 points); partially agree (22 to 26 points); neither agree nor disagree (17 to 21 points); partially disagree (11 to 16 points); and I totally disagree (6 to 10 points).

The Likert scale was not applied to the questions "how have you been feeling during the COVID-19 pandemic" and "what are your expectations regarding your health when the COVID-19 pandemic is over". The categorization of answers to these questions was adapted from Damásio,[13] who indicates emotions and feelings as associated phenomena and can be classified as primary or universal emotion (fear, sadness, joy, surprise, aversion and anger), secondary or social emotion (shame, guilt, jealousy and pride) and background emotion (which are expressed in moments of well-being or discomfort, calm or tension). Background emotions are in a secondary place, but they are what define our mental state at that moment.

Based on this concept, the types of emotions reported by teachers were classified into primary, secondary and background emotions. In order to categorize the variable "expectation", they were divided according to the concept of background emotion. Accordingly, what would be a calm = positive background emotion received a score from 1 to 3, while a tension = negative background emotion received from -1 to -3. After these divisions, the variables "emotions" and "expectations" were transformed and compiled to meet statistical assumptions, with emotions being analyzed under the names: hopeful and hopeless. Finally, expectations were divided into intensity and opposition.

The study was carried out in accordance with the guidelines established in Resolution nº 466/12 of the National Health Council (CNS),[14] with approval from the Research Ethics Council of the Federal University of Piauí on 09/15/2020, under Opinion nº 4.277.988, with Certificate of Presentation for Ethical Consideration (CAAE, as per its Portuguese acronym) nº 35464320.1.0000.5214, approved by the State Department of Education and Culture of Piauí. A free and informed consent form was provided at the beginning of the questionnaire for research participants, where they selected the option whether or not they wanted to participate in the research and whether they wanted to receive a reproduction of the document by means of email.

RESULTS

Of the 509 responding teachers from the state education network of Piauí, 64.2% are females; 50.1% are aged 49 or over; 54.6% married; 77.6% non-white color/race; 64.4% have children; 42.4% have two or more children; 29.1% live with four people; 41.7% say that other people look after their children while they are working and 43.2% look after the house after school classes (Table 01).

Table 1. Sociodemographic characteristics, work, health, and the students' situation from the perspective of teachers in Piauí. Teresina, PI, Brazil, 2020.

Variables	nº	%	Variables	nº	%
Gender			**Work modality**		
Female	327	64.2	Normal (01 modality)	432	84.9
Male	182	35.8	Overloaded (≥2 modalities)	77	15.1
Age group			**School**		
19-39 years	254	49.9	State	358	70.3
49 and/or more	255	50.1	Municipal	151	29.7
Marital status			**Zone**		
Unmarried	231	45.4	Urban	422	82.9
Married	278	54.6	Urban and rural	87	17.1
Race/color			**Number of schools where you work**		
White	114	22.4	1 school	422	82.9
Non-white	395	77.6	2 and/or more	87	17.1
Children			**Number of classrooms where you work***		
No	181	35.6	1 - 5 classrooms	181	35.6
Yes	328	64.4	6 - 10 classrooms	210	41.3
Number of children			11 and/or more classrooms	117	23.0
0	181	35.6	**Number of hours worked per week***		
1 child	113	22.2	1 - 30 hours	174	34.2
2 and/or more children	215	42.2	31 and/or more hours	326	64.0
Number of people living in the house			**Hours per week preparing classes***		
Up to 2 people	127	25.0	1 - 20 hours	211	41.5
3 people	125	24.5	21 and/or more hours	293	57.6
4 people	148	29.1	**Hours per week managing the school***		
5 and/or more people	109	21.4	1 - 20 hours	389	76.4
Person who looks after your children			21 and/or more hours	94	18.5
I do not have children or they do not live with me	184	36.1			
Spouse/partner	113	22.2	**Hours per week providing student support***		
Other	212	41.7	1 - 20 hours	331	65.0
Person who looks after your home			21 and/or more hours	171	33.6
Spouse/partner	132	26.0	**Tools with internet access**		
Nobody (I do it when I get home from work)	220	43.2	Good	439	86.2
Other	157	30.8	Bad	70	13.8
Academic training			**Perception of health**		
Human sciences	277	54.4	Extremely	31	6.1
Exact sciences	141	27.7	Very	217	42.6
Biological sciences	91	17.9	More or less	200	39.3
Graduate studies			Little	61	12.0
Yes	404	79.4	**Students' situation**		
No	105	20.6	Extremely	114	22.4
Lato sensu			Very	254	49.9
			More or less	141	27.7

