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Teachers' occupational stress and perceived support in Finland and Estonia during the COVID-19 lockdown

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This study examined teachers' experiences of occupational stress in Finland and Estonia during the COVID-19 lockdown, and whether their stress would be related to their experiences of support from colleagues and leaders. The participants were total of 1,319 teachers that were teaching grades 1–6 in spring 2020. The data were analyzed using regression analyses with interaction terms. The results showed that the teachers in Finland and Estonia experienced stress during the lockdown, and that teachers' stress was higher in the Finnish sample than in the Estonian sample. The findings of this study suggest that support gained from colleagues or leaders seems to be important when aiming to reduce teachers' occupational stress in both countries.

KEYWORDS

occupational stress, support from colleagues, support from leaders, COVID-19 pandemic, teachers

1. Introduction

Teaching has been recognized as a highly stressful occupation (Kyriacou, 2011). Previous studies that have ranked various professions based on experiences of work-related stress have described teaching as causing above average levels of stress (Johnson et al., 2005). Studies from throughout the COVID-19 pandemic have shown that teachers may have experienced substantial levels of occupational stress during lockdowns (e.g., MacIntyre et al., 2020; Zhou and Yao, 2020; Pöysä et al., 2022). This is an expected finding considering that the existing literature has also stated that experience of stress is likely to be related to sense of work-related demands (e.g., Kyriacou, 2011). Such demands may have, indeed, increased for teachers as a consequence of the exceptional times due to the pandemic.

Addressing teachers' experiences of stress is essential as their stress can potentially harm both the teachers themselves and their students (Skaalvik and Skaalvik, 2016; Madigan and Kim, 2020). In order to diminish work-related stress, resources that have the potential to alleviate the strain of work-related demands must be identified. Previous studies have shown that teachers' occupational well-being can be enhanced with the support received from school leaders or colleagues (Bermejo-Toro et al., 2016). Additionally, studies from during the pandemic have indicated that such support was beneficial for teachers' well-being during that time (Baker et al.,

2021; Pöysä et al., 2022). This study examines whether teachers' experiences of occupational stress during the COVID-19 pandemic would be related to their experiences of support from colleagues and leaders in two different educational contexts, Finland and Estonia.

The present study focuses on teachers' experiences of occupational stress during the lockdowns caused by the COVID-19 pandemic, which resulted in severe, unexpected changes to their daily work. By employing a cross-country comparison, this study aims to examine whether teachers in two neighboring countries, Finland and Estonia, faced similar challenges regarding their occupational well-being during the lockdown. Moreover, it examines whether the relation between work-related stress and experiences of support from leaders and colleagues would be similar across countries. Such findings could complement the literature by providing additional understanding that would help teachers and researchers as well as policy makers when preparing for future crises across borders. Comparing Finland and Estonia is particularly relevant because they have relatively similar educational systems. Additionally, national restrictions, as well as severity of the COVID-19 pandemic, were similar in both countries during the spring of 2020 (Morgan et al., 2020; OECD, 2020a,b).

1.1. Teachers' occupational stress

Teachers' occupational stress can be defined in several ways. The present study adopts the widely recognized definition according to which teachers' occupational stress means "unpleasant, negative emotions, such as anger, anxiety, tension, frustration, or depression, resulting from some aspect of their work as a teacher" (Kyriacou, 2001, p. 28). Based on previous literature, teachers' experiences of such stress can be reliable and validly measured by using single-item questions (Kyriacou, 2001; Elo et al., 2003; Klassen and Chiu, 2010; Eddy et al., 2019). As teachers' stress can be seen as an emotional reaction triggered by some type of demand they face in their work (Kyriacou, 2011), the present study builds also on the view set in the Job Demands-Resources (JD-R) model (Demerouti et al., 2001). It suggests that occupational well-being is shaped by demands and resources typical for specific professions (see also Bakker and Demerouti, 2007; Schaufeli and Taris, 2014).

