

Original Research

Burnout Among Special Education Teachers and the Role of Individual, Interpersonal, and Organizational Risk and Protective Factors

Verena Hofmann *, Céline Pagnotta, Noémie Lacombe, Myriam Squillaci

Department of Special Education, University of Fribourg, Rue St-Pierre-Canisius 21, CH-1700 Fribourg, Switzerland; E-Mails: verena.hofman@unifr.ch; celine.pagnotta@unifr.ch; noemie.lacombe@unifr.ch; myriam.squillaci@unifr.ch

* **Correspondence:** Verena Hofmann; E-Mail: verena.hofman@unifr.ch

Academic Editor: Marianna Mazza

Collection: [Stress, Burnout, and Trauma in Schools: Coping Strategies for Teachers, Staff, and Students](#)

OBM Integrative and Complementary Medicine
2023, volume 8, issue 3
doi:10.21926/obm.icm.2303033

Received: March 30, 2023

Accepted: August 07, 2023

Published: August 10, 2023

Abstract

Burnout is a syndrome commonly characterized by the three dimensions of Maslach and Leiter's model, namely emotional exhaustion, depersonalization, and lack of professional accomplishment. While burnout affects individuals in all professions, teachers are recognized as being at particular risk, a fact explained in the literature by the high level of relational demands inherent to the profession. During the pandemic and subsequently, these demands have even increased. Several studies have focused on the influence of individual, interpersonal, and organizational factors predicting teacher burnout risk. Yet, less is known about special education teachers working in inclusive and non-inclusive settings and how the pandemic has particularly affected their burnout risk. Thus, this study aimed to examine (1) whether burnout risk among special education teachers has increased since the pandemic and (2) whether burnout risk is related to individual, interpersonal, and organizational variables, including factors related to the pandemic. For this purpose, a cross-sectional study was conducted among a sample of special education teachers in Switzerland ($n = 358$) using the Maslach Burnout Inventory. Since there are three distinctive dimensions of burnout, which



© 2023 by the author. This is an open access article distributed under the conditions of the [Creative Commons by Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium or format, provided the original work is correctly cited.

might also be differently associated with risk and protective factors, we conducted separate logistic regression analyses to predict risk status for emotional exhaustion, depersonalization, and personal accomplishment by individual, interpersonal, and organizational variables. Results indicate that for emotional exhaustion, individual teaching satisfaction and health problems are most important, whereas for depersonalization individual teaching satisfaction, good relationships with parents and working in an inclusive setting decrease burnout risk. An inclusive setting increases the risk, regarding lack of personal accomplishment, while all other effects are non-significant. Implications for practice are discussed.

Keywords

Burnout; special education teachers; individual predictors; interpersonal predictors; organizational predictors

1. Introduction

Burnout is «a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job. The three key dimensions of this response are an overwhelming exhaustion, cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment» [1]. In research, the terms *emotional exhaustion*, *depersonalization*, and *lack of personal accomplishment* are often used in this context [2, 3]. According to ICD-11, it is emphasized that burnout is exclusively related to the professional context [4]. Although it affects people in all professions, research has shown that teachers are among the professionals most likely to suffer from this syndrome. A systematic literature review by Squillaci [5] including 45 studies provides the following results: for emotional exhaustion, 18.36% of teachers at low risk, 76.42% at moderate risk and 5.21% at high risk; for depersonalization, 38.04% of teachers at low risk, 60.83% at moderate risk and 1.13% at high risk; for lack of personal accomplishment, 0.37% of teachers at low risk, 12.73% at moderate risk and 86.89% at high risk. These data are supported by research on teachers' health in the French-speaking part of Switzerland [6] which indicates that 61.3% of the teachers' health status has worsened over the past five years, while 19.4% cannot guarantee that they will remain in their job for the next two years. International data confirm this increase in teacher stress [7], as well as an increase in burnout among this population [8]. Reasons for these findings might be related to several trends over the last thirty years affecting, for example, the identity, functions, and roles of teachers, the high relational demands placed upon them, the growing heterogeneity of school populations, the increasing number of behavioral problems among students, the plurality of learning goals, the need for adaptation to different reforms, the decreasing economic resources provided for education, and the horizontalization of teachers' careers [9-11]. International data suggest that approximately 20-40% of teachers experience burnout during their careers [12]. Focusing on special education teachers (SET), Squillaci's [13] research among Swiss SET found scores of emotional exhaustion and depersonalization in the range of low risk and scores of personal accomplishment in the range of moderate risk, which corresponds to data of Fiorilli et al. [14], who found similar average scores in the Swiss and Italian teaching population. Such increased stress levels are accompanied by various negative consequences [15], either on a personal level (fatigue,

disengagement, burnout), on an interpersonal level (impact on work with students and colleagues), or an organizational level (impact on students' learning opportunities, management of supply teaching, etc.). Focusing on student outcomes, a lack of teacher enthusiasm might be related to lower attention and negative emotions among students, all of which impede learning processes [16, 17].

1.1 Burnout Risk in the Context of the COVID-19 Pandemic

While the teaching profession was already considered particularly at risk of burnout before the pandemic (e.g., [5, 9, 10]), the advent of COVID-19 brought many challenges for teachers, such as the schools closing, distancing and/or hybrid teaching, management of quarantine-related absences, sanitary constraints, lack of access to technology for some pupils, and cumulative backlogs of curricula, all of which placed principal stakeholders in the school system in stressful situations [18, 19]. Worldwide, about 90% of students from primary to tertiary level students had to interrupt their schooling, representing 1.7 billion youth and no less than 63 million primary, secondary, and tertiary teachers impacted by restrictions [20]. SET were particularly affected by this situation, since they had to provide adequate learning opportunities in the context of distance learning to students with special needs, who were already facing learning difficulties before the pandemic [21-23]. It has also been found that students with special educational needs have suffered the most from the restrictions, which could have also indirectly affected teachers [24]. The impact of the pandemic has not ceased following the end of the main restrictions-the consequences will be apparent for a longer period, both for the teachers and the students [25].

The extent to which these consequences affect SET remains to be clarified. Several factors may increase or decrease the risk of burnout among special education teachers, whereby a distinction is often made between individual, interpersonal, and organizational factors [1, 26].

1.2 Individual Predictors

Individual characteristics (such as age, work experience, gender, and work satisfaction) are crucial to better understand why different persons, facing the same working conditions, would be differently affected by burnout [27].

Findings concerning *age* indicate higher emotional exhaustion in two age groups: young teachers after training, and those aged around 40-45 years, i.e., with more professional experience [28-31]. Hence, age cannot be considered independently of *work experience*. This result could be related to horizontal careers in the teaching profession [5]. In relation to the pandemic, contrasting results were found regarding age effects. A study by Amri et al. [32] identified a higher risk of burnout among the more experienced teachers, a finding attributed to a probable lower mastery of IT tools [33] while Pressley [34] and Minihan et al. [35] found no relation between the teacher's age and their burnout risk.

