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# SOURCES AND CONSEQUENCES OF TEACHERS' STRESS DURING THE COVID-19 PANDEMIC

## FONTES E CONSEQUÊNCIAS DO *STRESS* DOS PROFESSORES DURANTE A PANDEMIA DA COVID-19

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**Abstract** The Covid-19 pandemic has had severe and unprecedented consequences in multiple facets of education. Schools, teachers, students and their families were affected and the negative impacts will last for years. The aim of this paper is to identify and explain the sources and consequences of teachers' job stress and burnout during the pandemic as well as job and life satisfaction. Three sources of stress are emphasised: time allocation changes and workload; the behaviour of students; and the technostress. The empirical research is based on an original online survey applied to middle and high school teachers in Portugal <https://www.c19profsurvey.com/en/>. Information from four time references is collected: before pandemic; first school closure in 2020 (16th Mar – 16th Sep); second school in 2021 (15th Jan – 5th Apr)); at the time of the survey (June-July 2021) The data obtained include characteristics and changes about: teachers and their households; job satisfaction, stress and burnout; life satisfaction; working time and teaching roles; work-life balance; teachings goals, methods, and outcomes; work stressors; working conditions for telework; expectations for teaching year 2021/2020 about job and teaching methods. The results show that teachers' job stress increased during pandemic and the behaviour and performance of students is it main driver.

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The difficulties to conciliate work time and personal time are also predictors of teachers' job stress. Signs of increasing burnout exist.

**Keywords** online teaching and learning, teacher stress, covid-19, Portugal.

**Resumo** A pandemia da covid-19 tem tido consequências graves e sem precedentes em múltiplas facetas da educação. Professores, estudantes, escolas e famílias foram afetados, e os impactos da pandemia irão repercutir-se também no futuro. O objetivo desta investigação é identificar e explicar as fontes e as consequências do *stress* e do *burnout* associados ao trabalho dos professores durante a pandemia, bem como a sua satisfação no trabalho e em relação à vida. Três fontes de *stress* são consideradas: as mudanças na organização, nos conteúdos e na quantidade de trabalho; o comportamento e desempenho dos estudantes; e o *tecnostress*. A investigação empírica baseia-se num inquérito original *online* aplicado aos professores do ensino público (ISCED 2 e 3) em Portugal <https://www.c19profsurvey.com/en/>. São recolhidas informações referentes a quatro períodos: antes da pandemia; no primeiro período de encerramento das escolas em 2020 (16 de março-16 de setembro); no segundo encerramento das escola em 2021 (15 de janeiro-5 de abril); no período do inquérito (junho-julho 2021). Os dados recolhidos incluem características e mudanças sobre: os professores e suas famílias; a satisfação no trabalho, o *stress* e o *burnout*; a satisfação em relação à vida; o tempo de trabalho e as funções docentes; o equilíbrio entre trabalho e vida pessoal; os objetivos, métodos e resultados do ensino; o *stress* no trabalho; as condições para realização do ensino remoto; as expectativas para o ano letivo 2021-22. Os resultados mostram que o *stress* no trabalho dos professores aumentou durante a pandemia, sendo o comportamento e desempenho dos estudantes um fator explicativo relevante. As dificuldades em conciliar o tempo de trabalho e o tempo pessoal são também fatores preditores do *stress* no trabalho dos professores. Existem ainda sinais de *burnout* crescente.