While teachers' occupational well-being is an undeniably complex phenomenon and stress is only one aspect of that (Cumming, 2017; Taris et al., 2017), it is crucially important to recognize the antecedents and consequences of occupational stress in order to enhance teachers' well-being. Along with acknowledging that stress might be tied to factors related to individual teachers themselves, such as gender or work experience (e.g., Klassen and Chiu, 2010; Travers, 2017; Saloviita and Pakarinen, 2021), previous literature has identified several other stressors that can be related to increased stress as well. Such stressor can be, for example, sense of workload and time pressure or inevitable changes and environmental structures tied into work (e.g., Montgomery and Rupp, 2005; Kyriacou, 2011; Ferguson et al., 2012; Skaalvik and Skaalvik, 2016). These types of work-related demands have been recognized also in studies drawn from the data collected during the COVID-19 pandemic (e.g., Klapproth et al., 2020; Carroll et al., 2022), and the presence of certain demands have been reported to even increase during the pandemic (e.g., Kim et al., 2022).

Experience of emotional exhaustion is perhaps among the most studied consequences of occupational stress in the field of education. In previous literature, stress has been shown to be related to increased emotional exhaustion both before (e.g., Skaalvik and Skaalvik, 2016) and during the pandemic (Chan et al., 2021; Pöysä et al., 2021). Moreover, emotional exhaustion is typically considered as one of the critical components of burnout syndrome (e.g., Maslach et al., 2001; Schaufeli and Salanova, 2013). In addition, higher levels of stress and increased experiences of emotional exhaustion in teachers are related to, for example, increased risk of leaving the profession (Skaalvik and Skaalvik, 2011; Skaalvik and Skaalvik, 2016) and lower levels of student achievement and motivation (Arens and Morin, 2016; Madigan and Kim, 2020). Therefore, it is possible that the teachers' occupational stress can have consequences that reach beyond the individual teachers themselves.

1.2. Colleagues and leaders as teachers' job-related resources

The JD-R model suggests that the sense of occupational well-being is built from a balance between the resources and demands of the job (Schaufeli and Taris, 2014). Thus, according to the JD-R model (Demerouti et al., 2001) different types of job-related resources are vital and can be seen to enhance teachers' occupational well-being. Resources are known to be particularly helpful under stressful conditions (e.g., Bakker and Demerouti, 2007; Schaufeli and Taris, 2014), and previous studies conducted among educators have shown that job-related resources can even provide a buffer against the negative impacts of job-related demands (Bakker et al., 2007).

Different types of resources can be identified across occupations, both within the individual and at multiple levels of the organization (i.e., group-level, leader-level, and organizational-level, e.g., Nielsen et al., 2017). With respect to teaching profession, supportive relationships between colleagues and supervisory support have been recognized as important group-level and leader-level resources. The group-level resource of supportive relationships between colleagues has been examined by measuring teachers' experiences of receiving adequate help from colleagues when having problems and needing assistance from a colleague (e.g., Skaalvik and Skaalvik, 2011). The importance of supportive colleagues has been evidenced, for example, in a study by Skaalvik and Skaalvik (2018) showing that positive relationships with colleagues predicted higher occupational well-being. Additionally, Bermejo-Toro et al. (2016) showed that colleagues' support is one of the job resources related to greater levels of work engagement and lower rates of burnout. Support from colleagues has also been shown to have been meaningful in terms of occupational well-being throughout the COVID-19 pandemic. For instance, in a study by Baker et al. (2021) support from colleagues was most commonly discussed when teachers were asked what was most helpful during the pandemic.

As with the group-level resource of collegial support, the leader-level resource of supervisory support has been examined by measuring teachers' experiences of receiving adequate help and support from their leaders (e.g., Hakanen et al., 2006; Skaalvik and Skaalvik, 2011; Jensen and Solheim, 2020). Jensen and Solheim (2020) and Hakanen et al. (2006), for instance, have showed that supportive leadership negatively predicts teacher burnout. Similarly, Skaalvik and Skaalvik (2016) demonstrated that a lack of supervisory support is related to increased exhaustion and decreased self-efficacy. Studies conducted during the COVID-19 pandemic have also evidenced that leaders

were important job-related resources during the pandemic as well (e.g., Baker et al., 2021; Collie, 2021; Ahtiainen et al., 2022; Pöysä et al., 2022).