About *gender*, research reveals that women are more likely to have high emotional exhaustion and reduced personal accomplishment [36-39], while men score higher on depersonalization [37]. This finding might be partially explained by the rate of work, which seems to influence personal accomplishment [13, 40]. In the sample investigated by Squillaci [13], men worked close to 100% overall and reported a greater sense of achievement than women, most of whom worked 50% or less. The hypothesized explanation is that a lower percentage of work could affect teachers'

perceived sense of control and thus their achievement. Regarding the context of the pandemic, a meta-analysis by Ma et al. [41] reported a greater risk of emotional exhaustion and lack of personal accomplishment among women and a greater risk of depersonalization among men, a finding supported by other studies [22, 42, 43]. Although some researchers hypothesize the difference between men and women might be related to differing levels of computer literacy [33] or by the complex articulation between home-based work and household management [22, 42, 43], the differences between men and women correspond to studies conducted before the pandemic. Hence, results do not directly point to a specific effect of the pandemic on gender differences.

Besides demographic factors, research shows that individual satisfaction with the work situation [44] should also be considered in assessing risks for burnout. Individual satisfaction with salary conditions, the social value of the profession and the possibilities for career development can explain why for two teachers working under the same conditions (e.g. in team coaching), one is vulnerable to burnout and the other is not. Intrinsic satisfaction would act as a protective effect against perceived stress and burnout [44]. Also, in the pandemic context, a lack of satisfaction with recognition for work was related to a higher burnout risk [45, 46].

1.3 Interpersonal Predictors

Teaching is a profession characterized by a high level of social interaction with students and colleagues, parents, and school management [47]. Hence, in addition to individual factors, interpersonal relationships are essential for predicting burnout. These relationships can act as risk and protective factors [48], depending on the perception of their quality. *Relationships with students* receive particular attention in research on teacher burnout [10, 49]. According to a meta-analysis by Aloe et al. [50], challenging behavior among students is significantly related to the three dimensions of burnout with an even more specific effect on emotional exhaustion, as corroborated by recent research [51, 52]. Research about the pandemic shows that teachers had to make significant efforts to motivate their students to engage in activities and manage symptoms of anxiety, depression, inattention, boredom, and irritability in students, especially among the most vulnerable [45, 53-57]. The emotional load related to managing relationships with students was associated with increased teachers' depersonalization, and therefore related to decreased quality of teacher-student relationships [58].

Relationships with colleagues and the *school management* represent risk factors for burnout when perceived negatively and are characterized by a lack of social support [1, 26, 59]. About the relationships with hierarchically superior people (i.e., the school management), an additional factor is how much autonomy a teacher is provided and how much they are involved in decision-making processes (1). Less participation in such processes is associated with a higher risk of burnout [26, 60]. The resulting loss of control over one's work situation is associated, in particular, with reduced personal accomplishment [36, 61]. During the pandemic, relationships with colleagues and the school management were severely impacted in terms of perceived support, feelings of loneliness at work, and increased stress due to a lack of shared experiences, all of which were associated with a greater risk of burnout [18, 41, 46]. A study by Amri et al. [32] found that a large proportion (81.6%) of teachers perceived low support from their supervisor and colleagues.

In the school context, *relationships with parents* are also an important factor in teachers' experience of stress. In the case of conflictual relationships, emotional exhaustion and personal

accomplishment are particularly affected [37]. Squillaci's [62] findings from a sample of SET show that most teachers report high satisfaction in working with parents regarding mutual respect roles and functions. Yet, the pandemic has also been a strain on teacher-parent relationships. Since parents were particularly challenged during this time in supporting their children in homeschooling while simultaneously attending to their responsibilities [63], expectations placed on teachers emerged, enhancing the risk of conflicts and teacher burnout [64]. As for interpersonal relationships in general, the state of research points to a particular impact on depersonalization [26, 48].

1.4 Organizational Predictors

Since burnout is, by definition, related to the working situation [4], factors related to the teaching context (i.e., organizational factors related to the workplace) need to be considered when attempting to understand the development of burnout. Teaching context and conditions may vary greatly between teachers regarding class size, type of students, workload, number of teaching hours, salary conditions, teaching level, etc. In particular, *workload* related to time pressure and lack of resources constitutes an important factor in predicting burnout [26]. The workload is frequently mentioned as a source of stress in teaching and is foremost related to the emotional exhaustion dimension [11, 49, 65, 66]. In the context of the pandemic, work (over) load has been one of the most discussed issues [32, 45, 54, 57, 64, 67-70]. During lockdowns, governments made macrosystemic decisions that significantly impacted the school system, moving the locus of teaching and learning from school to home and therefore affecting pedagogical practices tremendously [70]. Hence, explanatory approaches for work overload refer to the complex organization of work and family life, a disorganized work schedule, and a lack of time to prepare distance teaching [64]. Overload has also been linked to a lack of *resources* for dealing with the new challenges which has led to feelings of inefficiency and burnout among teachers [45, 58, 64]. The latter had to immediately master new technological tools, a situation that generated even more stress if the personal computer environment was insufficiently adapted [71, 72]. Thus, adequate resources specific to the challenges of the pandemic might have been an important protective factor. In addition to technical resources, good *general teaching conditions* such as didactic and material resources and spatial conditions are also important contextual predictors for reducing the risk of burnout [73].

Finally, SET work in different teaching contexts with different conditions. Distinctions are made in particular between *inclusive and separative settings* [10]: While in an inclusive setting SET support individual students in regular school classrooms, the separative setting mostly refers to special needs schools for students with different forms of disabilities. Since inclusive education is strongly characterized by cooperation with regular teachers and different roles of responsibility [74], there might be more potential interpersonal stressors in this setting that could increase the risk of burnout. On the other hand, social support in the school context serves as a protective factor against burnout [75]. A study by Squillaci and Hofmann [10] found that SET working in inclusive settings express higher satisfaction with the support they receive from their superiors than SET working in non-inclusive settings. Furthermore, no differences in burnout risk were found in that study. At this stage, whether an inclusive setting represents a risk or a protective factor cannot be clearly stated.

1.5 The Current Study

Very few studies have been carried out within a population of SET, and none have focused on several measurement times, even though this is an effective way of observing health in the workplace. This study provides an overview of the occupational health of SET, especially as the whole population of one region was contacted. The study aims to extend the state of research on burnout risk and protective factors among SET to the situation after the major restrictions related to the COVID-19 pandemic by comparing two measurement points. Based on previous research on the exposures associated with the pandemic, we assume that (1) burnout risk among special education teachers has increased since the pandemic for all three dimensions (EE, D, PA). We further expect (2) that the three dimensions of burnout are related to the individual (i.e., gender, age, teaching satisfaction, health problems), interpersonal (i.e., relationships with school management, colleagues, parents, and students), and organizational variables (i.e., workload and resources, general teaching conditions, inclusive setting). Individual health problems, workload, and resources relate specifically to the pandemic. Since there are three distinctive dimensions of burnout, which might also be differently associated with risk and protective factors, we conducted separate analyses for emotional exhaustion, depersonalization, and personal accomplishment.