Yes	383	75.2	**Emotions****		
No	126	24.8	Hopeful	50	9.8
Stricto sensu			Hopeless	459	90.2
Stricto sensu			**Intensity expectations**		
Yes	42	8.3	Intensity 1	51	10.0
No	467	91.7	Intensity 2	458	90.0
Length of experience in teaching			**Opposition expectations**		
0 - 10 years	209	41.0	Opposition 1*	253	49.7
11 - 19 years	150	29.5	Opposition 2	256	50.3
20 and/or more years	150	29.5	**TOTAL**	**509**	**100**
Type of contract					
Permanent	315	61.9			
Other	194	38.1			

Source: authors, 2021.

*answers containing missing because it is an open question that favors typing errors by the surveyed person.

As also shown in Table 01, the highest percentage of undergraduate studies is in the area of human sciences, with 54.4%; among the others, 79.4% have a graduate degree; 75.2% in lato sensu graduate studies; 8.3% stricto sensu type; 41.0% have up to 10 years of teaching; 61.9% are effective; 84.9% work in the "normal" modality (01 modality); 70.3% are only linked to a state school; 82.9% work in the urban area of the municipalities; 82.9% work in just one school; 41.3% work in 6 to 10 classrooms; 64.0% work 31 and/or more hours per week; 57.6% spend 21 and/or more hours preparing classes; 76.4% spend between 1 to 9 hours on school management; 65.0% spend between 1 and 9 hours providing student support; 86.2% have good work tools with internet access. As for emotions, 90.2% have a feeling of hopeless; 90.0% have good expectations (intensity expectations [Table 01]) for when the COVID-19 pandemic is over.

The questionnaire used to measure the different underlying constructs: "teacher's perception of health and work", which consisted of 16 questions, and "perception of the student's situation", with 6 questions, showed a high level of internal consistency, determined by alpha Cronbach's coefficients of 0.874 and 0.810, respectively. In the general construct, it also showed high reliability ($\alpha = 0.8797$).

Bivariate analysis using Pearson's Chi-square test showed a significant association with emotions, sociodemographic characteristics: gender (p: 0.000), age (p: 0.038) and skin color (p: 0.038), as shown in Table 02. A significant association was also identified between the teacher's perception of health and emotions (p: 0.000), as well as between opposition expectations and emotions (p: 0.023).

Table 2. Factors associated with emotions among teachers in Piauí. Teresina, PI, Brazil, 2020.

	Emotions		Chi-Square	
Characteristics	**Hopeful nº (%)**	**Hopeless nº (%)**	**Value**	**P-Value**
Gender				
Female	18 (3.5%)	309 (60.7%)	19.254	0.000
Male	32 (6.3%)	150 (29.5%)		
Total	50 (9.8%)	459 (90.2%)		
Age (years)				
19-39	18 (3.5%)	236 (46.4%)	4.286	0.038
≥40	32 (6.3%)	223 (43.8%)		
Total	50 (9.8%)	459 (90.2%)		
Marital status				
Unmarried	23 (4.5%)	208 (40.9%)	0.008	0.926
Married	27 (5.3%)	251 (49.3%)		
Total	50 (9.8%)	459 (90.2%)		
Children				