**Palavras-chave** Ensino e aprendizagem online, *stress* dos professores, covid-19, Portugal.

## 1. Introduction

The Covid-19 pandemic has had clear detrimental effects on life and job satisfaction and has contributed to peoples' exposure to extreme stress and consequently to the development of mental illnesses (Hamermesh, 2020) that are job-related such as the burnout syndrome (Galea, Merchant & Lurie, 2020) and job stress. In many cases, working from home (WFH) has been the newfound solution to battle against the fast-spreading virus, and in many sectors, telework was imposed as mandatory. Exceptional changes were made to people's lives and work. Telework disadvantages and advantages were summarized by Messenger (2019) before pandemic. Telework has some advantages for firms (e.g. lower costs) and for workers (e.g. time and costs of traveling to/from work reduced or eliminated). Because technology supporting WFH allows workers to be continually available (Ghislieri et al., 2017), it may lead to a work-overload (Derks & Bakker, 2014; Suh & Lee, 2017), and may increase work-family conflict (Ghislieri et al., 2017; Suh & Lee, 2017). The negative facets of WFH intensified during pandemic. Teleworkers have low career opportunities (Lippens et al. 2021) and the worries about privacy invasion by the employer also increase their stress (OECD, 2020). According Eurofound (2020), one third of the teleworkers in European Union (EU) has high levels of stress (Eurofound, 2020).

Telework contributes to stress and potential mental health issues, as well as some organizational indicators like job satisfaction (Maier et al., 2015) and motivation (Sabzian & Gilakjani, 2013). According to the Equity Theory, when people find themselves in an unequal situation, at work or simply at a personal level, they tend to get frustrated and have higher levels of stress (Blau, 1964). Occupational stress, can in turn cause burnout syndrome due to lack of control at work, excess of working hours, prolonged stress, and a lack of balance between the job´s demand and the worker´s skills.

Some teleworkers have to share the work environment with other household members and simultaneously supervise their own children (Sevilla & Smith, 2020). Del Boca et al. (2020) consider that Covid-19 pandemic as a potential hazard for women, because they tended to spend much more time than men doing domestic chores and care activities. Since during the lockdowns the home and care support services are closed, the gender unbalanced participation in care and home activities within household is exacerbated (Borah Hazarika & Das, 2021).

Using data collected through an original survey, this research aims to contribute to the knowledge of the effects of the pandemic on teaching activity and the impact on teachers' stress and burnout in Portugal. Because of Covid-19 pandemic, schools (primary, lower and upper secondary) were forced to replace the time in class with emergency online learning. Teachers were involuntary teleworkers. In Portugal two periods of emergency online teaching occurred: one in 2020 and other in 2021. Between 1 January 2020 and 20 may 2021 the number of instruction days schools were "fully closed" (excluding school holidays, public holidays and weekends) was 62 and 35 in 2020 and 2021 respectively in the lower secondary education level (ISCED 2), and 47 and 45 in the upper secondary education level (ISCED 3) (OECD, 2021, pp. 40-41).

## 2. Teachers' Jobs satisfaction, stress and burnout

### 2.1. Brief literature review before and after covid-19 pandemic

Before the Covid-19 pandemic, in Europe, half of the lower secondary school teachers experience stress at work, and in Portugal in 2018, the proportion of lower secondary teachers experiencing 'quite a bit' or 'a lot' of stress at work, was 90%, the highest value among all the studied countries (European Commission/EACEA Eurydice, 2021, p. 142).