2. Materials and Methods

2.1 Sampling Procedure

The French-speaking State of Fribourg approved the research by the *Direction de la Formation et des Affaires Culturelles* (DFAC). Following this agreement, the Department of Education and Cultural Affairs, school and/or institution directors drew up a list of all people working as SET. To guarantee a maximum of data, all French-speaking professionals working as SET in the canton of Fribourg were included, as well as the supervisors of students enrolled in the master's degree in special education. The questionnaire was conducted online, voluntarily, with a guarantee of data confidentiality. The sample consisted of everyone working in a special education context, such as teachers with special education teacher training, primary teachers, early special education workers, educators, etc. There were two measurement points, in 2014 and 2022. Although this was not a panel design, the same population was contacted at both measurement points (i.e., all SET working in the French-speaking part of Fribourg).

At Time 1 (2014; only used for comparison in terms of research question 1), 169 people responded to the questionnaire (or 62.6%) [13]. At Time 2 (2022), 577 teachers were contacted and 358 questionnaires were returned with a response rate of 62%, a percentage that can be considered representative. The questionnaire was emailed in May 2022, with two reminders sent in a two-weeks. Each participant was asked to answer the questions about their work situation in the last two months. Teachers were free to agree to answer the questionnaire with the confidentiality guarantee. Responses were anonymized before processing the data.

2.2 Participants

The Time 1 sample was used to compare the burnout means with the Time 2 sample for the present analyses. Individual data for predicting burnout risk by individual, interpersonal, and

organizational variables were based on the participants' data from May 2022. The Time 2 sample consists of 89.7% ($n = 321$) female, 10.1% ($n = 36$) male, and 0.3% ($n = 1$) non-binary SET ($n = 358$ persons in total). The highly imbalanced gender distribution represents the distribution in the population and is therefore not related to a sampling bias. One reason might be the lack of recognition of the teaching profession which has been documented in Europe in various reports since 2005 (e.g., [12]). Research in Switzerland supports this large difference between males and females in teaching, reporting rates of over 80% of women in the profession [40]. 48 (12%) teachers were between 20 and 30 years of age, 131 (36.6%), between 31 and 40, 111 (31%) between 41 and 50, 64 (17.9%) between 51 and 60, and 28 (5%) were 61 years or older. Most teachers practiced in the canton of Fribourg ($n = 262$), representing 73.2% of the total sample. Most of the sample ($n = 227$; 63.4%) had 11 or more years of professional experience.

2.3 Measures

2.3.1 Dependent Variable: Burnout Risk

The most widely used tool to measure burnout is the Maslach Burnout Inventory [3], probably in part due to its close association with the theoretical model of burnout, but also due to its recognized psychometric properties [39]. The MBI contains 22 items measuring the three dimensions of burnout: Emotional exhaustion (nine items, such as “*I feel used up at the end of the workday*”), depersonalization (five items, such as “*I have become more callous toward people since I took this job*”), and lack of personal accomplishment (eight items, such as “*I feel frustrated by my job*”). Each item is rated on a seven-point Likert scale ranging from “never = 0” to “every day = 6”. The scores of each dimension are rated in terms of burnout risk (i.e., low, moderate, or high). The degree of emotional exhaustion is assessed as “low” if the total score is less than or equal to 17, as “moderate” if the score is between 18 and 29, and as “high” if the score is equal to or greater than 30. The degree of depersonalization is assessed as “low” if the score is less than or equal to 5, as “moderate” if the score is between 6 and 11, and as “high” if the score is equal to or greater than 12. Personal accomplishment is assessed as “low” if the score is equal to or greater than 40, as “moderate” if the score is between 34 and 39, and as “high” if the score is equal to or less than 33 [1, 39]. The French translation of the MBI has been validated by Dion and Tessier [76] who noted that standardized alpha coefficients are comparable to those reported by Maslach and Jackson [3], i.e., 0.90 for the emotional exhaustion dimension, 0.64 for depersonalization, and 0.74 for personal accomplishment. Using the current study data, the standardized alphas were 0.90 for emotional exhaustion, 0.54 for depersonalization, and 0.77 for personal accomplishment.

For the subsequent logistic regression analyses, we divided participants into two risk groups: a *low-risk* group exhibiting scores in the low range of the MBI and an *at-risk* group exhibiting scores in the moderate or high range of the MBI. These benchmarks predict burnout risk by individual, interpersonal, and organizational factors.

2.3.2 Individual Predictors

Based on our assumptions about potential influencing individual characteristics, we first assessed self-reported sex (female, male, non-binary), age (in years), and experience as a special education

teacher (in years). Since only one person indicated their gender as non-binary, group comparisons could only be conducted between women and men.

In addition, we measured *teaching satisfaction* as a subscale of the Austrian questionnaire “Qualität in Schulen” [Quality in schools] [77]. This teacher questionnaire measures personal satisfaction related to the professional context and includes 37 items and seven dimensions, of which six were included in the current analyses. Responses are collected on a four-point Likert scale with two levels of agreement and two levels of disagreement by the statements: “strongly agree”, “somewhat agree”, “somewhat disagree”, and “strongly disagree”. Since there has been no validation of the French translation of the questionnaire, we conducted reliability analyses based on the current data for the subscales used. The first dimension, teaching satisfaction, was used as an individual predictor, and the other dimensions as interpersonal and organizational predictors (see below). Regarding teaching satisfaction, we found a standardized internal consistency of $\alpha = 0.71$ for the six items related to dealing with difficulties at work and with difficult students, interestingness of work, enjoyment of teaching, personal development opportunities, and satisfaction with the work schedule. Items were combined into a subscale mean score.

To include the effects of the pandemic on individual well-being, a self-created scale was used to ask about pain and other physical complaints, lack of energy, sleep problems, and mental health problems on a six-point Likert scale from “completely wrong” to “completely true”. These items, which revealed an internal consistency of $\alpha = 0.91$ were combined into an overall *health problems* mean score.

2.3.3 Interpersonal Predictors

Interpersonal relationships were all assessed using subscales of the “Qualität in Schulen” [Quality in schools] questionnaire [77]. Relationship with the *school management* ($\alpha = 0.83$) includes questions about support, respect, and decision-making autonomy of the employees. Relationship with *colleagues* ($\alpha = 0.75$) refers to common professional viewpoints, professional exchange, support, and personal contact and friendships. Relationships with *parents* ($\alpha = 0.70$) include items on recognition of effort, belief about the treatment of children, blame, and teacher authority. Lastly, the relationship with *students* ($\alpha = 0.55$) is about acceptance of the teacher, establishing bonds, and behavioral difficulties. The items of the respective subscales were combined into a mean score.