No	19 (3.7%)	162 (31.8%)		
Yes	31 (6.1%)	297 (58.4%)	0.144	0.704
Total	50 (9.8%)	459 (90.2%)		
Number of people living in the house				
Up to 2	15 (2.8%)	112 (22.0%)		
3	10 (2.0%)	115 (22.6%)		
4	13 (2.6%)	135 (26.5%)	1.389	0.708
≥5	12 (2.4%)	97 (19.1%)		
Total	50 (9.8%)	459 (90.2%)		
Person who looks after your children				
I do not have children or they do not live with me	20 (3.9%)	164 (32.2%)		
Spouse/partner	14 (2.8%)	99 (19.5%)	2.307	0.315
Other	16 (3.1%)	196 (38.5%)		
Total	50 (9.8%)	459 (90.2%)		
Person who looks after your home				
Spouse/partner	17 (3.3%)	115 (22.6%)		
Nobody	17 (3.3%)	203 (39.9%)	2.506	0.286
Other	16 (3.2%)	141 (27.7%)		
Total	50 (9.8%)	459 (90.2%)		
Race/color				
White	17 (3.7%)	97 (19.1%)		
Non-white	33 (6.1%)	362 (71.1%)	4.295	0.038
Total	50 (9.8%)	459 (90.2%)		
Training				
Human sciences	28 (5.5%)	249 (48.9%)		
Exact sciences	18 (3.5%)	123 (24.2%)		
Biological sciences	4 (0.8%)	87 (17.1%)	4.43	0.109
Total	50 (9.8%)	459 (90.2%)		
Graduate studies				
Yes	38 (7.4%)	366 (71.9%)		
No	12 (2.4%)	93 (18.3%)	0.385	0.535
Total	50 (9.8%)	459 (90.2%)		
Lato Sensu				
Yes	36 (7.1%)	347 (68.2%)		
No	14 (2.7%)	112 (22.0%)	0.314	0.576
Total	50 (9,8)	459 (90,2%)		
Strictu sensu				
Yes	6 (1,2%)	36 (7,1%)		
No	44 (8,6%)	423 (83,1%)	1,029	0,310
Total	50 (9,8%)	459 (90,2%)		
Work time				
0-10	16 (3.1%)	193 (37.9%)		
11-19	18 (3.6%)	132 (25.9%)		
≥20	16 (3.1%)	134 (26.4%)	2.032	0.362
Total	50 (9.8%)	459 (90.2%)		

Contract				
Permanent	35 (6.9%)	269 (52.9%)		
Other	15 (2.9%)	190 (37.3%)	1.548	0.213
Total	50 (9.8%)	459 (90.2%)		
Modality				
Normal (01 modality)	40 (7.8%)	392 (77.0%)		
Overloaded (≥02 modalities)	10 (2.0%)	67 (13.2%)	1.025	0.311
Total	50 (9.8%)	459 (90.2)		
School				
State	36 (7.1%)	322 (63.3%)		
Municipal	14 (2.7%)	137 (26.9%)	0.074	0.786
Total	50 (9.8%)	459 (90.2%)		
Zone				
Urban	42 (8.3%)	380 (74.7%)		
Rural	8 (1.5%)	79 (15.5%)	0.047	0.829
Total	50 (9.8%)	459 (90.2%)		
Number of schools				
1	42 (8.2%)	380 (74.7%)		
≥2	8 (1.6%)	79 (15.5%)	0.047	0.829
Total	50 (9.8%)	459 (90.2%)		
Number of classrooms*				
1-5	18 (3.5%)	163 (32.0%)		
6-10	22 (4.3%)	188 (37.0%)	0.318	0.853
≥11	10 (2.0%)	107 (21.1%)		
Total	50 (9.8%)	458 (90.0%)		
Working hours per week *				
1-30	16 (3.1%)	158 (31.0%)		
≥31	33 (6.5%)	293 (57.6%)	0.110	0.740
Total	49 (9.6%)	451 (88.6%)		
Hours per week preparing classes*				
1-20	18 (3.5%)	193 (37.9%)		
≥20	32 (6.3%)	261 (51.3%)	0.784	0.376
Total	50 (9.8%)	454 (89.3%)		
Hours per week providing student support*				
1-20	39 (7.6%)	292 (57.4%)		
≥20	11 (2.2%)	160 (31.4%)	3.598	0.058
Total	50 (9.8%)	452 (88.8%)		
Tools				
Good	42 (8.3%)	397 (78.0%)		
Bad	8 (1.5%)	62 (12.2%)	0.236	0.627
Total	50 (9.8%)	459 (90.2%)		
Teachers' perception				
Extremely	2 (0.4%)	29 (5.7%)		
Very	3 (0.6%)	214 (42.0%)	91.958	0.000
More or less	19 (3.7%)	181 (35.6%)		
Little or not at all	26 (5.1%)	35 (6.9%)		

Total	50 (9.8%)	459 (90.2%)		
Students' perception				
Extremely	11 (2.2%)	103 (20.3%)		
Very	28 (5.4%)	226 (44.4%)	1.068	0.586
More or less	11 (2.2%)	130 (25.5 %)		
Total	50 (9.8%)	459 (90.2%)		
Intensity expectation				
1	28 (5.5%)	261 (51.3%)		
2	22 (4.3%)	198 (38.9%)	0.014	0.907
Total	50 (9.8%)	459 (90.2%)		
Opposition expectation				
-2	17 (3.3%)	234 (46.0%)		
-1	33 (6.5%)	225 (44.2%)	5.201	0.023
Total	50 (9.8%)	459 (90.2%)		

Source: authors, 2021.

