



Teacher exhaustion: remote work and return to in-person teaching during the COVID-19 pandemic

A exaustão de professores: trabalho remoto e retorno presencial durante a pandemia COVID-19

El agotamiento de los profesores: trabajo remoto y retorno presencial durante la pandemia de COVID-19

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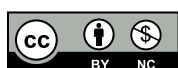
ABSTRACT

Objective: To identify feelings of exhaustion and their relationship with remote work and the return to in-person teaching among teachers during the COVID-19 pandemic. **Method:** This was an analytical, cross-sectional, quantitative e-survey conducted with 703 teachers from the state public education system between April and July 2022. Participants were recruited using the respondent-driven sampling method, in which participants referred other participants. A structured instrument was used to collect variables related to socioeconomic characteristics, feelings of exhaustion, remote work, and the return to in-person teaching during the COVID-19 pandemic. Data analysis was performed using SPSS, applying Pearson's chi-square test with a significance level of 95% ($p < 0.05$). The study was approved by a research ethics committee. **Results:** Most teachers reported feeling exhausted most of the time or always during remote work because they had to divide their time between teaching and other activities ($n = 190$; 55.1%). In addition, workplace furniture and equipment were considered inadequate for work demands ($n = 111$; 75.5%). It was also found that some teachers had not received training for the new work format ($n = 33$; 67.3%), and many lacked the necessary technological resources ($n = 48$; 92.3%). During the return to in-person teaching, lack of mask provision ($n = 300$; 45.3%) and changes to the school's physical structure ($n = 224$; 55.3%) were associated with feelings of exhaustion. **Conclusion:** Feelings of exhaustion were observed during both remote work and the return to in-person teaching, with concerning effects on teachers' health. The findings highlight the need to regulate remote work and implement measures to promote and protect teachers' health during crisis situations.

Descriptors: Emotional exhaustion; School teachers; COVID-19.

RESUMO

Objetivo: Identificar o sentimento de exaustão e sua relação entre trabalho remoto e retorno presencial de professores durante a pandemia de covid-19. **Método:** Trata-se de um estudo analítico, transversal on-line (e-survey) de abordagem quantitativa. Conduzido com 703 professores da rede pública estadual, no período de abril a julho de 2022. O recrutamento foi do tipo Respondent



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*Driven Sampling (RDS), no qual um participante indicava o outro. Utilizou-se um instrumento com variáveis relacionadas a dados socioeconômicos, sentimento de exaustão, trabalho remoto e retorno presencial de professores durante a pandemia de covid-19. A análise ocorreu no Statistical Package for the Social Sciences (SPSS), com teste de Qui-quadrado de Pearson e nível de significância de 95% ($p < 0,05$). A pesquisa teve aprovação em um comitê de ética em pesquisa. **Resultados:** Foi observado que os professores, na maior parte do tempo ou sempre, estavam exaustos durante o trabalho remoto por dividirem o tempo com outras atividades ($n=190$; 55,1%). Além disso, a mobília não estava adequada para o serviço prestado ($n=111$; 75,5%). Verificou-se também que parte deles formação para o novo formato de trabalho ($n=33$; 67,3%), e que muitos não possuíam recursos tecnológicos necessários ($n=48$; 92,3%). Na retomada presencial, o não fornecimento de máscara ($n=300$; 45,3%) e as modificações na estrutura física da escola ($n=224$; 55,3%) estavam associados ao sentimento de exaustão. **Conclusão:** Observou-se que o sentimento de exaustão esteve presente no trabalho remoto e no retorno presencial, com efeitos preocupantes para a saúde dos professores. Evidenciou-se a necessidade de regulamentar o trabalho remoto e implementar medidas de promoção e proteção à saúde docente em contextos de crise.*

Descritores: Exaustão emocional; Professores escolares; COVID-19.