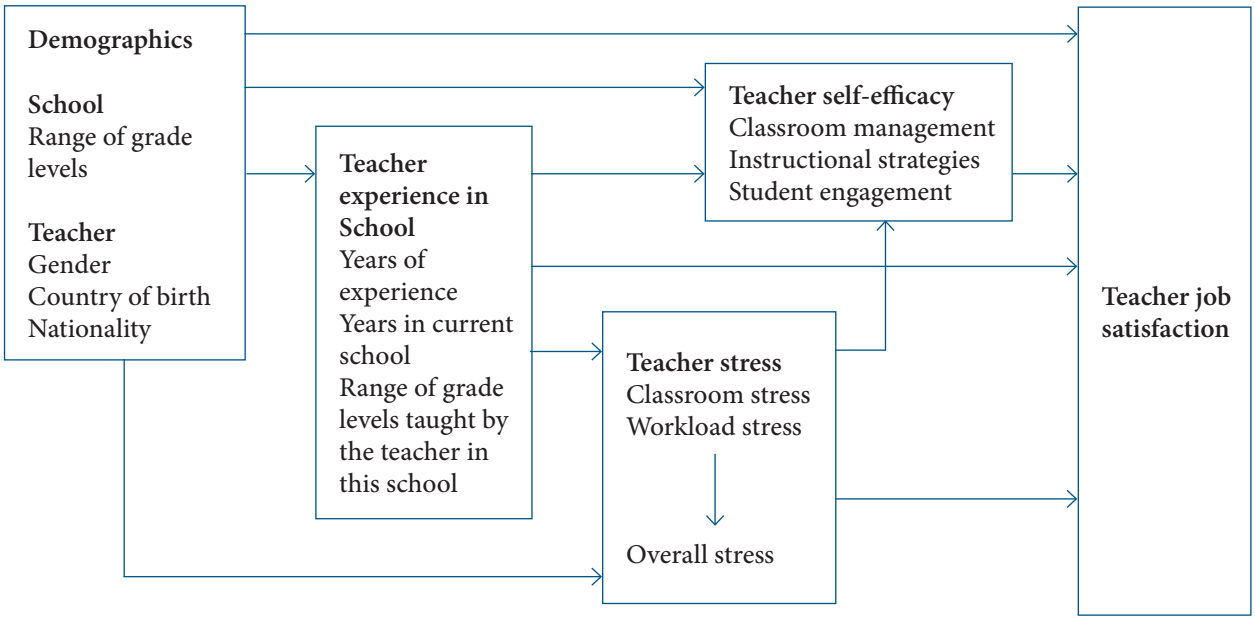
The emergency remote online teaching was a challenge for schools, teachers, students and parents (OECD, 2020 and 2021; Schleicher 2020). Most schools had little time to prepare for teaching online, which overloaded and overburdened teachers, 'the forgotten frontline' (Beames et al., 2021) and parents. The implementation of online teaching requires training for the teachers and also demands from them positive attitude regarding the changes in the learning process (Ziebell et al., 2020). Students have to adapt in a very short period of time to new ways of learning and processes of assessment in new environments. Frequently during the first school closures there was a lack of preparedness of the different education participants (e.g. low level of digital skills) and a shortage of infrastructures and resources (e.g. equipment, software, fast internet connection) in schools and at teachers' and students' homes.

When discussing the ways the pandemic influenced teachers and teaching activities, one must put into consideration all of the different aspects of a teacher's life and work.

Online and synchronic classes caused drastic changes to the teaching and learning processes and methods. Many students during the lockdown experienced a lack of productivity and therefore got more frustration and stressed. The changes made in the assessment methods were challenging, since students were being evaluated on new competencies (Orlov et al., 2020). Turning on the video in online classes was always encouraged, but most students were not keen on doing it and some couldn't because of financial difficulties (Pokhrel & Chetri, 2021).

For students, online classes were by many associated to learning losses due to technical difficulties and challenging home environments. These learning losses affected teacher, since they had less success in teaching their students. Teachers activities were also affected by the abrupt changes in the diary life and organization of their families, in particular, when there are children and young adults living with themselves.

**Figure 1: Nomological Network of Teacher Job Satisfaction**




Source: Klassen & Chiu (2010, p. 743).

Job Satisfaction, in general, can be defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976, p. 1304). It is associated to individual's success, which, in turn, is achieved by positive outcomes. It is also explained by individual factors, such as age and gender (Hoppock, 1936).

Job satisfaction of teachers has particular sources. It essentially depends on teachers' demographic characteristics, teachers' experience in school (e.g. tenure, grade levels and subjects taught), teachers' stress (e.g. workload stress) and teachers' self-efficacy (Klassen & Chiu, 2010). Teacher self-efficacy, is related to educational strategies and class management and is strongly associated to student engagement. Teachers consider that they perform important roles in students' lives and no normal balance exists in teacher/student social exchange. Consequently, when there is no reciprocity (student engagement) teachers may feel emotional frustration, stress, mental illness and burnout (Farber, 1991; Kengatharan, 2019; Van Horn et al., 1999). Personal feelings and emotions also dictate teachers' job satisfaction, as well as, level of stress and emotional awareness (Atmaca et al., 2020). The sources and consequences of teacher stress are summarized in Figure 1 (Klassen & Chiu, 2010). Recent meta-analysis identify the main drivers of stress (Kyriacou & Sutcliffe, 1978) and burnout (García-Carmona, 2019).