*answers containing missing because it is an open question that favors typing errors by the surveyed person. The characteristic "weekly hours spent managing the school" (characteristic introduced in Table 01) was not included in the analysis.

As for the teacher's perception regarding his/her own health and work, 6.1% classified them as extremely satisfied; 42.6% very satisfied; 39.3% more or less satisfied; 11.0% were little satisfied and 1.0% was not at all satisfied with their own health and work. Regarding the teacher's perception of the students' situation, 22.2% partially agreed; 50.1% partially agreed; 23.2% neither agreed nor disagreed; 4.5% partially disagreed that there was interference in the interaction process, loss of contact, increased social inequalities, impacts on mental health and continuity of learning during the COVID-19 pandemic (Table 03).

Table 3. Equitable table related to the teachers' perception of work, health, and the students' situation, Piauí. Teresina, PI, Brazil, 2020.

	Equitable scale	n	%
Teachers' perception of work/health			
Extremely	68-80	31	6.1
Very	55-67	217	42.6
More or less	42-54	200	39.3
Little	29-41	56	11.0
Not at all	16-28	5	1.0
Total		509	100
Teachers' perception of the students' situation			
Totally agree	27-30	113	22.2
Partially agree	22-26	255	50.1
Neither agree nor disagree	17-21	118	23.2
Partially disagree	11-16	23	4.5
Totally disagree	6-10	0	0.0
Total		509	100

Source: authors, 2021.

DISCUSSION

The teachers' perception of their own health and work was classified as very satisfactory. Conversely, the most frequent feeling was that of hopeless, although they chose to report good expectations when the pandemic was over.

This is similar to what a survey with teachers from the countryside of Ceará shows, which revealed teachers feeling recurring anguish and a feeling of helplessness, as well as the transposition of their duties, due to the scenario brought about by the COVID-19 pandemic, in addition to the individualities of the students and work-related concerns that they did not have before the pandemic.[15]

It is also observed in the qualitative research carried out with teachers from the metropolitan region of Cuiabá-MT, where, despite the limitations, the challenges heightened by the use of communication technologies and the slow process of adaptation and learning, teachers still created good expectations for when the pandemic was over, because, despite the above, they were dealing with enriching situations that could change education in the country. Nevertheless, it is something to be studied, since social inequalities are still part of Brazilian daily life.[16]

Malloy-Dinis and collaborators, in 2020, when studying cognition, emotion and behavior in the COVID-19 pandemic, highlighted that, during adverse and exhausting situations, it is common to increase anxiety and psychological discomfort; since, through the pandemic, there was social isolation, remote work and several other restrictions, causing negative effects on working conditions and health care.[17]

This study showed that the emotion most reported by teachers was hopeless and that it is strongly linked to the school environment. When there is a perception of negative emotions resulting from inflexible situations, such as the COVID-19 pandemic, they will be more likely to report anger and anxiety, unlike pleasurable situations that reflect motivation and improved memory, thus contributing to the teaching-learning process.[18]

It is important to highlight that the standard of satisfaction and security in which the educator is able to carry out his/her work in the face of the pandemic, as well as the quantity and quality of teaching, become government goals and social demands, with the desire for improvements in teaching and less harm to teachers and students, as not all students had contact with digital equipment with internet access to follow classes.[19]

The analysis of the characteristics of teachers, the social context in which they are inserted and also of their health status is of utmost importance for understanding their reality. Based on the collected information, it will be possible to understand the individual exhaustion/illness that tends to reflect and interfere in the work process. It should be remembered that teachers are not included in public policies in a more direct way, as they are just taking part like the general population.[6]