RESUMEN

Objetivo: Identificar el sentimiento de agotamiento y su relación entre el trabajo remoto y el retorno presencial de profesores durante la pandemia de COVID-19. **Método:** Se trata de un estudio analítico, transversal en línea (e-survey) con enfoque cuantitativo. Fue realizado con 703 profesores de la red pública estatal, en el período de abril a julio de 2022. El reclutamiento fue del tipo Respondent Driven Sampling (RDS), en el cual un participante indicaba a otro. Se utilizó un instrumento con variables relacionadas con datos socioeconómicos, sentimiento de agotamiento, trabajo remoto y retorno presencial de profesores durante la pandemia de COVID-19. El análisis se realizó mediante el Statistical Package for the Social Sciences (SPSS), utilizando la prueba de Chi-cuadrado de Pearson y un nivel de significancia del 95% ($p < 0,05$). El estudio contó con la aprobación de un comité de ética en investigación. **Resultados:** Se observó que los profesores, la mayor parte del tiempo o siempre, estaban agotados durante el trabajo remoto debido a la división del tiempo con otras actividades ($n=190$; 55,1%). Además, el mobiliario no era adecuado para el servicio prestado ($n=111$; 75,5%). También se verificó que parte de ellos no recibió formación para el nuevo formato de trabajo ($n=33$; 67,3%) y que muchos no disponían de los recursos tecnológicos necesarios ($n=48$; 92,3%). En el retorno presencial, la falta de provisión de mascarillas ($n=300$; 45,3%) y las modificaciones en la estructura física de la escuela ($n=224$; 55,3%) estuvieron asociadas al sentimiento de agotamiento. **Conclusión:** Se observó que el sentimiento de agotamiento estuvo presente tanto en el trabajo remoto como en el retorno presencial, con efectos preocupantes para la salud de los profesores. Se evidenció la necesidad de regular el trabajo remoto e implementar medidas de promoción y protección de la salud docente en contextos de crisis.

Descriptores: Agotamiento emocional; Maestros; COVID-19.

INTRODUCTION

Since the end of 2019, the novel coronavirus began spreading rapidly worldwide, affecting multiple sectors of society, particularly the educational system. Given the growing number of cases and deaths worldwide, the World Health Organization (WHO) declared a pandemic in March 2020. As a protective measure in response to the public health emergency, social distancing measures were implemented to contain viral transmission, which consequently led to the suspension of in-person classes⁽¹⁾.

In this context, given the need for alternatives to maintain educational activities, the National Education Council (CNE) approved guidelines regulating strategies to sustain teaching activities in basic and higher education institutions during the pandemic period. Consequently, several non-face-to-face educational strategies were adopted, including video lessons, virtual platforms, social media, television and radio programs, and printed educational materials⁽¹⁾.

As a result, work that had previously been performed in classrooms shifted to computer and mobile device screens. Remote work (RW) was implemented precariously in public educational institutions due to teachers' limited familiarity with digital technologies and the lack of infrastructure necessary for its implementation⁽²⁾. Teachers were therefore required to rapidly learn new approaches to educational activities by using unfamiliar digital and technological resources while simultaneously responding to demands for innovation and creativity in planning and conducting synchronous and asynchronous activities. In addition, teachers had to provide the physical resources and equipment needed to perform their work from home⁽³⁾.

Accordingly, changes and adaptations became necessary to redefine teachers' learning processes and work relationships regarding physical, emotional, and social aspects. Remote teaching blurred the boundaries between professional and domestic environments. This resulted in changes in work pace, which became increasingly accelerated, with excessive workloads and intermittent use of working hours⁽⁴⁾.

The precariousness of teaching work is not a recent phenomenon; rather, it appears to have intensified during the pandemic scenario. Even before the pandemic, official statistics and previous studies had already indicated worsening health problems among teachers, particularly mental disorders, musculoskeletal disorders, and voice-related conditions⁽⁶⁾. Previous evidence also demonstrated a high prevalence of mental health issues across different educational levels^(6,7). Thus, the experience of the pandemic, characterized by emerging demands and additional pressures, compounded an already existing context of health-related vulnerabilities among teachers.

Physical and emotional health challenges became increasingly prominent during this adaptation process, compounded by experiences of family loss, loneliness, fear, and distress. Consequently, signs and symptoms such as mental exhaustion, burnout, stress, anxiety, and depression emerged as warning indicators of deteriorating mental health⁽⁸⁾.

Supporting this perspective, changes in routine, uncertainty, fear of infection, and increased workload further worsened working conditions during the COVID-19 pandemic^(9,10), affecting both teaching quality and teachers' occupational health^(11,12). The study is thus justified by the limited scientific evidence regarding the health status of these professionals, particularly basic education teachers, who represent a population vulnerable to COVID-19. Therefore, the following research question emerged: What was the prevalence of feelings of exhaustion, and how were they associated with remote work and the return to in-person teaching among teachers during the COVID-19 pandemic?

Furthermore, it is still not possible to fully estimate the consequences and repercussions of these changes in the Brazilian educational system, considering that this process remains ongoing⁽⁸⁾. However, analyzing factors associated with teacher exhaustion may help reduce the risk of physical and mental illness, improve quality of life, and contribute positively to health promotion initiatives for these professionals.

Therefore, this study aimed to identify feelings of exhaustion and their association with remote work and the return to in-person teaching among teachers during the COVID-19 pandemic.