Three sources of teachers' stress are emphasized in the empirical study for Portugal presented next section the time allocation changes and the workload; the technostress (Al-Fudail & Mellar, 2008; Özgür, 2020); and the behaviour of students.

## 2.2. Impact of Covid-19 pandemic on teaching activity Some evidences from the survey "*Effects of the pandemic on teaching activity*"

### 2.2.1. Survey

The original online survey "*Effects of the pandemic on teaching activity*" was targeted to teachers who teach students at middle and upper secondary corresponding to International Standard Classification of Education levels ISCED 2 and ISCED 3. Students age for the two levels is approximately between 12-18 years old.

Data were collected in June 2021 and July 2021. The English translation of the survey is available in https://www.c19profsurvey.com/en/ (Pato & Fontainha, 2021). The respondents, all regions of Continental Portugal were personally contacted by an email which included the link to accede the survey.

The design of the survey was based on different kind of surveys and scales: (i) to evaluate working and teaching from home (Kraft, Simon & Lyon, 2021; Ziebell et al., 2020); (ii) to study the time allocation of teachers and the balance between work and

personal time (European Social Survey Family (ESS, n.d.); (iii) to explore more personal questions regarding the teachers' satisfaction with their own work and overall (Baert et al., 2020); (iv) to measure job satisfaction the Michigan's Organizational Assessment Questionnaire Job Satisfaction Subscale and Bowling & Hammond (2008); (v) to measure emotional exhaustion and burnout signs the Maslach Burnout Inventory – Human Services Survey(MBI-HSS) (Maslach & Jackson, 1981) and the Copenhagen Burnout Inventory (Campos et al., 2013; Kristensen et al., 2005).

The questions use as reference for answering four moments in time:

- the period before the Covid-19 pandemic;
- the first school closure in 2020 (16th March – 4th April); and
- the second school closure in 2021 (8th February – 19th April).
- the time when the survey is answered (June-July 2021)

The survey includes five blocks of questions corresponding to different kind of information.

- *Respondent profile*. Teacher and teacher household characteristics and changes with pandemic.
- *First and second school closure*. Teacher's opinion on emergency remote teaching in relation to two periods when online classes took place, the first period of mandatory classes online (16 March 2020 to 4 April 2020) and the second lockdown (8 February 2021 to 19 April 2021).
- *Activity changes with pandemic*. Teacher's time allocation and activity organization in relation to several aspects about the pre-pandemic situation (before March 2020) and what changed (or not) after the pandemic.
- *Before the pandemic and at the time of the survey*. Teacher opinion about several aspects before the pandemic (March 2020) and at the time of the Survey (June and July 2021).
- *Advantages and disadvantages of emergency remote online teaching*. Includes 2 open questions.

The relevant questions in the questionnaire for studying stress and burnout and the main three sources of stress (time allocation changes and the workload; the technostress; and the behaviour of students) are presented in Table 1. The alternative answers adopt a 5 point Likert scale: 1 = 'Completely disagree'; 2 = 'Disagree'; 3 = 'Neither agree nor disagree'; 4 = 'Agree'; 5 = 'Strongly Agree'.

**Table 1- Teachers' Job and life satisfaction, stress and burnout (survey questions)**

| | **Question** |
|---|---|
| **Job satisfaction** | "*I felt / I feel satisfied with my teaching work*"<br>"*Overall, the environment and working conditions were/are good*"<br>(before pandemic and at the time of the survey) |
| **Life satisfaction** | "*I felt / I feel satisfied with life in general*"<br>(before pandemic and at the time of the survey) |
| **Stress and Burnout** | *"I have enough energy for family and friends when in moments of leisure."*<br>(before pandemic and at the time of the survey)<br>"*I was / am too tired after work to do things I liked when at home*"<br>(before pandemic and at the time of the survey)<br>"*Work left me / leaves me emotionally drained*"<br>(before pandemic and at the time of the survey) |
| **Tecnhostress** | "*I easily adapted to distance learning*"<br>(1st and 2nd school closure)<br>"*In general, my school colleagues easily adapted to distance learning*"<br>(1st and 2nd school closure)<br>"*With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed*"<br>(1st and 2nd school closure) |
| **Behaviour and performance of students** | "*With distance learning, the preparation of students for the assessment was adequate*"<br>(1st and 2nd school closure)<br>"*Compared to face-to-face teaching, distance learning has hampered communication between teachers and students*"<br>(1st and 2nd school closure)<br>"*Compared to face-to-face teaching, distance learning has enabled students to perform equally*"<br>(1st and 2nd school closure) |
| **Workload and Time allocation** | "*Class preparation time has increased substantially due to distance learning*"<br>(1st and 2nd school closure)<br><br>See Table 3 and Figure 2 |