The study also revealed an association between emotion and sociodemographic characteristics, such as gender, age, skin color, teacher's perception, and opposition expectation. In Aguiar's (2019) exploratory research on emotions and feelings, he explains that human beings do not have control over their emotions; they are felt unconsciously, precede perception, and become advantageous when they are used to generate behavior in the face of an immediate stimulus, that is, it will require emotional control from the teacher to act intelligently in the face of the perceived emotion.[20]

When analyzed in semi-structured interviews, emotions show that they can be divided into pleasant or positive and unpleasant or negative. What will define its characteristic will be the type of challenge to which that individual was exposed. In the educational environment, pedagogical and technological characteristics trigger feelings and physiological responses to the manifested stimulus.[21]

Cramês, Antão and Anastácio (2020) presented a cross-sectional and quantitative study with teachers from the Northern Region of Portugal, where they identified that perception of health was considered as reasonable (43%) or good (28.8%) and 59.9% reported not feeling prepared to work remotely, which makes clear the need for a focused look at teacher preparation for a transformation in educational activities.[22]

In the current study, teachers partially agreed that there was harm to students with the closure of schools due to the pandemic. However, when one considers that this harm was not just the absence of the classroom, but that there was a reduction in physical activity, little stimulation in motor and cognitive development, risk of domestic violence, loss of bonds, weight gain, longer time in screens, irregularities in sleep patterns, one can realize that the harm goes beyond school walls.[23]

In a survey of 583 Indian students, Khattar, Jain and Quadri (2020) stated that there was a loss of interaction, discussion and personal attention in remote teaching, as well as more frequent episodes of anxiety and stress. Furthermore, 19.2% reported having become tired of using their cell phones during the pandemic, 42.9% felt frustrated, bored, overwhelmed and depressed. Therefore, it is clear how technologies can help teaching or cause harm to students.[24]

Another point highlighted in the current paper is the prevalence of females, aged 49 years or older, married, as opposed to a quantitative study carried out with teachers from Cajazeiras-PB, where there was a prevalence of males (68.8%), unmarried, aged between 23 and 35 years (43.8%).[25] In another study carried out with 15,654 educators during the COVID-19 pandemic, a group of scientists from the Federal University of Minas Gerais (UFMG, as per its Portuguese acronym) identified that, when it comes to early childhood education, female teachers predominate and are up to 29 years of age. Nonetheless, the number of male teachers increases in later stages of education, reaching up to 42% in secondary education.[26]

It can also be observed a higher prevalence of teachers of non-white color/race, who had two or more children, whose children are looked after by others while they worked, who lived with four people and who looked after the house after classes. These factors contribute to a troubled work environment, entailing illness in the body and mind, thus generating anxiety, stress, fear and depression.[17]

The panorama of the emotional losses suffered by teachers in Cachoeira do Sul/RS shows that the group of surveyed teachers had emotions defined as negative (anxiety, sadness, insecurity, fear, disgust and anger) more accentuated during the COVID-19 pandemic and were added to other issues, such as: discomfort, personal and professional life, lack of psychological support and overload in domestic activities.[27]

The psychic interpretation highlights the existence of increasing numbers of exhaustion, feelings of tension, depression and mood disorders in the teachers' lives, influencing their behavior and professional performance, as a consequence of longer workloads and the demand to carry out activities related to new demands with increasingly better quality.[28]

Regarding the area of training, the area of human sciences had greater prevalence, as well as having a lato sensu graduate degree, working for up to 10 years in teaching, being permanent, working in a type of teaching modality and having a link to only one school in the state network. Currently, the deficiency in the training and qualification process of Brazilian teachers is noticeable, and they remain unprepared to become autonomous and deal with technologies. This is contradictory, as they are education professionals who, for some reason, are unable to qualify.[29]

In this study, teachers who worked in the urban area of the municipalities and in just one school demonstrated greater attendance, being responsible for up to 10 classroom groups. In Brazil, the teaching staff is allocated in urban or rural regions, in municipal, state and federal institutions, in the public and private networks, carrying out their duties in a fragmented or absolute time, in a single school or in several schools, through different forms of contract and employment, often motivated by financial need.[16]

Furthermore, most teachers answered that they worked more than 31 hours per week, spent more than 21 hours preparing materials for classes and still reserved part of their time for school management and providing support to students. This situation corroborates a study carried out with teachers in six Brazilian states, which showed that their activities belong to different realities and begin with lesson planning and extend to home (evaluations, records and meetings). It is work that goes beyond classrooms, even permeating personal life, influenced by the management of each school, whether in urban or rural zones, public or private facilities, making the profession overloaded.[30]