METHOD

This study was conducted in public schools located in the urban area of Teresina, Piauí, Brazil, managed by the State Department of Education of Piauí (SEDUC-PI). SEDUC-PI is the governmental agency responsible for developing and implementing educational public policies in the state, ensuring access to, continuity of, and quality education for students ranging from basic education to vocational education⁽¹³⁾.

The state public education network in the city of Teresina comprises 21 Regional Education Management Units (GREs). The study was conducted in the four GREs located in the capital city (4th, 19th, 20th, and 21st GREs), encompassing a total of 174 basic education institutions offering middle school education, high school education, youth and adult education programs, vocational and technical secondary education, and full-time educational units⁽¹³⁾.

The study population consisted of teachers from the urban state public school system of Teresina. According to the 2020 School Census, this population included 2,780 teachers⁽¹⁴⁾. This population size was used to estimate the sample using the following parameters: 50% prevalence, considering the lack of studies from Piauí reporting this information; 95% confidence interval; and 4% sampling error. Using a finite population formula, a minimum sample size of 622 teachers was obtained. After adding a 10% loss rate, the estimated sample increased to 684 teachers. Ultimately, the final sample exceeded the minimum requirement, totaling 703 participating teachers.

The inclusion criteria were age ≥ 18 years at the time of data collection and active teaching during the suspension of in-person classes caused by the COVID-19 pandemic. Exclusion criteria included barriers to using electronic devices and lack of access to social media or internet services.

The dependent variable was feelings of exhaustion. Independent variables included socioeconomic characteristics, remote teaching activities, and return to in-person teaching.

To comply with protective measures against COVID-19 transmission, including social isolation, social distancing, quarantine measures, and suspension of in-person classes in the state education network of Piauí, data collection was conducted online.

Data were collected using an online questionnaire (e-survey) administered to teachers from the urban state school network of the city of Teresina. Participant recruitment followed the respondent-driven sampling (RDS) method, a variation of snowball sampling. In addition to serial recruitment initiated by initial participants, the sample size was estimated using a mathematical and statistical model^(15,16).

In this approach, initial participants, referred to as "seeds," were invited to recruit additional participants. To identify seeds, the four GREs (4th, 19th, 20th, and 21st) covering schools in Teresina were initially considered. Five teachers from each GRE were identified for the initial recruitment process through telephone calls or WhatsApp® contact.

Each participant received a link containing study information, an invitation to participate, the informed consent form (ICF), and the survey questionnaire. Participants were instructed to share the study and invite additional participants from their social networks, including WhatsApp®, Facebook®, and Instagram®. The seed participants subsequently recruited additional participants until the planned sample size was achieved. Once the sample size exceeded the target, the survey link was deactivated to prevent further responses. Before completing the online questionnaire, participants were required to provide electronic consent through the ICF, as questionnaire access was only granted following agreement to participate.

Data analysis was performed using IBM SPSS Statistics for Windows, version 20.0 (IBM Corp., Armonk, N.Y., USA) for descriptive and analytical statistics. Pearson's chi-square test was applied to assess associations between feelings of exhaustion and independent variables. Statistical significance was established at a 95% confidence level ($p < 0.05$).

The study was approved by the Human Research Ethics Committee at Universidade Federal do Piauí (UFPI) under CAAE protocol No. 54.739.921.0000.5214 and approval opinion No. 5.303.183, following ethical principles throughout all study phases in accordance with National Health Council resolutions No. 466/2012 and No. 510/2016.

RESULTS

A total of 703 teachers from the state public school system participated in the study. Table 1 presents the socioeconomic characteristics of these professionals. There was a predominance of female participants ($n = 408$; 58.0%), married individuals ($n = 499$; 71.0%), and participants who self-identified as mixed-race (*pardo*) ($n = 384$; 54.6%). Most participants had completed postgraduate education at the *lato sensu* level (specialization) ($n = 538$; 76.5%) and had more than 15 years of professional training ($n = 389$; 55.3%). Regarding housing conditions, most participants owned their homes ($n = 498$; 70.8%) and lived with up to 3 other individuals ($n = 370$; 52.6%) (Table 1).

Table 1 – Sample characteristics according to socioeconomic data of basic education teachers ($n = 703$). Teresina, Piauí, Brazil, 2025.

Variables	N	%
Sex		
Female	408	58.0
Male	295	42.0
Marital status		
Married	499	71.0
Single	172	24.5
Widowed/Separated	32	4.5
Race		
White	212	30.2
Black	105	14.9
Asian	02	0.3
Mixed race	384	54.6
Education level		
Incomplete higher education	04	0.6
Completed higher education	42	6.0
Specialization degree	538	76.5
Master's degree	119	16.9
Years since graduation		
0-15 years	314	44.7
16-40 years	389	55.3
Housing status		
Owned home	498	70.8
Rented home	197	28.0
Provided housing	08	1.2
Number of household members		
1-3 people	370	52.6
4-6 people	333	47.4

Source: Prepared by the authors.