2.3.4 Organizational Predictors

At the organizational level, first, *workload and resources* related to the pandemic were considered. This scale was created specifically for this study and includes workload (reverse coded), current resources, resources needed during school closings, and return to normality ($\alpha = 0.60$). Secondly, the subscale *general teaching conditions* ($\alpha = 0.81$) of the questionnaire “Qualität in Schulen” [Quality in schools] was used to determine the didactic and material resources, as well as the spatial conditions. The items of these scales were again combined into a mean score for each scale. In addition, we assessed whether or not SET worked in an inclusive setting.

2.4 Statistical Analyses

Using an independent sample t-test, we first compared the mean scores of the 2014 and 2022 samples. Furthermore, we evaluated how the different dimensions of burnout were affected according to the cutoff scores of the MBI (low risk, moderate risk, high risk). We then used the two risk groups (*low risk* = scores in the low range; *at-risk* = scores in the moderate or high range) to predict burnout risk by individual, interpersonal, and organizational predictors. We compared the two groups to examine the specific effect of variables on the probability of belonging to an at-risk population, which has rarely been done so far. To obtain a better discriminatory power between the groups and because persons with a moderate risk already belong to the potential risk group, moderate and high risk were combined into one at-risk group. Categorization was conducted separately for each dimension of burnout (i.e., emotional exhaustion, depersonalization, personal accomplishment) since a person may be at risk on one dimension and not at risk on another. The decision for separate analyses among the three dimensions was based on previous research indicating three distinct dimensions of burnout (e.g., [78]). Moreover, we found only moderate correlations among the three subscales (i.e., between 0.3 and 0.5), suggesting related yet different constructs. Using a logistic regression approach with the software SPSS 28 [79], we included stepwise blocks of individual, interpersonal, and organizational variables to examine their significance in predicting burnout risk. Since logistic regression does not measure effect size for each predictor, we standardized the predictor variables before including them in the analyses, in order to make them comparable. The statistical model's thresholds for classification into at-risk and low-risk were based on the proportion of individuals in the at-risk group in the sample [80]. The combined logistic regression models reduced the sample from 358 to 306 (= 85.5%) due to missing values on particular variables. Some of the scales, especially the subscales of the measurement instrument "Quality in Schools", contain items that do not apply to every work situation and in this case must be coded as missing values. If more than one item per subscale was missing, no scale mean was calculated for reliability.

3. Results

According to research question (1), the descriptive comparisons between burnout levels in 2014 and 2022 are presented first. Subsequently, the results of predicting burnout risk by individual, interpersonal and organizational factors based on the 2022 data are reported.

3.1 Comparisons of Burnout Risk Between T1 and T2

A comparison of the mean scores of the three dimensions of burnout at T1 (2014) and T2 (2022) allows us to verify the hypothesis that stipulated a higher risk for burnout following the COVID-19 pandemic. As shown in Table 1, emotional exhaustion and depersonalization were higher and personal accomplishment was lower in 2022 (all $p < 0.001$). Also, concerning the risk thresholds, a change was evident: the sample mean of emotional exhaustion changed from an overall low-risk score in 2014 to a moderate-risk score in 2022 and personal accomplishment changed from a moderate-risk score in 2014 to a high-risk score in 2022. Although there was a significant increase in depersonalization, the sample mean score still revealed low risk for depersonalization in the overall sample.

Table 1 Differences in Mean Scores Between T1 and T2 Across the Three Dimensions of burnout.

Dimensions	T1 (2014)			T2 (2022)			<i>t</i>	<i>p</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>		
Emotional exhaustion	162	14.72 ^a	7.27	358	18.21 ^b	10.3	-4.42	<0.001
Depersonalization	162	1.72 ^a	1.92	358	3.13 ^a	3.43	-5.98	<0.001
Personal accomplishment	162	37.76 ^b	6.28	358	33.05 ^c	5.35	8.28	<0.001

^a Low risk. ^b Moderate risk. ^c High risk.

3.2 Prediction of Burnout Risk by Individual, Interpersonal, and Organizational Factors

In the logistic regression models, $n = 306$ valid cases were used, of which $n = 145$ (47.4%) reported scores in the at-risk range for emotional exhaustion, $n = 65$ (21.2%) for depersonalization, and $n = 280$ (91.5%) for personal accomplishment. Individual, interpersonal, and organizational predictors were included blockwise in the logistic regression model to predict the likelihood of belonging to the at-risk group compared to the low-risk group for burnout across the different dimensions. Table 2 presents the results of the final model including all standardized predictors. Focusing on risk for emotional exhaustion, significant individual predictors were teaching satisfaction ($p < 0.001$), which decreased the likelihood of being at risk by 64.1 percent and health problems related to the pandemic ($p < 0.001$), which increased the likelihood of being at risk by 66.2 percent. None of the final model's interpersonal or organizational factors significantly affected emotional exhaustion. However, within the block of interpersonal variables (without controlling for the predictors of the other blocks), good relationships with the school management ($OR = 0.660$; $\chi^2(1) = 8.779$; $p = 0.003$) and then with students ($OR = 0.632$; $\chi^2(1) = 11.250$; $p < 0.001$) were related to a decrease in risk of emotional exhaustion. In addition, within the block of organizational variables, better contextual resources related to the pandemic ($OR = 0.790$; $\chi^2(1) = 4.077$; $p = 0.043$) and better general teaching conditions ($OR = 0.679$; $\chi^2(1) = 10.890$; $p < 0.001$) were associated with decreased risk too.

Table 2 Final Model of the Logistic Regression Analyses.