It is important to highlight that, in this research, most of the teachers had good working tools with internet access, different from what was found in an intervention study, carried out in the countryside of Ceará, which identified a good number of teachers with a lack of resources for their remote work, creating difficulties in the development of their activities and psychological suffering due to the generated overload.[31]

In the research by the Study Group on Educational Policy and Teaching Work (Managed) at UFMG, our attention was drawn to the statement by teachers about the lack of support from public authorities in terms of preparing remote teaching, where 55% answered that they were not receiving any training to work during the pandemic and 17% had access to online tutorials on how to use virtual tools. Furthermore, 53% of the teachers in the municipal network and 24% in the state network did not obtain any type of training for the use of technologies.[25]

It is important to underline that technologies are being favorable for teaching. However, one cannot forget that there must be other ways of including the student and his/her educational needs, as the classroom offers practicality for conversation, while the virtual class must provide the active participation of the student until the pedagogical objective proposed by the teacher is reached.[31]

Accordingly, it is understood that teachers are only users of technology and that they are too resistant to continue working in a way that allows these resources to also be used by students, discussing

the content, adding a bond and, consequently, feeling a sense of accomplishment even in the face of the challenges brought about by the pandemic.[32]

Despite the fact that the study took place in the state of Piauí, in a period of great teacher overload, linked to more restricted communication, it is important to highlight that there was participation of teachers from the North to the South of the state. As for the questionnaire, despite being self-administered and confidential, it contains multiple choice questions and open questions that could influence the emergence of missing answers. Furthermore, there were limiting factors for disseminating the questionnaire, such as incomplete or uninformed email addresses.

Thus, the data produced in this study allows managers to reflect and list essential information for the design of plans and strategies centered on the teachers' health needs.

CONCLUSION

Hopeless was the emotion most perceived by teachers, which can be justified by measures to contain the COVID-19 pandemic, such as social isolation, changes in routine and work development. Therefore, the hypothesis that there was a perception of negative emotions by teachers in the state education network of Piauí during the COVID-19 pandemic is true.

In the study, teachers perceived themselves to be satisfied with their health and work, and there was no influence of sociodemographic characteristics on perceived hopeless, a finding that is consistent with the significant association with the opposition expectation, as it led to feelings of anguish and concern. Even so, they said they had good expectations when the pandemic was over. Accordingly, it is understood that feeling hopeless during the pandemic was independent of the individual's sociodemographic characteristics, as well as other characteristics, such as: the teacher's gender, age or race/skin color.

Regarding the students' situation, it was identified that the teachers partially agreed that there had been harm, potentially associated with the fact that most state schools are concentrated in the urban areas of the municipalities, which still allowed access and communication even in the face of health measures, in addition to the fact that students and teachers were aware of the teaching resources that could be favorable to the teaching-learning process when the pandemic ceased.

Therefore, a more specific study is needed on the psychological aspects affected during and after the pandemic with the return of face-to-face classes, in order to analyze the short and long-term harms, as well as the probable benefits from the use of technologies in teaching.

CONTRIBUITIONS

Contributed to the conception or design of the study/research: Justino AS, Cardoso OO. Contributed to data collection: Justino AS, Cardoso OO. Contributed to the analysis and/or interpretation of data: : Justino AS, Cardoso OO, Sousa RA, Lima MS. Contributed to article writing or critical review: Justino AS, Cardoso OO, Sousa RA, Lima MS. Final approval of the version to be published: Justino AS, Cardoso OO, Sousa RA, Lima MS.

REFERENCES

1. Gardanova Z, Belaia O, Zuevskaya S, Turkadze K, Strielkowski W. Lessons for Medical and Health Education Learned from the COVID-19 Pandemic. Healthcare. 2023; 11(13):1921. DOI: https://doi.org/10.3390/healthcare11131921.

2. Ozamiz-Etxebarria N, et al. Niveles de estrés, ansiedad y depresión en la primera fase del brote del COVID-19 en una muestra recogida en el norte de España. Cadernos de Saúde Pública, 2020;36(4):e00054020. DOI: https://doi.org/10.1590/0102-311X00054020.