### 2.2.2. Results and discussion

The survey received 693 valid answers from teachers who taught from the 7th to the 12th grade. The composition of the sample is presented in Table 2. Most of the respondents are 44 years older or over (85%) and teach for more than 19 years (82%). Two thirds of the answers are from women. The characteristics of the sample converge in age and gender with the Portuguese universe of teachers who teach at the levels of ISCED under study. However, there is a significant heterogeneity across teaching subjects, ISCED education levels and regions (DGEEC, 2021a; DGEEC, 2021b).

**Table 2: Sample composition (N=693).**

| | | Total | Men | Women |
|---|---|---|---|---|
| **Gender (%)** | Man | 5.2 | | |
| | Woman | 74.8 | | |
| **Age Group (%)** | 20-24 years | 0.3 | 0.6 | 0.4 |
| | 25-34 years | 1.0 | 2.4 | 0.6 |
| | 35-44 years | 13.7 | 13.5 | 14.1 |
| | 45-54 years | 42.1 | 42.4 | 41.9 |
| | 55-64 years | 39.2 | 37.6 | 40.3 |
| | 65 years and over | 3.2 | 3.5 | 2.8 |
| **Teaching Experience (%)** | 5 years or less | 2.5 | 4.7 | 1.6 |
| | 6-10 years | 2.0 | 1.8 | 2.2 |
| | 11-19 years | 13.3 | 12.4 | 12.9 |
| | 20 years and over | 82.3 | 81.2 | 83.3 |
| **Household Size (mean)** | | 2.98 | 3.04 | 2.96 |

Source: Pato & Fontainha (2021).

After Covid-19 pandemic the work organization of teachers has a significant change. The work during weekends is frequent for 86% teachers (compared with the situation before pandemic corresponds to an increase of 19 p.p.) and the work at night is frequent for 79% (corresponding to an increase of 17 p.p.) (Table 3).

The possibility of balancing work time and personal and family time is negatively affected by the pandemic: there was a decrease of 14 p.p. in the share of respondents

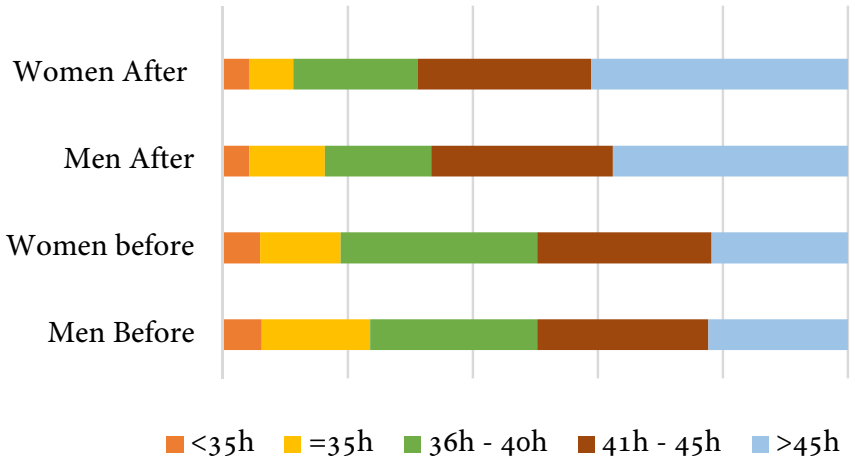
that declared that possibility as 'frequent' (it changes from 48% to 34%). Although it is pointed out in the literature for telework that one of the advantages of it is the possibility of better reconciling professional activities with family and personal activities, the results for the surveyed teachers (who worked online most of the time under analysis) do not confirm this potential advantage. On the contrary, the balance between work and personal and family life has worsened with the pandemic.