Effects	Emotional exhaustion			Depersonalization			Lack of personal accomplishment		
	OR	Wald χ^2	<i>p</i>	OR	Wald χ^2	<i>p</i>	OR	Wald χ^2	<i>p</i>
Individual predictors									
Gender (male) ^a	0.494	2.159	0.142	2.182	2.945	0.086	1.434	0.168	0.682
Age	1.369	1.485	0.223	1.421	1.621	0.203	0.517	2.554	0.110
Experience	0.713	1.609	0.205	0.678	1.865	0.172	0.586	1.889	0.169
Teaching satisfaction ^b	0.359	26.466	<0.001	0.553	7.906	0.005	0.653	1.370	0.242
Health problems (pandemic)	1.662	10.862	<0.001	1.177	0.995	0.318	1.036	0.015	0.904
Interpersonal predictors									
School management ^b	0.850	0.806	0.369	0.993	0.001	0.970	0.603	1.783	0.182
Colleagues ^b	1.107	0.331	0.565	1.121	0.346	0.557	0.993	0.000	0.983
Parents ^b	0.821	1.647	0.199	0.694	4.948	0.026	0.577	3.183	0.074
Students ^b	0.742	3.385	0.066	0.858	0.808	0.369	0.757	0.855	0.355
Organizational predictors									
Workload and resources (pandemic)	1.005	0.001	0.972	0.845	1.060	0.303	0.841	0.468	0.494
General teaching conditions ^b	1.010	0.004	0.950	0.865	0.649	0.420	0.841	0.282	0.595
Inclusive setting ^c	1.306	0.811	0.368	0.506	4.220	0.040	4.552	5.916	0.015
Goodness of fit									
Nagelkerke R ²	0.407			0.210			0.382		
Classification:									
% correct total	74.2			67.0			77.8		
% correct at risk	75.2			67.7			77.1		
% correct low risk	73.3			66.8			84.6		

Note. OR = Odds Ratio.

^a Reference category = female. ^b Subscales of the questionnaire “Qualität in Schulen” [Quality in schools]. ^c Reference category = not working in an inclusive setting.

Regarding the final model predicting depersonalization, teaching satisfaction was again related to a significant decrease in burnout risk by 44.7 percent ($p = 0.005$). On an interpersonal level, better relationships with parents went along with a decrease in the likelihood of being at risk by 30.6 percent ($p = 0.026$) and, as an organizational predictor, working in an inclusive setting was related to a 49.4 percent decrease in risk for depersonalization ($p = 0.040$). Additionally, there were significant effects of the relationships with students ($OR = 0.681$; $\chi^2(1) = 6.237$; $p = 0.013$) and the general teaching conditions ($OR = 0.691$; $\chi^2(1) = 7.145$; $p = 0.008$) within the respective blocks of interpersonal and organizational predictors, indicating better relationships with students and better teaching conditions were associated with decreased risk for depersonalization (without controlling for the predictors of the other blocks).

In the final model predicting lack of personal accomplishment, only one organizational variable, inclusive setting, remained significant ($p = 0.015$). Unlike depersonalization, an inclusive setting increased the likelihood of belonging to the at-risk group for personal accomplishment by 355.2 percent. Several other predictors were significant in the respective blocks (without controlling for the predictors of the other blocks): on an individual level, teaching satisfaction was related to a decrease in risk for personal accomplishment ($OR = 0.335$; $\chi^2(1) = 12.137$; $p < 0.001$), on an interpersonal level, the same was true for better relationships with parents ($OR = 0.488$; $\chi^2(1) = 6.156$; $p = 0.013$), and on an organization level, better general working conditions were related to a decrease in risk too ($OR = 0.456$; $\chi^2(1) = 9.841$; $p = 0.002$).

The goodness of fit of the overall models ranges from acceptable to good, with a Nagelkerke R^2 between 0.21 (depersonalization) and 0.41. (emotional exhaustion) [81]. The percentage of correct classification into the at-risk and low-risk groups lies between 73.3 and 75.2 for emotional exhaustion, 66.8 and 67.0 for depersonalization, and 77.1 and 84.6 for personal accomplishment. Thus, the model parameters are slightly inferior for predicting depersonalization compared to emotional exhaustion and lack of personal accomplishment.

4. Discussion

The present study investigated whether burnout risk among special education teachers had increased since the pandemic and whether it was related to individual, interpersonal, and organizational variables.

4.1 Changes in Burnout Risk Since the Pandemic

About research question 1, results revealed that burnout scores increased from 2014 to 2022 for all three dimensions. Focusing on risk status, the sample mean of emotional exhaustion changed from an overall low-risk score in 2014 to a moderate-risk score in 2022 and personal accomplishment changed from a moderate-risk score in 2014 to a high-risk score in 2022. Depersonalization was the only dimension in which participants (despite an increase as well) remained in the low-risk range. These findings are consistent with other studies that found increases in workplace-related stress during the pandemic and thereafter (e.g., [15-17]). However, it must be emphasized that the population of SET in Switzerland in 2014 exhibited a lower risk than the international state of research would have suggested [5, 10], which is hypothesized to be related to the allocation of significant funding by the state to support students with special needs [10]. The current data from May 2022 indicate that Swiss SET is also affected by an increased risk of burnout

since the pandemic. Yet, as there was no measurement directly before the pandemic, other influencing factors cannot be ruled out.

4.2 Prediction of Burnout Risk by Individual, Interpersonal, and Organizational Factors

Results concerning research question 2 indicate differing effects of the independent variables depending on whether the risk for emotional exhaustion, depersonalization, or lack of personal accomplishment is predicted. When all variables were controlled, only the individual factors teaching satisfaction and health problems related to the pandemic remained significant in predicting emotional exhaustion. In contrast, the sociodemographic variables gender, age, and work experience no longer seemed to play a significant role once more specific factors related to the work and health situation were taken into account. More surprisingly, interpersonal and organizational factors also lack additional explanatory power. Since interpersonal and organizational factors were related to emotional exhaustion when analyzed separately (without controlling for the other blocks of variables), contextual conditions (related to the pandemic) may affect individual psychological and physical well-being and job satisfaction and are thus more indirectly related to burnout.

Focusing on depersonalization, in addition to individual teaching satisfaction, better interpersonal relationships with parents and working in an inclusive setting were related to a decreased risk. Earlier studies confirm that interpersonal relationships are particularly important in predicting depersonalization [26, 48]. Moreover, the pandemic especially challenged the collaboration with parents, which is why this factor may stand out here [62, 63]. Furthermore, the protective effect of working in an inclusive setting might be indirectly related to greater satisfaction with school management in an inclusive context, which was found in a study by Squillaci and Hofmann [10].

Regarding personal accomplishment, only the inclusive setting was related to risk status in the final model. In opposition to depersonalization, the inclusive setting increased the risk of low personal accomplishment. It was found to be more relevant than teaching satisfaction, relationships with parents, and general teaching conditions, which were significant in the separate blocks. This finding may be due to a reduced sense of control among teachers working in inclusive settings compared to those working in segregated settings. The latter probably have more flexibility to adjust the curriculum and pace to the needs of the students. Yet, further studies are needed to support this hypothesis.

4.3 Strengths and Limitations

This study extends the current state of research on burnout among teachers, using a relatively large sample of SET after the demanding time of the pandemic. We have compared two samples from two populations working under the same conditions at two different points in time to verify the evolution of teachers' perceived health. The study has also highlighted the differential effects of variables, such as working in an inclusive context, on the three dimensions of burnout. It can provide specific insights into risk and protective factors depending on which dimension of burnout is addressed.