3. Dias FS, Rosa RG, Mendes CL. Brazilian battle against COVID-19. In: Hidalgo, J.; Rodríguez-Veja, G.; Pérez-Fernández, J. COVID-19 Pandemic: lessons from the frontline. Amsterdam: Elsevier, 2022. p. 173-8. DOI: https://doi.org/10.1016/C2020-0-02438-2.

4. Brasil. Portaria no 343, de 17 de março de 2020 - DOU - Imprensa Nacional. Dispõe sobre a substituição das aulas presenciais por aulas em meios digitais enquanto durar a situação de pandemia do Novo Coronavírus - COVID-19. Brasília: 17 mar. 2020. Available from: https://www.in.gov.br/en/web/dou/-/portaria-n-343-de-17-de-marco-de-2020-248564376.

5. Skar GB, Graham S, Huebner A. The Long-Term Effects of the COVID-19 Pandemic on Children's Writing: a Follow-up Replication Study. Educ Psychol Rev. 2023;35(1):15. Epub 2023 Feb 2. PMID: 36747881; PMCID: PMC9893196. DOI: https://doi.org/10.1007/s10648-023-09729-1.

6. Assunção AA, Abreu MNS. Pressão laboral, saúde e condições de trabalho dos professores da educação básica no Brasil. Cadernos de Saúde Pública, 2019; 35:169517. DOI: https://doi.org/10.1590/0102-311X00169517.

7. Almeida AMM. Os desafios e as perspectivas da formação dos professores de história do estado do Piauí e os impactos na prática pedagógica. In: 2015, Florianópolis. XXVIII Simpósio Nacional de História. Florianópolis: [s. n.], 2015. Available from: http://csi.ati.pi.gov.br/imovel/internet/index.php?&pag=32.

8. Silva LDTA, et al. Um breve retrato do estado de saúde dos professores e as condições de trabalho. LINK SCIENCE PLACE-Interdisciplinary Scientific Journal, 2019, 6.5. Available from: http://www.interscienceplace.org/index.php/isp

9. Instituto Brasileiro de Geografia e Estatística (IBGE) - Cidades - Panorama. [S. l.], 2021. Available from: https://cidades.ibge.gov.br/brasil/pi/panorama.

10. Reis JDR, Pilatti LA, Pedroso B. Qualidade de vida no trabalho: construção e validação do questionário QWLQ-78. Revista Brasileira de Qualidade de Vida, 2012; 3(2):1–12. DOI: https://doi.org/10.3895/S2175-08582011000200001.

11. Field A. Descobrindo a estatística usando o SPSS [recurso eletrônico] / Andy Field ; tradução Lorí Viali. – 2. ed. – Dados eletrônicos. – Porto Alegre : Artmed, 2009.

12. Devellis RF. Scale development: Theory and applications. 2. ed. Thousands Oaks: Publications Inc, Sage, 2003.

13. Damásio A. O mistério da consciência: do corpo e das emoções ao conhecimento de si. 1. ed. São Paulo: tradução Laura Teixeira Motta; revisão técnica Luiz Henrique Martins Castro, 2000.

14. Ministério da Saúde (BR). Resolução n. 466, de 12 de dezembro de 2012. [S. l.], 2012. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html.

15. Martins ACBL, et al. A experiência de professores no ensino remoto: dilemas, saúde mental e contextos de trabalho na pandemia. Expressa Extensão, 2021;26(2):154–60. DOI: https://doi.org/10.15210/EE.V26I2.20468.

16. Godoi M, et al. O ensino remoto durante a pandemia de COVID-19: desafios, aprendizagens e expectativas dos professores universitários de Educação Física. Research, Society and Development, 2020;9(10):e4309108734. DOI: https://doi.org/10.33448/rsd-v9i10.8734.

17. Malloy DLF, et al. Saúde mental na pandemia de COVID-19: considerações práticas multidisciplinares sobre cognição, emoção e comportamento. Debates em Psiquiatria, 2020;10(2):46–68. DOI: https://doi.org/10.25118/2763-9037.2020.V10.39.

18. Almeida CM, Freire S. Adaptação cultural de um instrumento para avaliar as emoções do professor (TEQ): Adaptação cultural - TEQ. Revista Portuguesa de Educação, 2021;34(1):285–302. DOI://doi.org/10.21814/rpe.20687.