Table 2 presents the distribution of variables related to remote teaching activities. Nearly half of the participants (n = 334; 47.5%) reported experiencing fatigue, exhaustion, or weariness most of the time or always during remote teaching activities. Approximately half (n = 345; 49.1%) reported having to divide their work time with household responsibilities. Conversely, most participants (n = 556; 79.1%) reported having ergonomically appropriate furniture to perform work-related activities. In 93.0% (n = 654) of responses, participants stated that they had not received training for remote teaching activities. However, 92.6% (n = 651) reported having the technological resources necessary for this work format.

Table 2 also presents the association between feelings of exhaustion and remote teaching activities.

Table 2 – Distribution of variables and association between feelings of exhaustion and remote teaching work (n = 703). Teresina, Piauí, Brazil, 2025.

Remote teaching work	n (%)	Feeling of exhaustion		p-value*	OR (95% CI)
		Most of the time or always n (%)	Rarely or never n (%)		
Feeling of tiredness, exhaustion, or burnout		334 (47.5)	369 (52.5)		
Divides attention during remote work hours with other activities					
Yes	345 (49.1)	190 (55.1)	155 (44.9)	0.000	1.82
No	358 (50.9)	144 (40.2)	214 (59.8)		(1.35-2.46)
Ergonomic remote work furniture					
Yes	556 (79.1)	223 (40.1)	333 (59.9)	0.000	0.22
No	147 (20.9)	111 (75.5)	36 (24.5)		(0.14-0.33)
Teacher training for remote work					
Yes	49 (7.0)	33 (67.3)	16 (32.7)	0.004	2.42
No	654 (93.0)	301 (46.0)	353 (54.0)		(1.31-4.48)
Availability of technological resources for remote work					
Yes	651 (92.6)	286 (43.9)	365 (56.1)	0.000	0.065
No	52 (7.4)	48 (92.3)	4 (7.7)		(0.02-0.18)

Abbreviations: *Pearson chi-square test; OR: odds ratio; 95% CI: 95% confidence interval.

Source: Prepared by the authors.

During remote teaching, feelings of exhaustion, reported as occurring most of the time or always, were associated with dividing attention between work and household responsibilities in 55.1% of participants ($p < 0.001$), lack of ergonomically appropriate furniture in 75.5% ($p < 0.001$), participation in training for remote teaching activities in 67.3% ($p = 0.005$), and lack of technological resources necessary for work performance in 92.3% ($p < 0.001$). Feelings of exhaustion were significantly associated with all variables related to remote teaching activities (Table 2).

Analysis of the variables showed that dividing attention between work activities and household responsibilities during remote work increased the risk of developing exhaustion by 1.82-fold. In addition, teacher training for the implementation of remote work increased the likelihood of exhaustion by 2.42-fold. Conversely, access to appropriate furniture and technological resources was associated with a lower likelihood of exhaustion among teachers.

Table 3 presents the association between feelings of exhaustion and the return to in-person teaching among teachers from the state public school system.

Table 3 – Distribution of variables and association between feelings of exhaustion and the return to in-person teaching (n = 703). Teresina, Piauí, Brazil, 2025.

Return to in-person teaching	n (%)	Feeling of exhaustion		p-value*	OR (95% CI)
		Most of the time or always n (%)	Rarely or never n (%)		
Provision of masks by the school					
Yes	41 (5.8)	34 (82.9)	7 (17.1)	0.000	5.86
No	662 (94.2)	300 (45.3)	362 (54.7)		(2.56-13.41)
Use of protective equipment against COVID-19					
Yes	692 (98.4)	329 (47.5)	363 (52.5)	0.891	1.09
No	11 (1.6)	5 (45.5)	6 (54.5)		(0.33-3.60)
Modifications to the school's physical structure to support a safe return to in-person teaching					
Yes	405 (57.6)	224 (55.3)	181 (44.7)	0.000	2.11
No	298 (42.4)	110 (36.9)	188 (63.1)		(1.56-2.87)
Feeling of safety regarding the return to in-person classes					
Yes	330 (46.8)	158 (47.9)	172 (52.1)	0.854	1.03
No	373 (53.2)	176 (47.2)	197 (52.8)		(0.76-1.38)

Abbreviations: *Pearson chi-square test; OR: odds ratio; 95% CI: 95% confidence interval.

Source: Prepared by the authors.