The difficulty in reconciling working hours is better understood when analysing weekly time spent before and after the pandemic (Figure 2). The biggest increase occurred was in the group of those who work more than 45 hours a week, with women went from 22% before pandemic to 41% after pandemic. It should be noted that the teachers' working week is contractually established and is equal to 35 hours.

**Table 3: Teachers' work organization before and after pandemic.**

| | | Before Pandemic [1] | After Pandemic [2] | Change (p.p.) [3]=[2]-[1] |
|---|---|---|---|---|
| **Work during the weekend** | Frequent (%) | 67.0 | 85.5 | 18.5 |
| | Seldom (%) | 28.8 | 11.5 | -17.3 |
| | Never (%) | 4.2 | 3.0 | -1.2 |
| **Work at night** | Frequent (%) | 62.2 | 79.1 | 16.9 |
| | Seldom (%) | 32.6 | 17.1 | -15.5 |
| | Never (%) | 5.2 | 3.8 | -1.4 |
| **Possibility of balancing work time and personal and family time** | Frequent (%) | 47.9 | 34.0 | -13.9 |
| | Seldom (%) | 46.4 | 56.2 | 9.8 |
| | Never (%) | 5.8 | 9.7 | 3.9 |
| **Family responsibilities prevent teacher from dedicating the time he/she should work** | Frequent (%) | 12.7 | 16.2 | 3.5 |
| | Seldom (%) | 56.6 | 56.4 | -0.2 |
| | Never (%) | 30.7 | 27.4 | -3.3 |

Figure 2: Distribution of weekly hours allocated to teaching activities before and after the pandemic, by gender (unit: %).




The adaptation to the emergency remote teaching improved from first to second school closures. The mean pf the answers (from 1 to 5) increases from 3.14 to 4.23. The self-evaluation shows a larger increase between closures, compared to the evaluation of the colleagues of the same school, that moves from 3.56 to 3.77. There is a very large agreement about the profound change imposed by the remote teaching and learning with a mean around 4.30 for both periods and low dispersion of the answers (standard deviation 0.76 and 0.74).

These results do not suggest technostress as the main source of stress. It is likely that the access to the essential resources to teach at home (computers, internet connection, physical space), in particular in the second school closure (mean equal 3.89 and media equal to 4 corresponding to 'agree') contributes to explain that absence. Additionally, at the time of the survey, 71% of the teachers 'agree' or 'strongly agree' that in general working conditions and environment are good.

**Table 4: Coping with changes; first and second school closure**
**5 points Likert scale: 1 = 'Completely disagree'; 5 = 'Strongly Agree'**

| | | Mean | Median | SD |
|---|---|---|---|---|
| "*I easily adapted to distance learning*" | 1st closure | 3.14 | 3.00 | 0.87 |
| | 2nd closure | 4.23 | 4.00 | 0.77 |
| "*In general, my school colleagues easily adapted to distance learning*" | 1st closure | 3.56 | 4.00 | 1.34 |
| | 2nd closure | 3.77 | 4.00 | 0.73 |
| "*With distance learning the teaching techniques, methods, learning and assessment have been profoundly changed*" | 1st closure | 4.28 | 4.00 | 0.76 |
| | 2nd closure | 4.26 | 4.00 | 0.74 |
| *"I had access to the essential resources to teach at home (computers, internet connection, physical space)"* | 1st closure | 3.56 | 4.00 | 1.34 |
| | 2nd closure | 3.89 | 4.00 | 1.21 |