19. Assunção AA, Abreu MNS. Pressão laboral, saúde e condições de trabalho dos professores da educação básica no Brasil. Cadernos de Saúde Pública, 2019;35:169517. DOI: https://doi.org/10.1590/0102-311X00169517.

20. Araújo TM, Pinho PS, Masson MLV. Trabalho e saúde de professoras e professores no Brasil: reflexões sobre trajetórias das investigações, avanços e desafios. Cadernos de Saúde Pública, 2019;35. DOI: https://doi.org/10.1590/0102-311X00087318.

21. Phan ANQ, Pham LTT. Online teaching during the COVID-19 pandemic:Vietnamese language teachers' emotions, regulation strategies and institutional policy and management. Policy Futures in Education, 2023;21(4):405-22. DOI: https://doi.org/10.1177/14782103231178644.

22. Altmann BAR, Pezzi FAZ, Heck C. Emoções e autocuidado como tema de formação de professores: um relato de experiência. XXI Encontro Nacional de Educação (ENACED) e I Seminário Internacional de Estudos e Pesquisas em Educação (SIEPEC), [s. l.], n. 1, 2020. Available from: https://www.publicacoeseventos.unijui.edu.br/index.php/enacedesiepec/article/view/18703.

23. Cramês ML, Antão C, Anastácio ZFC. Professores/educadores em pandemia covid 19: perceções de saúde, rotinas pessoais e competências profissionais. In: 7o CONGRESSO INTERNACIONAL EM SAÚDE: Contextos e Problemáticas Emergentes. In: , 2020, Minho. Centro de Investigação em Estudos da Criança (CIEC) Instituto de Educação, Universidade do Minho. Minho: [s. n.], 2020. p. 103. Available from: https://bibliotecadigital.ipb.pt/handle/10198/23618?mode=full.

24. Costa TA, et al. A saúde emocional dos professores durante a pandemia em tempos de aulas remotas | Plataforma Espaço Digital. In: , 2020, Maceió. Anais VII CONEDU - Edição Online. Maceió: [s. n.], 2020. Available from: https://editorarealize.com.br/artigo/visualizar/67848.

25. Khattar A, Jain PR, Quadri, SMK. Effects of the Disastrous Pandemic COVID 19 on Learning Styles, Activities and Mental Health of Young Indian Students-A Machine Learning Approach. In: , 2020, Madurai, India. (IEEE, Org.) Proceedings of the International Conference on Intelligent Computing and Control Systems, ICICCS 2020. Madurai, India: Institute of Electrical and Electronics Engineers Inc., 2020. p. 1190–1195. DOI://doi.org/10.1109/ICICCS48265.2020.9120955.

26. Monteiro SS. (RE)Inventar educação escolar no Brasil em tempos da COVID-19. Revista Augustus, 2020;25(51):237–54. DOI: https://doi.org/10.15202/1981896.2020V25N51P237.

27. Vieira LMF, Falciano BT. Docência na educação infantil durante a pandemia: percepções de professoras e professores. Retratos da Escola, 2020;14(30):788–805. DOI://doi.org/10.22420/RDE.V14I30.1224.

28. Voss T, et al. Teachers' Emotional Exhaustion and Teaching Enthusiasm Before Versus During the COVID-19 Pandemic. 30 May 2023. Zeitschrift für Psychologie, Vol. 231, No. 2. DOI: https://doi.org/10.1027/2151-2604/a000520

29. Cruz RM, et al. Retorno ao trabalho? indicadores de saúde mental em professores durante a pandemia da COVID-19. Revista Polyphonía, 2020;31(1):325–44. DOI: https://doi.org/10.5216/RP.V31I1.66964.

30. Barros FC, Vieira DAP. The challenges of education in the pandemic period. Brazilian Journal of Development, 2021;7(1):826–49. DOI: https://doi.org/10.34117/BJDV7N1-056.

31. Ferreira LL. Lições de professores sobre suas alegrias e dores no trabalho. Cadernos de Saúde Pública, 2019;35. DOI: https://doi.org/10.1590/0102-311X00049018.

32. Santos JVB, Monteiro JCS. Educação e COVID-19: as tecnologias digitais mediando a aprendizagem em tempos de pandemia. Revista Encantar, 2020;2:1–15. DOI: http://dx.doi.org/10.46375/encantar.v2.0011