Regarding the return to in-person teaching, nearly all participants (n = 662; 94.2%) reported that face masks were not provided by the school. Nevertheless, most participants (n = 692; 98.4%) reported using personal protective equipment against COVID-19. Modifications to the school physical infrastructure to support a safe return to in-person activities were reported by 57.6% of participants (n = 405). However, more than half of teachers (n = 373; 53.2%) reported not feeling safe about returning to in-person classes (Table 3).

Regarding the association between return to in-person teaching and feelings of exhaustion experienced most of the time or always, a significant association was identified between exhaustion and lack of face mask provision by schools (45.3%; $p < 0.001$), as well as changes to the school physical infrastructure intended to support a safe return (55.3%; $p < 0.001$) (Table 3).

In this context, lack of face mask provision by schools increased the likelihood of exhaustion by 5.86-fold, whereas changes in school physical infrastructure increased the likelihood of exhaustion by 2.11-fold.

DISCUSSION

This study provides insights into feelings of exhaustion associated with remote teaching and the return to in-person activities through associations with variables arising from the pandemic-related routines of teachers from the urban state public school system of the city of Teresina. Extreme fatigue during remote work was reported by a substantial proportion of participants, affecting nearly half of the sample, alongside insecurity regarding the return to in-person classes. These factors were further intensified by teachers' emotional distress, exacerbated by social isolation, bringing underlying vulnerabilities to the forefront and contributing to exhaustion.

Regarding sample composition, most participants were women. These findings are consistent with data from the 2022 School Census published by the Ministry of Education (MEC), which reported approximately 2.3 million teachers in Brazil, of whom 1.8 million (78%) were women⁽¹⁴⁾.

Importantly, most household responsibilities are traditionally managed by women. This context places women in charge of addressing domestic demands and caring for children, particularly during periods of remote education, thereby increasing caregiving responsibilities. An empirical review examining stress and mental health impacts among online instructors⁽¹⁵⁾ reported that teachers and instructors engaged in online work were more susceptible to feelings of isolation and loneliness and that female teachers exhibited greater emotional distress than male teachers.

Within the Brazilian context, the impact of remote work during the COVID-19 pandemic has also highlighted gender-related disparities, largely explained by increased emotional and domestic workloads⁽¹⁶⁾. Domestic work, in addition to being unpaid and frequently unrecognized as labor, is unequally distributed across genders and involves activities with limited scheduling flexibility, such as cooking, washing dishes, and childcare. These recurring tasks require immediate attention, intensifying overload and stress⁽¹⁷⁾. Moreover, remote work competes directly with household responsibilities because of the continuous demands of virtual availability and telepresence⁽¹⁸⁾.

This study also found that most participants were married, self-identified as mixed-race (*pardo*), had up to 40 years of professional experience, owned their homes, and lived with up to 3 other individuals. Similarly, a study investigating burnout syndrome across educational levels in Brazil reported that households with 1-3 or 4-6 residents were common and may represent environments more susceptible to noise, interruptions, and disturbances⁽¹⁷⁾.

Regarding educational attainment, most participating teachers held *latu sensu* postgraduate qualifications. These findings reinforce the need for strategic planning and substantial investment in teacher training at the master's and doctoral levels, as outlined in Brazil's National Education Plan (2014-2024), which established goals to expand advanced educational qualifications among basic education teachers⁽¹⁸⁾.

It is recognized that unfavorable conditions affecting remote teaching and the return to in-person activities are interconnected. Teaching remains a profession that often lacks adequate recognition and continues to require effective measures to reduce occupational strain and related health consequences. This study highlights the need to strengthen support systems for education and educational professionals, particularly during periods when stronger policy responses and protective measures are needed⁽¹⁹⁾.

Simultaneously, the home environment exposes professionals to routine domestic distractions. Everyday household responsibilities compete for attention and increase fatigue due to simultaneous task demands, resulting in physical and mental exhaustion that differs from traditional in-person work settings. These circumstances reduce attention and energy allocated to professional activities and may contribute to overall exhaustion^(17,20).

In this context, factors such as competing household responsibilities, inadequate furniture, insufficient training, lack of technological resources, limited access to COVID-19 protective masks, and the absence of structural adaptations in educational institutions emerged as challenges faced by teachers during the study period. As teachers remained highly engaged in educational responsibilities while experiencing insecurity, they appeared to experience greater tension and vulnerability during this period⁽¹⁹⁾.

An important factor influencing feelings of exhaustion was workplace furniture conditions. Teachers expected ergonomically appropriate environments to support their professional activities. However, even when adaptations for remote work were implemented under teachers' sole responsibility, essential comfort and technological needs were not consistently met⁽²¹⁻²³⁾.

Teachers also had to balance professional obligations with family and domestic responsibilities. Many simultaneously supported their own children's educational activities while teaching other students, creating substantial overload amid the tensions generated by the pandemic⁽²⁴⁾.