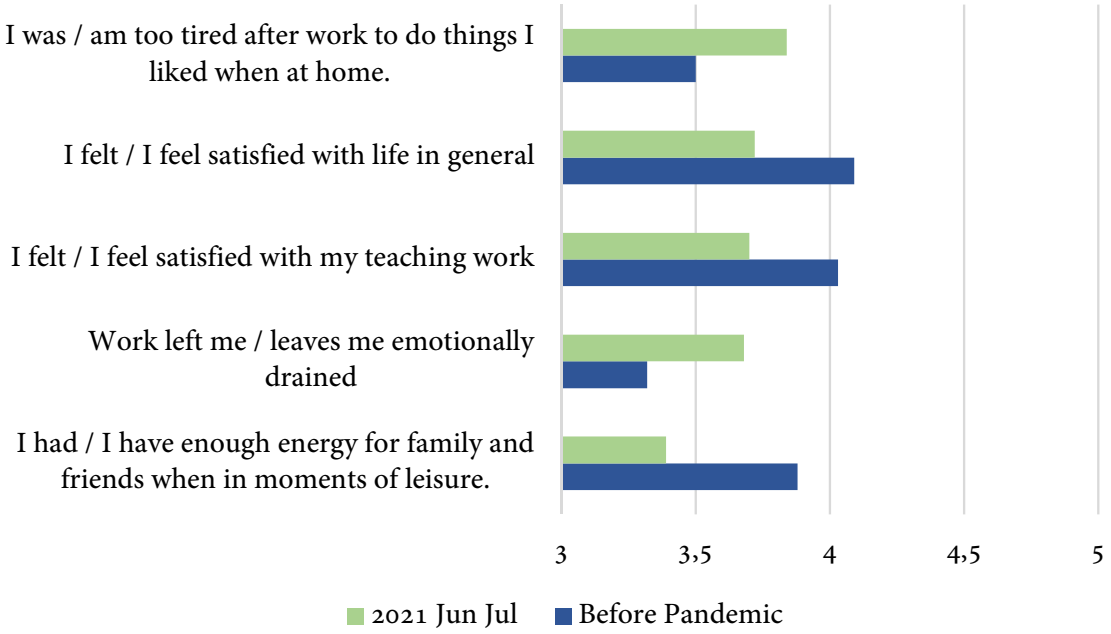
The behaviour and performance of students has influence on teacher stress. Data in Table 5 shows that compared to face-to-face teaching, distance learning: does not enable the students to perform equally (mean 2.30 to 2.56); does not prepare the students for assessment in an adequate way; and hamper communication between teachers and students.

Based on the results for students and time allocation and workload, is not surprising that teach job and life satisfaction worsened with pandemic in parallel with stress and burnout increase (Figure 3).

**Table 5: Effect of urgency remote teaching on students learning and performance first and second school closure**
**5 points Likert scale: 1 = 'Completely disagree'; 5 = 'Strongly Agree'**

| | | Mean | Median | SD |
|---|---|---|---|---|
| "*Compared to face-to-face teaching, distance learning has hampered communication between teachers and students*" | 1st closure | 3.92 | 4 | 1.10 |
| | 2nd closure | 3.79 | 4 | 1.11 |
| "*Compared to face-to-face teaching, distance learning has enabled students to perform equally*" | 1st closure | 2.30 | 2 | 1.02 |
| | 2nd closure | 2.56 | 2 | 1.04 |
| "*With distance learning, the preparation of students for the assessment (national and local exams) was adequate*" | 1st closure | 2.85 | 3 | 0.97 |
| | 2nd closure | 3.00 | 3 | 0.97 |

**Figure 3: Teachers' job and life satisfaction, stress and burnout**
**1 = 'Completely disagree'; 2 = 'Disagree'; 3 = 'Neither agree nor disagree'; 4 = 'Agree'; 5 = 'Strongly Agree'.**




## 3. Conclusions

Pandemic imposed unexpected changes in the field of education and also in the activities, social and economic behaviours and routines of schools, teachers, students and families. Empirical evidence based on data collected by an original survey applied in Portugal in 2021, suggests that the increase of perceived teachers' stress and burnout and job satisfaction are influenced by the behaviour and performance of students. The amount of work increased considerably with pandemic lockdowns and schools closures and it was not empirically confirmed that telework contributed to reduce the work-life conflict between work time and personal time balance. Difficulties to adapt and use new technologies during emergency remote teaching did not reveal to have a significant negative role in teachers well-being.

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