There are, however, also some limitations that need to be addressed. The first limitation is the cross-sectional design. Although comparable cohorts were studied for the two measurement points in 2014 and 2022, not the same individuals were surveyed. As a result, the prediction of risk status

by individual, interpersonal, and organizational factors was based solely on the T2 data. There might have been some indirect effects of organizational and interpersonal factors (i.e., of the work and social context) influencing burnout risk through individual well-being and job satisfaction. However, longitudinal data should be used when testing such effects. Further, the design did not allow to measure change from the beginning to the end of the greatest COVID-19 restrictions, so the results cannot be causally attributed to the pandemic. Another limitation refers to the low reliability of some measurement instruments. The burnout dimension depersonalization and the predictor's satisfaction with relationships with students and workload and resources related to the pandemic show low internal consistencies. A reason for this finding might be, that the items they use are relatively diverse, which results in lower alpha coefficients. Nevertheless, it cannot be ruled out that more reliable measurement instruments might have been able to detect additional effects. Finally, it must be pointed out that the Maslach Burnout Inventory is not a diagnostic instrument. Thus the risk categories only allow a broad risk assessment, not a clinical diagnosis.

5. Conclusions

The pandemic has had a significant impact on teachers, who were forced to adapt quickly to previously unknown conditions. The present study extends the current state of research by focusing on SET, which was especially challenging during the pandemic because of the difficulty of distance learning for students with disabilities [21-23]. An increase in the risk of burnout among SET could be identified, even if this cannot be causally attributed to the pandemic. Nevertheless, it is essential to consider the work environment from a well-being perspective to support SETs' mental health and ensure teaching quality [35]. For example, the current results offer approaches for prevention, such as increasing the sense of control in classroom management of teachers working in an inclusive context, and fostering their sense of belonging within the organization. In addition, since we assume that contextual conditions could also indirectly influence the risk of burnout via individual well-being and satisfaction, it is important to examine these relationships more closely in future studies, preferably using longitudinal data. Moreover, further research is needed to assess protective factors against burnout and promote specific prevention programs' implementation [82]. Recent research suggests that school climate and workplace enjoyment should be essential in preventing burnout [14]. As for the present study, the authors plan to conduct a follow-up survey in 2025 to determine whether the risk of burnout has returned to pre-pandemic levels or is permanently elevated.

Overall, it can be stated that the teachers' mental health in the special education context is relevant not only for the SET themselves and their professional environment, but especially for the students with special needs, who rely on capable and empathetic educators for their academic and psychosocial development.

Author Contributions

The first author participated in the design of the questionnaire, performed a major part of the statistical analyses, wrote parts of the manuscript, and took the lead in its overall structure. The second author participated in the preparation of the questionnaire and in conducting the survey, performed parts of the statistical analyses, conducted a systematic literature search, and contributed to the manuscript. The third author had a leading role in creating the questionnaire, and was involved in conducting the survey, and in the literature review. The fourth author is the

project leader responsible for both studies (2014 and 2022). She was decisively involved in the creation of the questionnaire, the implementation of the survey, and in the literature research and has written parts of the manuscript.

Competing Interests

The authors have declared that no competing interests exist.

References

1. Maslach C, Leiter MP. Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry*. 2016; 15: 103-111.
2. Maslach C. Burnout: A multidimensional perspective. In: *Professional burnout: Recent developments in theory and research*. Abington: Taylor & Francis; 1993. pp. 19-32.
3. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organ Behav*. 1981; 2: 99-113.
4. World Health Organization. ICD-11 for mortality and morbidity statistics [Internet]. Eleventh R. International Classification of Diseases for Mortality and Morbidity Statistics, Herausgeber; 2022 [cited date 2022 April 20]. Available from: <https://icd.who.int/browse11/l-m/en#/http://id.who.int/icd/entity/129180281>.
5. Squillaci Lanners M. Are teachers more affected by burnout than physicians, nurses and other professionals? A systematic review of the literature. In: *Advances in Human Factors and Ergonomics in Healthcare and Medical Devices, AHFE 2019. Advances in Intelligent Systems and Computing*. Cham: Springer; 2019.
6. Studer R, Quarroz S. Enquête sur la santé des enseignants romands. *Rapp l'Institut Univ Rom Santé du au Trav*; 2017. Available from: <https://edudoc.ch/record/127934?ln=fr>.
7. Kangas-Dick K, O'Shaughnessy E. Interventions that promote resilience among teachers: A systematic review of the literature. *Int J Sch Educ Psychol*. 2020; 8: 131-146.
8. McLean D, Eklund K, Kilgus SP, Burns MK. Influence of teacher burnout and self-efficacy on teacher-related variance in social-emotional and behavioral screening scores. *Sch Psychol Q*. 2018; 34: 503-511.
9. Maroy C. L'école à l'épreuve de la performance. Les politiques de régulation par les résultats. Brussels, Belgium: De Boeck Supérieur; 2013. pp.126-129. doi: 10.4000/ries.3590.
10. Squillaci M, Hofmann V. Working in inclusive or non-inclusive contexts: Relations between collaborative variables and special education teachers' burnout. *Front Educ*. 2021; 6: 640227.
11. Skaalvik EM, Skaalvik S. Dimensions of teacher burnout: Relations with potential stressors at school. *Soc Psychol Educ*. 2017; 20: 775-790.
12. Eurydice. Chiffres clés de l'éducation en Europe 2009. Bruxelles: Eurydice; 2009. Available from: <https://ec.europa.eu/eurostat/documents/3217494/5723492/978-92-9201-033-1-FR.PDF.pdf/e262fe93-320d-484f-8a10-c68a847c0b9a?t=1414775587000>.
13. Squillaci M. *Le burnout des enseignants spécialisés au regard du Maslach burnout inventory*. Fribourg: Université de Fribourg; 2018.
14. Fiorilli C, Gabola P, Pepe A, Meylan N, Curchod-Ruedi D, Albanese O, et al. The effect of teachers' emotional intensity and social support on burnout syndrome. A comparison between Italy and Switzerland. *Rev Eur Psychol Appl*. 2015; 65: 275-283.