In addition to investments in physical infrastructure and professional training programs, broader efforts to promote social recognition and support for teachers nationwide are necessary. Society also shares responsibility for advocating policies focused on assistance and mental health promotion for this professional population⁽²⁵⁾.

Notably, this study found that even when masks were distributed during the return to in-person activities, teachers still reported feeling unsafe. Although some schools underwent structural modifications to facilitate a safer reopening, these changes were not implemented universally, leaving critical adaptations unaddressed in many institutions. This situation may reflect insufficient support for both teachers and students. Furthermore, teachers' concerns regarding student safety may have influenced their own perceptions of safety within the work environment.

Many of these challenges originated from institutional protocols developed to support the return to in-person teaching. These protocols emphasized measures such as routine cleaning and disinfection of educational facilities, testing for students and school personnel, physical infrastructure adaptations to support distancing recommendations, expansion of teaching staff to facilitate rotating schedules, protective guidance for students, food distribution initiatives, and provision of personal protective equipment for students and educational professionals. However, a discrepancy appears to exist between protocol recommendations and what educational institutions were practically able to implement⁽²⁶⁾.

The findings also demonstrated that dividing attention between work and household responsibilities during remote work, as well as teacher training activities associated with remote teaching implementation, increased the risk of exhaustion among teachers. Regarding work schedules, the already limited distinction between work-related

time and personal life became even less defined under remote working conditions⁽²⁰⁻²²⁾. From an occupational health perspective, transforming the home into a full-time workplace introduced consequences for educational professionals that remain insufficiently explored, particularly given the longstanding overlap between professional commitments and domestic responsibilities.

Lack of mask provision by schools increased exhaustion risk by exposing teachers to concerns related to illness, fear, and stress. Similarly, inadequate modifications to school infrastructure contributed to exhaustion, suggesting that physical adaptations may also function as reminders of conflicting emotions related to social distancing, adjustment processes, and increased discomfort.

Furthermore, promoting mental health among teachers and all individuals involved in school environments remains essential. Greater discussion is needed regarding the importance of providing adequate working conditions for educational professionals. Such efforts may substantially reduce the development of depression, anxiety, and mental exhaustion. It has also been emphasized that caring for others within school settings fundamentally depends on self-care. Therefore, strategies promoting psychological well-being during public health emergencies are essential, considering that such circumstances affect not only physical health but also psychological health⁽³⁰⁾.

This study has limitations. Data collection occurred exclusively online, favoring participation among individuals with internet access. This factor may have influenced findings related to remote work experiences and exhaustion. In addition, emotional responses associated with pandemic experiences may have affected participant perceptions. Losses, social isolation, and uncertainty related to the disease may have limited more objective assessments of experiences reported by participants.

Future studies investigating long-term effects of remote education and the transition back to in-person teaching are warranted. Since multiple exhaustion-related variables involved, future investigations may provide valuable insights into how this period affected teachers' and students' experiences, perceptions, learning processes, and social realities.

Additionally, because this was a cross-sectional study, it was not possible to evaluate temporal relationships between work conditions and preexisting mental distress or to apply a longitudinal assessment protocol.

CONCLUSION

The understanding provided by this study regarding the relationship between exhaustion, remote teaching, and the return to in-person activities among basic education teachers contributes to the development and implementation of intervention strategies focused on this population, considering the influence of the variables identified.

The findings offer relevant contributions for improving educational and curricular policies, particularly regarding professional undervaluation and insufficient institutional support, which, combined with the variables analyzed, negatively influence health indicators and personal well-being.

Therefore, further studies on this topic are recommended, alongside the implementation of effective structural interventions that may contribute to mitigating feelings of exhaustion among teachers.

REFERENCES

1. Cipriani FM, Moreira AFB, Carius AC. Atuação docente na educação básica em tempo de pandemia [Internet]. *Educ & Real.* 2021[citado 1 set 2025];46(2):1-24. Disponível em: <https://doi.org/10.1590/2175-6236105199>
2. Avelino WF, Mendes JG. A realidade da educação brasileira a partir da COVID-19 [Internet]. *Boca.* 2020[citado 1 set 2025];2(5):56-62. Disponível em: <https://revista.ioles.com.br/boca/index.php/revista/article/view/137>
3. Diniz VL, Silva RA. Formação de professores no período pandêmico: (im)possibilidades de ações e acolhimento no curso de Geografia da UFT/Araguaína [Internet]. *Rev Docência Ens Sup.* 2020 [citado 1 set 2025];10:1-18. Disponível em: <https://periodicos.ufmg.br/index.php/rdes/article/view/24711>
4. Souza KR, Fernandez VS, Teixeira LR, Larentis AL, Mendonça ALO, Felix EG, et al. Cadernetas de saúde e trabalho: diários de professores de universidade pública [Internet]. *Cad de Saúde Pública.* 2018[citado 1 set 2025];34(3):1-11. Disponível em: <https://doi.org/10.1590/0102-311X0003731>
5. Araújo TM, Pinho PS, Masson MLV. Trabalho e saúde de professoras e professores no Brasil: reflexões sobre trajetórias das investigações, avanços e desafios [Internet]. *Cad Saúde Pública.* 2019[citado 1 set 2025];35:1-14. Disponível em: <https://doi.org/10.1590/0102-311X00087318>