Based on previous literature, colleagues and leaders can be considered as important job-related resources when it comes to teachers' occupational well-being. However, many of the previous studies have examined these resources alongside a variety of other positive and negative aspects of occupational well-being (e.g., work engagement, self-efficacy, exhaustion, burnout), but not by specifically concentrating on their relations with teachers' experiences of occupational stress during the COVID-19 pandemic. Thus, a relation between these resources and occupational stress should still have some directed attention. As emotional exhaustion and burnout are seen as consequences of prolonged stress (Maslach et al., 2001; Schaufeli and Salanova, 2013), it is important to determine whether support from colleagues and leaders could be key to resisting occupational stress.

1.3. Teaching during the COVID-19 pandemic in Finland and Estonia

The educational context for basic education in Finland and Estonia is rather similar. In both countries, basic education lasts 9 years and begins during the fall of the year in which a child turns 7 years old. Finnish and Estonian municipalities and schools specify national curriculums, with some local emphases, and teachers have quite robust pedagogical autonomy in their teaching. All basic education teachers are required to have a master's degree in both countries.

The COVID-19 pandemic resulted in severe changes to teachers' work in both Finland and Estonia during the spring of 2020. In both countries, the shift to remote learning was sudden, starting in the middle of March (OECD, 2020a,b). In Finland, the lockdown lasted 8 weeks. The Finnish Government (2020a) determined that schools would operate under "exceptional arrangements" during school closures. Usage of online platforms was presented as an example, yet it was not a requirement. Thus, teaching was conducted via different combinations of real-time teaching via online platforms and provision of assignments along with focused feedback (Vuorio et al., 2021). In Estonia, the lockdown lasted until the end of the school year in June 2020 (Estonian Government, 2020). Similarly to Finland, remote learning was conducted through a combination of real-time online teaching and both individual and group work (Tammets et al., 2021). According to the OECD Teaching and Learning International Survey (TALIS), teachers in Finland seem to have experienced somewhat less stress than their Estonian colleagues (OECD, 2020c) before the COVID-19 pandemic. However, no studies have investigated the possible difference in teachers' well-being during the pandemic as of yet.

1.4. The present study

The aim of the present study was to examine teachers' experiences of occupational stress in Finland and Estonia during the COVID-19-related lockdown. Based on previous findings (e.g., Hakanen et al., 2006; Skaalvik and Skaalvik, 2011; Bermejo-Toro et al., 2016), the present study also examined whether teachers' experience of occupational stress would be related to their experiences of support from colleagues and leaders. By examining teachers from two countries with similar educational systems and pandemic-related educational restrictions, this study strengthens the understanding of shared challenges inherent to the lockdown. The following research questions and hypotheses were formulated:

> RQ1. To what extent did Finnish and Estonian teachers' occupational stress differ during the COVID-19-related lockdown? Based on the findings of the TALIS survey (OECD, 2020c), it was expected (Hypothesis 1) that Finnish teachers would have experienced less occupational stress than Estonian teachers during the lockdown.
>
> RQ2. To what extent were teachers' experiences of occupational stress related to different background factors (i.e., work experience, gender, grade level taught, class size, and number of students needing special support), and were the relations similar in Finland and Estonia? Based on previous findings suggesting that females report higher levels of occupational stress (e.g., Klassen and Chiu, 2010) and that environmental factors (Montgomery and Rupp, 2005) are related to occupational stress, it was expected (Hypothesis 2) that teachers' occupational stress would be related to different background factors. Due to a lack of applicable previous research, no hypothesis regarding a difference between countries was set.
>
> RQ3. To what extent were teachers' experience of occupational stress related to their experiences of support from their colleagues and leaders, and were the relations similar in Finland and Estonia? Based on previous showing relations between occupational well-being and the group-level resource of collegial support, as well as the leader-level resource of supervisory support (e.g., Skaalvik and Skaalvik, 2011; Bermejo-Toro et al., 2016), it was expected (Hypothesis 3) that teachers' experiences of higher support from their colleagues and leaders would be related to lower occupational stress. Due to lack of applicable previous research, no hypothesis regarding a difference between countries was set.