15. Billehøj H. Rapport sur l'enquête du CSEE sur le stress au travail des enseignants. Bruxelles; 2007. Available from: https://www.csee-etuice.org/images/attachments/Report_WRS_FR.pdf.
16. Keller MM, Becker ES, Frenzel AC, Taxer JL. When teacher enthusiasm is authentic or inauthentic: Lesson profiles of teacher enthusiasm and relations to students' emotions [Internet]. Hong Kong: AERA Open; 2018 [cited date 2023 June 23]. Available from: <https://journals.sagepub.com/doi/10.1177/2332858418782967>.
17. Moe A, Frenzel AC, Au L, Taxer JL. Displayed enthusiasm attracts attention and improves recall. *Br J Educ Psychol*. 2021; 91: 911-927.
18. Pressley T, Ha C. Teacher exhaustion during COVID-19: Exploring the role of administrators, self-efficacy, and anxiety. *Teach Educ*. 2022; 57: 61-78.
19. Pressley T, Ha C, Learn E. Teacher stress and anxiety during COVID-19: An empirical study. *Sch Psychol*. 2021; 36: 367-376.
20. Organisation for Economic Cooperation and Development. Tackling the mental health impact of the COVID-19 crisis: An integrated, whole-of-society response [Internet]. Organisation for Economic Cooperation and Development; 2021. Available from: https://www.oecd-ilibrary.org/social-issues-migration-health/tackling-the-mental-health-impact-of-the-covid-19-crisis-an-integrated-whole-of-society-response_Occafa0b-en.
21. Cameron DL, Matre ME, Canrinus ET. Accommodating students with special educational needs during school closures due to the COVID-19 pandemic in Norway: Perceptions of teachers and students. *Front Educ*. 2022; 7: 856789.
22. Kim JY, Fienup DM. Increasing access to online learning for students with disabilities during the COVID-19 pandemic. *J Spec Educ*. 2022; 55: 213-221.
23. Cormier CJ, McGrew J, Ruble L, Fischer M. Socially distanced teaching: The mental health impact of the COVID-19 pandemic on special education teachers. *J Community Psychol*. 2022; 50: 1768-1772.
24. Panagouli E, Stavridou A, Savvidi C, Kourti A, Psaltopoulou T, Sergentanis TN, et al. School performance among children and adolescents during COVID-19 pandemic: A systematic review. *Children*. 2021; 8: 1134.
25. Ponce RS, Luján EL. Pedagogical consequences of COVID-19 among basic education students. A reflection on the great forgotten ones of the pandemic. *Teor de la Educ*. 2021; 33: 149-166.
26. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001; 52: 397-422.
27. Cordes CL, Dougherty TW. A review and an integration of research on job burnout. *Acad Manage Rev*. 1993; 18: 621-656.
28. Antoniou AS, Polychroni F, Vlachakis AN. Gender and age differences in occupational stress and professional burnout between primary and high-school teachers in Greece. *J Manage Psychol*. 2006; 21: 682-690.
29. Liu JP, He ZF, Yu L. Meta analysis of teachers' job burnout in China. *Lect Notes Electr Eng*. 2014; 269: 1771-1778.
30. Brunsting NC, Sreckovic MA, Lane KL. Special education teacher burnout: A synthesis of research from 1979 to 2013. *Educ Treat Child*. 2014; 37: 681-711.
31. Leiter MP, Maslach C, Frame K. Burnout. In: *The Encyclopedia of Clinical Psychology*. Hoboken, NJ, USA: John Wiley & Sons, Inc.; 2015. pp. 1-7.
32. Amri A, Abidli Z, Elhamzaoui M, Bouzaboul M, Rabea Z, Ahami AOT. Assessment of burnout among primary teachers in confinement during the Covid-19 period in morocco: Case of the

- kenitra. *Pan Afr Med J.* 2020; 35: 92.
33. Pellerone M. Self-perceived instructional competence, self-efficacy and burnout during the Covid-19 pandemic: A study of a group of Italian school teachers. *Eur J Investig Health Psychol Educ.* 2021; 11: 496-512.
 34. Pressley T. Factors contributing to teacher burnout during COVID-19. *Educ Res.* 2021; 50: 325-327.
 35. Minihan E, Adamis D, Dunleavy M, Martin A, Gavin B, McNicholas F. COVID-19 related occupational stress in teachers in Ireland. *Int J Educ Res Open.* 2022; 3: 100114.
 36. Arvidsson I, Håkansson C, Karlson B, Björk J, Persson R. Burnout among Swedish school teachers—a cross-sectional analysis. *BMC Public Health.* 2016; 16: 823.
 37. Vercambre MN, Brosselin P, Gilbert F, Nerrière E, Kovess-Masféty V. Individual and contextual covariates of burnout: A cross-sectional nationwide study of French teachers. *BMC Public Health.* 2009; 9: 333.
 38. Antoniou AS, Ploumpi A, Ntalla M. Occupational stress and professional burnout in teachers of primary and secondary education: The role of coping strategies. *Psychology.* 2013; 04: 349-355.
 39. Kokkinos CM. Factor structure and psychometric properties of the Maslach Burnout Inventory-educators survey among elementary and secondary school teachers in Cyprus. *Stress Health.* 2006; 22: 25-33.
 40. Squillaci M. Analysis of the burnout levels of special education teachers in Switzerland in link with a reform implementation. *Eur J Spec Needs Educ.* 2021; 36: 844-853.
 41. Ma K, Liang L, Chutiya M, Nicoll S, Khaerudin T, Ha XV. COVID-19 pandemic-related anxiety, stress, and depression among teachers: A systematic review and meta-analysis. *Work.* 2022; 73: 3-27.
 42. Cheptea D, Deleu R, Mesina V, Friptuleac G, Cebanu S. Assessment of burnout among teachers during the Covid-19 pandemic. *Arch Balk Med Union.* 2021; 56: 179-184.
 43. Hutchison SM, Watts A, Gadermann A, Oberle E, Oberlander TF, Lavoie PM, et al. School staff and teachers during the second year of COVID-19: Higher anxiety symptoms, higher psychological distress, and poorer mental health compared to the general population. *J Affect Disord Rep.* 2022; 8: 100335.
 44. Baran G, Bıçakçı MY, İnci F, Öngör M, Ceran A, Atar G. Analysis of burnout levels of teacher. *Procedia Soc Behav Sci.* 2010; 9: 975-980.
 45. Doghonadze N. Teacher burnout and COVID-19 pandemic. *Int Res Conf Educ Lang Lit.* 2021; 11: 250-263.
 46. Răducu CM, Stănculescu E. Teachers' burnout risk during the COVID-19 pandemic: Relationships with socio-contextual stress—A latent profile analysis. *Front Psychiatry.* 2022; 13: 745.
 47. Unterbrink T, Hack A, Pfeifer R, Buhl-Grießhaber V, Müller U, Wesche H, et al. Burnout and effort–reward-imbalance in a sample of 949 German teachers. *Int Arch Occup Environ Health.* 2007; 80: 433-441.
 48. Maslach C. Job burnout: New directions in research and intervention. *Curr Dir Psychol Sci.* 2003; 12: 189-192.
 49. Carroll A, Forrest K, Sanders-O'Connor E, Flynn L, Bower JM, Fynes-Clinton S, et al. Teacher stress and burnout in Australia: Examining the role of intrapersonal and environmental factors. *Soc Psychol Educ.* 2022; 25: 441-469.