6. Campos TC, Vêras RM, Araújo TM. Transtornos mentais comuns em docentes do ensino superior: evidências de aspectos sociodemográficos e do trabalho [Internet]. *Avaliação*. 2020[citado 1 set 2025];25(3):745–768. Disponível em: <https://doi.org/10.1590/S1414-40772020000300012>
7. Souza KR, Santos GB, Rodrigues AMS, Felix EG, Gomes L, Rocha GL, et al. Trabalho remoto, saúde docente e greve virtual em cenário de pandemia [Internet]. *Trab Educ Saúde*. 2021[citado 1 set 2025];19:1-14. Disponível em: <https://doi.org/10.1590/1981-7746-sol00309>
8. Andrade LS. Burnout e estressores ocupacionais durante a pandemia do Covid-19: avaliação de professores da educação básica [Dissertação internet]. Brasília, DF: Universidade Católica de Brasília; 2022 [citado 1 set 2025]. Disponível em: <https://bdtd.ucb.br:8443/jspui/handle/tede/3082>
9. Barbosa AM, Viegas MAS, Batista RLNF. Aulas presenciais em tempos de pandemia: relatos de experiências de professores do nível superior sobre aulas remotas. *Rev Augustus*. 2020;25(51):255-280.
10. Araujo RM, Amato CAH, Martins VF, Eliseo MA, Silveira IF. COVID-19, mudanças em práticas educacionais e a percepção de estresse por docentes do ensino superior no Brasil [Internet]. *Rev Bras Informática na Educação*. 2020 [citado 1 set 2025];28:864-891. Disponível em: <https://journals-sol.sbc.org.br/index.php/rbie/article/view/4225>
11. Hernández BAR, Calvillo OOS. Prácticas docentes en primarias rurales y urbano-marginadas durante la pandemia por COVID-19. *Diálogos sobre Educación* [Internet]. 2022[citado 2025 sep 1];13(25):1-19. Disponible en: <https://dialogossobreeduccion.cucsh.udg.mx/index.php/DSE/article/view/1118>
12. Barbosa REC, Fonseca GC, Silva NSS, Silva RRV, Assunção AÁ, Haikal DSA. Back pain occurred due to changes in routinary activities among Brazilian schoolteachers during the COVID-19 pandemic. *International Archives of Occupational and Environmental Health* [Internet]. 2022[cited 2025 set 1];95(2):527-538. Available from: <https://doi.org/10.1007/s00420-021-01793-w>
13. Secretaria Estadual de Educação do Piauí. Gerências regionais [Internet]. Teresina: SEDUC/PI; 2021 [citado 1 set 2025]. Disponível em: <https://www.seduc.pi.gov.br/institucional/37/gerencias-regionais/>
14. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. Microdados do Censo Escolar da Educação Básica 2020 [Internet]. Brasília, DF: INEP; 2021 [citado 1 set 2025]. Disponível em: <https://www.gov.br/inep/pt-br/areas-de-atuacao/pesquisas-estatisticas-e-indicadores/censo-escolar/resultados>
15. Brignol SMS. Estudo epidemiológico da infecção por HIV entre homens que fazem sexo com homens no Município de Salvador-BA [Tese da internet]. Salvador: Instituto de Saúde Coletiva, Universidade Federal da Bahia; 2013 [citado 1 set 2025]. Disponível em: <https://repositorio.ufba.br/handle/ri/11565>
16. Brignol SMS, Dourado I, Amorim LD, Miranda JGV, Kerr LRFS. Redes sociais de homens que fazem sexo com homens: estudo das cadeias de recrutamento com *Respondent Driven Sampling* em Salvador, Bahia, Brasil [Internet]. *Cad Saúde Pública*. 2015[citado em 1 set 2025];31(1):170-181. Disponível em: <https://doi.org/10.1590/0102-311X00085614>
17. Ramos DK, Anastácio BS, Silva GA, Rosso LU, Mattar J. Burnout syndrome in different teaching levels during the COVID-19 pandemic in Brazil. *BMC Public Health* [Internet]. 2023[cited 2025 set 1];23(1):1-11. Available from: <https://doi.org/10.1186/s12889-023-15134-8>
18. Brasil. Lei nº 13.005, de 25 de junho de 2014. Aprova o Plano Nacional de Educação - PNE e dá outras providências [Internet]. Brasília: Presidência da República; 2014[citado 1 set 2025]. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2014/lei/113005.htm
19. Saraiva K, Traversini C, Lockmann K. A educação em tempos de COVID-19: ensino remoto e exaustão docente [Internet]. *Práxis Educativa*. 2020[citado 1 set 2025];15:1-24. Disponível em: <https://revistas.uepg.br/index.php/praxiseducativa/article/view/16289>
20. Mosleh SM, Kasasbeha MA, Aljawarneh YM, Alrimawi I, Saifan AR. The impact of online teaching on stress and burnout of academics during the transition to remote teaching from home. *BMC Medical Education* [Internet]. 2022[cited 2025 set 1];22(1):1-10. Available from: <https://doi.org/10.1186/s12909-022-03496-3>
21. Bernardo KAS, Maia FL, Bridi MA. As configurações do trabalho remoto da categoria docente no contexto da pandemia COVID-19 [Internet]. *Norus*. 2020[citado 1 set 2025];8(14):8-39. Disponível em: <https://periodicos.ufpel.edu.br/index.php/NORUS/article/view/19908>