2. Method

2.1. Participants and procedures

The participants of the present study were 1,319 teachers (396 from Finland and 923 from Estonia) teaching grades 1–6. The Finnish sample were collected as part of Teacher and Student Stress and Interaction in Classroom study (TESSI; Lerkkanen and Pakarinen, 2021), and the Estonian sample was part of a survey commissioned by the Estonian Ministry of Education and Research "Experiences of distance learning due to an emergency situation and its impact on the Estonian education system" (Tammets et al., 2021). In both countries, ethical approval for the studies were provided by the universities' ethical committees (University of Jyväskylä and Tallinn University), and the research was conducted following the national guidelines for the ethical principles of research with human participants (Centre for Ethics, University of Tartu, 2017; Finnish National Board on Research Integrity TENK, 2019). The descriptive statistics for both samples are presented in Table 1.

2.1.1. The Finnish sample

The data for the TESSI-study were collected from several municipalities located in different areas of Finland in spring of 2020. The local educational authorities granted the permits to collect the data prior to any teachers being contacted. Teachers were asked via e-mails whether they would answer on a questionnaire that focuses on their occupational well-being and teaching practices. Privacy notices were delivered along with the request to participate, and participation was voluntary and anonymous.

2.1.2. The Estonian sample

A representative survey was conducted in Estonian primary and secondary schools in spring of 2020. School leaders were asked to distribute the web-based questionnaire among their teachers, along with informed consent. Teachers agreed to participate electronically, and participation was voluntary and anonymous. Only teachers in grades 1–6 were included in the analyses of the current study (923 teachers out of 1,788 total respondents).

2.2. Measures

2.2.1. Teachers' occupational stress

In both samples, teachers' occupational stress was measured using the following single-item question: "Stress means a situation in which a person feels tense, restless, nervous, or anxious, or is unable to sleep at night because his/her mind is troubled all the time. Do you feel this kind of stress these days?" (Elo et al., 2003). Based on the previous literature this single-item question, drawn from the Occupational Stress Questionnaire, is reliable and valid for identifying occupational wellness, as it accurately discriminates between worker groups and is associated with theoretically related constructs, such as job satisfaction and emotional exhaustion (Elo et al., 2003; see also Eddy et al., 2019; Sebastian et al., 2023). In the Finnish sample, teachers were asked to answer the question on a scale from 1 (*not at all*) to 6 (*very much*) while in the Estonian sample, a scale from 1 (*not at all*) to 5 (*very much*) was used. Prior to the analyses, the scale used in the Finnish sample was recoded to match the scale used in the Estonian sample.

TABLE 1 Descriptive statistics of Finnish and Estonian samples.

		Finnish	Estonian
Number of participants		396	923
Gender	Female	309	864
	Male	85	55
Grade level	Grade 1–3	229	358
	Grade 4–6	167	565
Work experience	1–5 years	99	150
	6–10 years	68	77
	11–15 years	59	60
	16–20 years	51	110
	> 20 years	118	526
Class size	Mean	21.29	18.90
	Standard deviation	6.13	7.79
	Minimum	5	1
	Maximum	46	45
% of students needing special support in their class	Mean	25.25	17.76
	Standard deviation	21.14	22.51
	Minimum	0	0
	Maximum	100	100

2.2.2. Experience of gaining support from a colleague

In both samples, the examined group-level resource focused on teachers' experience of receiving support from their colleagues. In the Finnish sample, this was measured by utilizing one item drawn from the short Finnish version of the Team Climate Inventory (TCI; Kivimäki and Elovainio, 1999). The item was: "I can get help whenever I have problems.," and teachers were asked to answer on a 5-point Likert scale (1 = *disagree*; 5 = *agree*). In the Estonian sample, the question: "I knew I could get help if I felt I could not handle it." was used, and teachers were asked to answer on a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*). This question was part of the survey block focusing on collaboration at school (Leithwood et al., 2020). Prior to the analyses, the scale used in the Estonian sample was recoded to match the scale used in the Finnish sample.