50. Aloe AM, Shisler SM, Norris BD, Nickerson AB, Rinker TW. A multivariate meta-analysis of student misbehavior and teacher burnout. *Educ Res Rev.* 2014; 12: 30-44.
51. Winding TN, Aust B, Andersen LP. The association between pupils aggressive behaviour and burnout among Danish school teachers-the role of stress and social support at work. *BMC Public Health.* 2022; 22: 316.
52. Bottiani JH, Duran CAK, Pas ET, Bradshaw CP. Teacher stress and burnout in urban middle schools: Associations with job demands, resources, and effective classroom practices. *J Sch Psychol.* 2019; 77: 36-51.
53. Cardullo V, Wang CH, Burton M, Dong J. K-12 teachers' remote teaching self-efficacy during the pandemic. *J Res Innov Teach Learn.* 2021; 14: 32-45.
54. Kaufman J, Diliberti M. Teachers are not all right: How the COVID-19 pandemic is taking a toll on the nation's teachers [Internet]. The Evidence Project at CRPE; 2021. Available from: <https://crpe.org/wp-content/uploads/final-EP-teachers-synthesis.pdf>.
55. Sokal LJ, Trudel LGE, Babb JC. Supporting teachers in times of change: The job demands-resources model and teacher burnout during the COVID-19 pandemic. *Int J Contemp Educ.* 2020; 3: 67.
56. Tri Sakti AM, Mohd Ajis SZ, Azlan AA, Kim HJ, Wong E, Mohamad E. Impact of COVID-19 on school populations and associated factors: A systematic review. *Int J Environ Res Public Health.* 2022; 19: 4024.
57. Baker CN, Peele H, Daniels M, Saybe M, Whalen K, Overstreet S, et al. The experience of COVID-19 and its impact on teachers' mental health, coping, and teaching. *School Psych Rev.* 2021; 50: 491-504.
58. Weißenfels M, Klopp E, Perels F. Changes in teacher burnout and self-efficacy during the Covid-19 pandemic: Interrelations and e-learning variables related to change. *Front Educ.* 2022; 6: 546.
59. Burke RJ, Greenglass ER, Schwarzer R. Predicting teacher burnout over time: Effects of work stress, social support, and self-doubts on burnout and its consequences. *Anxiety Stress Coping.* 1996; 9: 261-275.
60. Skaalvik EM, Skaalvik S. Does school context matter? Relations with teacher burnout and job satisfaction. *Teach Teach Educ.* 2009; 25: 518-524.
61. Betoret FD. Self-efficacy, school resources, job stressors and burnout among Spanish primary and secondary school teachers: A structural equation approach. *Educ Psychol.* 2009; 29: 45-68.
62. Squillaci M. Relations parents-enseignants: Effets sur le burnout des enseignants spécialisés. *La Rev Int l'éduc Fam.* 2020; 47: 151-168.
63. Zaccoletti S, Camacho A, Correia N, Aguiar C, Mason L, Alves RA, et al. Parents' perceptions of student academic motivation during the COVID-19 lockdown: A cross-country comparison. *Front Psychol.* 2020; 11: 592670.
64. Vargas Rubilar N, Oros LB. Stress and burnout in teachers during times of pandemic. *Front Psychol.* 2021; 12: 756007.
65. García-Carmona M, Marín MD, Aguayo R. Burnout syndrome in secondary school teachers: A systematic review and meta-analysis. *Soc Psychol Educ.* 2019; 22: 189-208.
66. Pogere EF, López-Sangil MC, García-Señorán MM, González A. Teachers' job stressors and coping strategies: Their structural relationships with emotional exhaustion and autonomy support. *Teach Teach Educ.* 2019; 85: 269-280.

67. Hascher T, Beltman S, Mansfield C. Swiss primary teachers' professional well-being during school closure due to the COVID-19 pandemic. *Front Psychol.* 2021; 12: 687512.
68. MacIntyre PD, Gregersen T, Mercer S. Language teachers' coping strategies during the Covid-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System.* 2020; 94: 102352.
69. Prado-Gascó V, Gómez-Domínguez MT, Soto-Rubio A, Díaz-Rodríguez L, Navarro-Mateu D. Stay at home and teach: A comparative study of psychosocial risks between Spain and Mexico during the pandemic. *Front Psychol.* 2020; 11: 566900.
70. Trinidad JE. Teacher satisfaction and burnout during COVID-19: What organizational factors help? *Int J Leadersh Educ.* 2021; 1-19. doi: 10.1080/13603124.2021.2006795.
71. Estrada-Muñoz C, Vega-Muñoz A, Castillo D, Müller-Pérez S, Boada-Grau J. Technostress of Chilean teachers in the context of the covid-19 pandemic and teleworking. *Int J Environ Res Public Health.* 2021; 18: 5458.
72. Almeida E, Baldassari A, Bernal J, Rosero A, Zapata A. Factors that contribute to teachers' burnout during the COVID 19 pandemic in Ecuador. In: XV Multidisciplinary International Congress on Science and Technology. Cham: Springer International Publishing; 2021. pp. 42-54.
73. Rizvi Jafree S, Burhan SK, Mahmood QK. Predictors for stress in special education teachers: Policy lessons for teacher support and special needs education development during the COVID pandemic and beyond. *J Hum Behav Soc Environ.* 2023; 33: 615-632.
74. Done EJ, Murphy M. The responsabilisation of teachers: A neoliberal solution to the problem of inclusion. *Discourse.* 2018; 39: 142-155.
75. Curchod-Ruedi D, Ramel S, Bonvin P, Albanese O, Doudin PA. De l'intégration à l'inclusion scolaire: Implication des enseignants et importance du soutien social. *Alter.* 2013; 7: 135-147.
76. Dion G, Tessier R. Validation de la traduction de l'Inventaire d'épuisement professionnel de Maslach et Jackson. *Can J Behav Sci/Rev Can des Sci du Comport.* 1994; 26: 210-227.
77. Döbert H, Ernst C. Q. I. S. - Qualität in Schulen. Hohengehren: Schneider; 2001. pp.159-176.
78. Lourel M, Gueguen N. Une méta-analyse de la mesure du burnout à l'aide de l'instrument MBI. *Encephale.* 2007; 33: 947-953.
79. IBM Corp. IBM SPSS Statistics for Windows, Version 28.0. Armonk; 2021.
80. Fromm S. Datenanalyse mit SPSS für Fortgeschrittene 2: Multivariate verfahren für Querschnittsdaten. Wiesbaden: VS Verlag; 2010.
81. Backhaus K, Erichson B, Plinke W, Weiber R. Multivariate analysemethoden: Eine anwendungsorientierte einföhrung. Berlin: Springer; 2006.
82. Balthasar A, Studer S. Evaluation der langfristigen strategie von gesundheitsförderung Schweiz 2007-2018. Available from: https://gesundheitsfoerderung.ch/sites/default/files/2022-11/Evaluation_Strategie_GFCH_2007-2018_-_Management_Summary%20de.PDF.