22. Silva DCI, Leite AG. Análise sobre a percepção de saúde física e psicológica de professores brasileiros durante as aulas remotas na pandemia COVID-19 [Internet]. EAD em Foco. 2021[citado 1 set 2025];11(1):1-14. Disponível em: <https://eademfoco.cecierj.edu.br/index.php/Revista/article/view/1546/714>
23. Costa DP, Sampaio NSC. Construção de saberes da docência online no contexto da pandemia da COVID-19 [Internet]. Epistemologia e Práxis Educativa-EPEduc. 2022[citado 1 set 2025];5(1):1-21. Disponível em: <https://periodicos.ufpi.br/index.php/epeduc/article/view/2658>
24. Santos JR, Zaboroski E. Ensino remoto e pandemia de COVID-19: Desafios e oportunidades de alunos e professores [Internet]. Interações. 2020[citado 1 set 2025];16(55):41-57. Disponível em: <https://revistas.rcaap.pt/interaccoes/article/view/20865>
25. Nakano TC, Roza RH, Oliveira AW. Ensino remoto em tempos de pandemia: reflexões sobre seus impactos [Internet]. Rev E-curriculum. 2021;19(3):1368-1392. Disponível em: <http://educa.fcc.org.br/pdf/curriculum/v19n3/1809-3876-curriculum-19-03-1368.pdf>
26. Brasil. Ministério da Educação. Ministério da Saúde. Ministérios da Educação e Saúde estabelecem protocolo para retorno seguro às aulas [Internet]. Brasília, DF: MEC/MS; 2021 [citado 1 set 2025]. Disponível em: <https://www.gov.br/pt-br/noticias/educacao-e-pesquisa/2021/08/ministerios-da-educacao-e-saude-estabelecem-protocolo-para-retorno-seguro-as-aulas>
27. Moraes LAA, Souza KR, Santos GB. Intensificação e precarização social do trabalho de professores de escola pública: um estudo exploratório na região da baixada fluminense (RJ) [Internet]. Revista Trabalho Necessário. 2018[citado 1 set 2025];16(29):218-236. Disponível em: <https://periodicos.uff.br/trabalhonecessario/article/view/4641>
28. Pizzinga VH. Precarização do trabalho no novo filme do Ken Loach e a atual pandemia de COVID-19 [Internet]. Pensares em Revista. 2020[citado 1 set 2025];(18):207-211. Disponível em: <https://www.e-publicacoes.uerj.br/index.php/pensaresemrevista/article/view/49995>
29. Souza KR, Santos GB, Rodrigues AMS, Felix EG, Gomes L. Diários de professores(as) na pandemia: registros em cadernetas digitais de trabalho e saúde [Internet]. Interface. 2022[citado 1 set 2025];26:1-16. Disponível em: <https://doi.org/10.1590/interface.210318>
30. Beames JR, Spanos S, Roberts A, McGillivray L, Werner-Seidler A, Li S, Newby JM, et al. Intervention programs targeting the mental health, professional burnout, and/or wellbeing of school teachers: systematic review and meta-analyses. Educational Psychology Review [Internet]. 2023[cited 2025 set 1];35:1-27. Available from: <https://doi.org/10.1007/s10648-023-09720-w>

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