2.2.3. Experience of gaining support from a leader

In both samples, the examined leader-level resource focused on teachers' experiences of receiving support from their leaders. In the Finnish sample, this was measured using one item from the Finnish version of the Leader–Member Exchange measure (LMX; Graen and Uhl-Bien, 1995; see also Norvapalo, 2014). The item was: "I can trust that my leader would help me out of a difficult work situation even with his/her own expense," and teachers were asked to answer on a 5-point Likert scale (1 = *disagree*; 5 = *agree*). In the Estonian sample, the question: "In case of problems, I received enough support from the management," was used, and teachers were asked to answer on a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*). The question was part of the survey block focusing on collaboration at school (Leithwood et al., 2020). Prior to the analyses, the scale used in the Estonian sample was recoded to match the scale used in the Finnish sample.

2.2.4. Covariates

Teachers were asked to provide the following information: years of work experience, gender (coded in data file as 0 = female, 1 = male, missing = prefer not to answer), grade level that they taught (i.e., Grades 1–3 or 4–6), total number of students in their class, and number of students needing special support in their class.

2.3. Analytical strategy

Descriptive statistics, t-tests, and regression analyses with interaction terms were performed in the R statistical platform (R Core Team, 2022). Gender and grade level were used as binary variables while work experience ranges were dummy coded for regression analyses. To answer RQ2, the regression model of all background variables with country

interaction term predicting teachers' stress were tested. To answer RQ3, the effects of support gained from colleagues and support gained from leaders on teachers' stress, with the country interaction term, were tested in two separate models. Background variables with no effect on teachers' stress were removed from these models.

3. Results

The results showed that teachers in Finland and Estonia experienced, on average, occupational stress occasionally during the COVID-19-related lockdown, and that teachers' stress levels were higher in the Finnish sample than in the Estonian sample (Tables 2; 3). The analyses regarding the effects of background variables on teachers' stress showed, first, that there was a significant relation between stress and gender as well as stress and class size (Table 3). Females reported higher levels of occupational stress than males, and larger numbers of students were found to be related to greater stress as well. Teachers' work experience and the grade level they taught were not found to be related to occupational stress. Interaction analyses indicated that none of these relations depended on the country. Third, the findings indicated that the relation between teachers' occupational stress and the percentage of students needing special support differed slightly between the Finnish and Estonian samples (Table 3). In the Finnish sample, when the number of students needing special support increased, teachers' stress decreased; in the Estonian sample, an increased number of students needing special support was related to increased stress.

With respect to the group-level resource of collegial support, the results showed, first, that teachers in both countries agreed quite highly, on average, that they received support from their colleagues (Table 2). The findings from the regression analysis indicated that the higher was the teachers' experience of support gained from their colleagues, the lower was their experience of occupational stress (Table 4; Figure 1). Second, the interaction analysis showed that the relation between occupational stress and experience of support from colleagues was similar in the Finnish and Estonian samples (Table 4; Figure 1).

With respect to the leader-level resources of supervisory support, the results showed, first, that teachers in Finland experienced significantly less support from their leaders than those in Estonia (Table 2). In addition, the regression analysis examining the relation between occupational stress and experience of support from a leader showed that the higher was the teachers' experience of support gained from their leader, the lower was their experience of occupational stress (Table 4; Figure 2). This relation was similar in both countries.

4. Discussion

The aim of the present study was to examine teachers' experiences of occupational stress in Finland and Estonia during the COVID-19-related lockdown, and whether the level of their stress would be related to their experiences of support gained from colleagues and leaders. The findings indicated that teachers in Finland and Estonia were somewhat stressed during the lockdown, yet teachers' stress was higher in the Finnish sample than in the Estonian sample. Moreover, the results showed that the higher the support teachers received from colleagues and leaders, the lower was the level of their occupational stress in both countries. The findings of this study are valuable for policy makers across nations for preparing for possible future crises and other unexpected changes that teachers are forced to face. The findings could also be utilized to provide more insight into how teachers' experience of occupational stress could be alleviated in their everyday work.

First, contrary to what was expected (Hypothesis 1) based on the TALIS survey conducted prior to the pandemic (OECD, 2020c), the results showed that Estonian teachers experienced less occupational stress than Finnish teachers during the lockdown. This finding could perhaps be explained by examining the results of the third research question concerning the support for the teachers. As described in the theoretical background, the existing literature has shown the positive relation between increased supervisory support and better occupational well-being (e.g., Skaalvik and Skaalvik, 2011; Jensen and Solheim, 2020). Therefore, Estonian teachers' lower levels of occupational stress could be explained by their higher experience of support received from leaders during the lockdown shown in the present study.

Another explanation with respect to the first hypothesis could be discussed based on prior literature regarding teachers' competences for using digital tools. For example, a study by Salmela-Aro et al. (2020) has shown that lower digital skills was one factor that was related to an increased risk for teachers' lower occupational well-being (i.e., lower work engagement and higher burnout) during the lockdown. According to OECD (2019, 2020c), both Finland and Estonia have emphasized the use of digital technology over the past years, and the number of teachers participating in professional training concerning information and communication technology (ICT) has increased in both countries. However, based on the TALIS survey (OECD, 2019), the percentage of teachers who felt prepared to use ICT was higher in Estonia than in Finland prior to the COVID-19 pandemic. While there are no comparative results concerning teachers' ICT skills in Finland and Estonia during the lockdown period, it is possible that the difference shown in the TALIS survey

TABLE 2 Country-based differences in teachers' stress and experience of gaining support from colleagues and leaders.

Variable	Country	Mean	SD	*t*-statistic	df	value of *p*
Occupational stress	Finland	2.97	1.00	3.80	719.76	<0.001
	Estonia	2.74	1.04			
Experience of gaining support from colleagues	Finland	4.32	0.97	1.08	898.58	0.278
	Estonia	4.26	0.79			
Experience of gaining support from leaders	Finland	3.41	0.99	11.61	614.59	<0.001
	Estonia	4.22	1.23			

Occupational stress: 1 (not at all) to 5 (constantly); Experience of gaining support from colleagues 1 (disagree) to 5 (agree); Experience of gaining support from leaders 1 (disagree) to 5 (agree).

TABLE 3 The effects of background variables on teachers' stress without and with country interaction terms.

	Without interaction terms			With interaction terms		
Variable	*B*	SE	value of *p*	*B*	SE	value of *p*
Country	0.25	0.07	<0.001	0.52	0.32	0.103
Gender	−0.43	0.10	<0.001	−0.49	0.14	0.001
Grade range	−0.04	0.06	0.485	−0.05	0.07	0.462
Class size	0.01	0.004	0.009	0.01	0.005	0.004
% of students needing special support	0.08	0.14	0.600	0.23	0.17	0.166
Work experience 6–10 y	0.13	0.11	0.215	0.15	0.14	0.282
Work experience 11–15 y	0.07	0.12	0.564	−0.08	0.15	0.591
Work experience 16–20	−0.03	0.10	0.746	−0.08	0.13	0.533
Work experience >20	−0.06	0.08	0.461	−0.12	0.10	0.208
Country X gender				0.09	0.20	0.652
Country X grade range				0.06	0.13	0.634
Country X class size				−0.01	0.01	0.210
Country X % of students needing special support				−0.69	0.34	0.042
Country X Work experience 6–10 y				0.02	0.22	0.933
Country X Work experience 11–15 y				0.38	0.23	0.104
Country X Work experience 16–20 y				0.13	0.22	0.553
Country X Work experience >20 y				0.21	0.17	0.216
R2	0.04			0.04		

B, unstandardized regression coefficient; SE, standard error. Gender was coded as Female = 0, Male = 1. Country was coded as Estonia = 0, Finland = 1. Grade range was coded as Grades 1–3 = 0, Grades 4–6 = 1. y, years.

TABLE 4 The effects of support from colleagues and support from leaders on teachers' stress.

Variable	Support from colleagues			Support from leaders		
	B	SE	value of *p*	*B*	SE	value of *p*
Country	0.24	0.33	0.456	0.09	0.22	0.676
Gender	−0.44	0.10	<0.001	−0.42	0.10	<0.001
Class size	0.01	0.004	0.009	0.01	0.004	0.011
% of students needing special support	0.22	0.16	0.169	0.24	0.16	0.134
Support from colleagues	−0.14	0.03	0.001			
Support from leader				−0.12	0.03	<0.001
Country X % of students needing special support	−0.46	0.29	0.112	−0.45	0.29	0.119
Country X support from colleagues	0.04	0.07	0.628			
Country X support from leader				0.06	0.05	0.265
R^2	0.05			0.05		

B, unstandardized regression coefficient; SE, standard error. Gender was coded as Female = 0, Male = 1. Country was coded as Estonia = 0, Finland = 1. Grade range was coded as Grades 1–3 = 0, Grades 4–6 = 1. y, years.

from a few years before the pandemic could have remained prevalent. If so, Estonian teachers would have perhaps felt more prepared to use ICT, as required by remote teaching. According to Vuorio et al. (2021), about half of Finnish teachers felt that their ICT skills were good enough for remote teaching during the pandemic, although ICT skills increased rapidly during the lockdown. A qualitative Estonian study by Lepp et al. (2021) concluded, in turn, that most of the teachers participating in their study felt that they possessed the tools and skills necessary to effectively conduct remote teaching. Therefore, it is possible that the present results, showing that Estonian teachers experienced less occupational stress than Finnish teachers during the lockdown, could be also somewhat related to the experience of being prepared to use ICT. This possibility should be considered when providing professional training for educators to be better prepared for future crises in society.

Second, the Hypothesis 2 regarding the relations between teachers' occupational stress and different background factors, was partially confirmed. In addition, some country-based differences became apparent. In line with the hypothesis, as well as previous literature showing that females have experienced higher levels of occupational

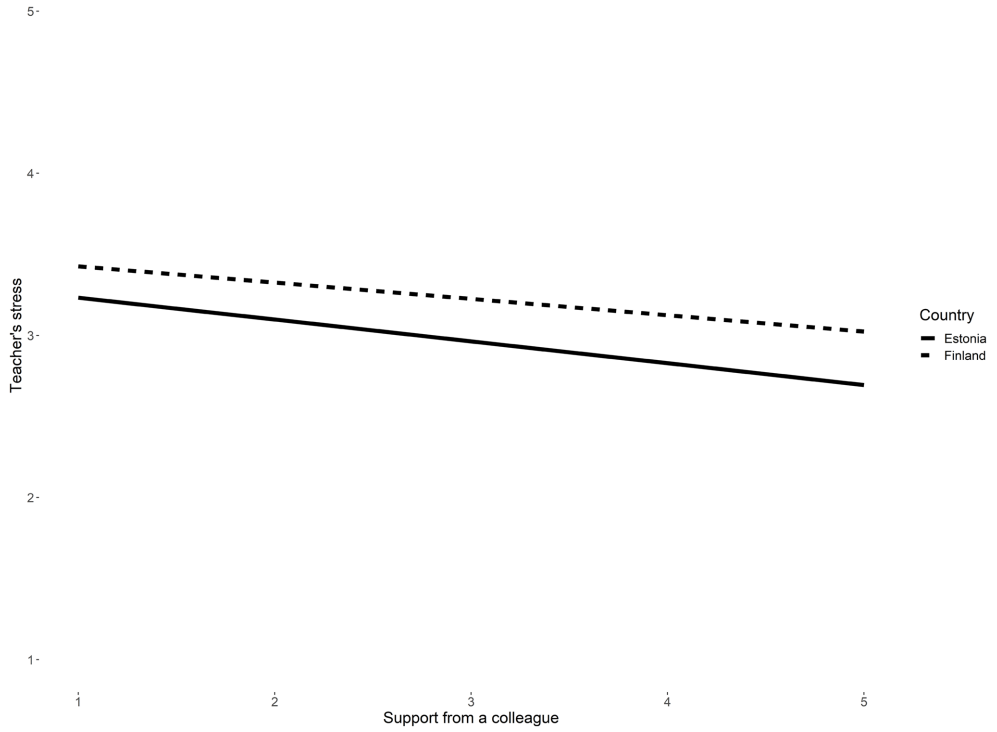

FIGURE 1
Relation between occupational stress and experience of gaining support from colleagues in Finland and Estonia.

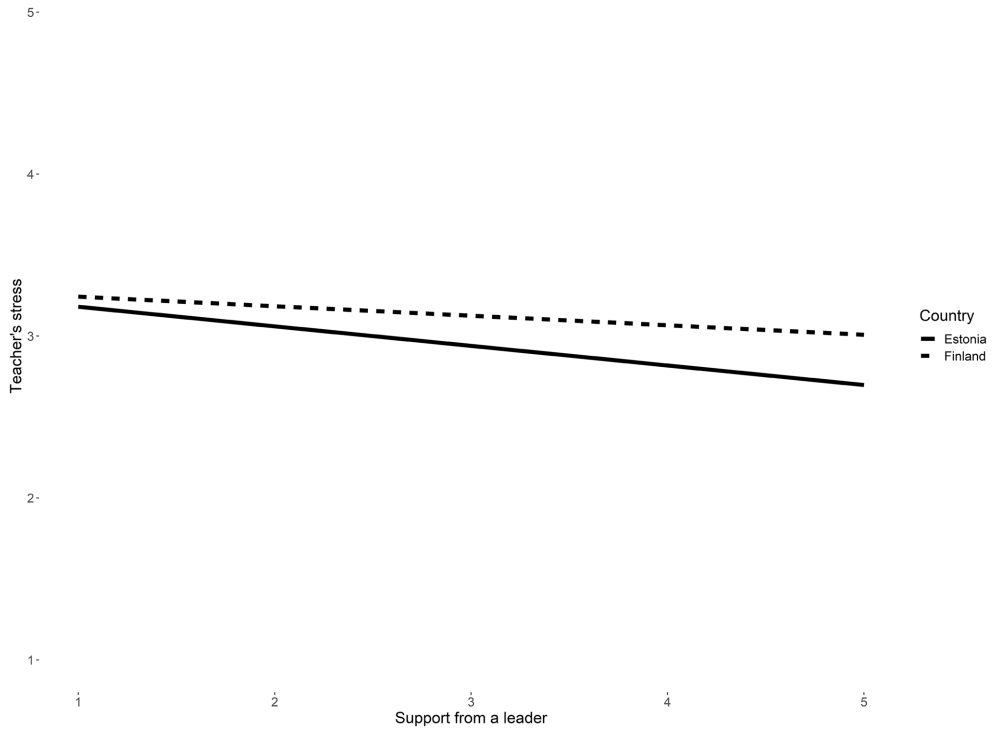

FIGURE 2
Relation between occupational stress and experience of gaining support from leader in Finland and Estonia.

stress prior to the pandemic (Klassen and Chiu, 2010), females reported higher levels of occupational stress than males in the present study. This is also in line with previous findings showing that male teachers had greater occupational well-being (i.e., higher work engagement and lower burnout) during the lockdown (Salmela-Aro et al., 2020).

In line with Hypothesis 2, as well as prior literature suggesting a bigger class size could be seen as a job-related stressor (Huang et al., 2022; Minihan et al., 2022), our findings showed that a greater number of students in the class was related to greater occupational stress in both countries. Based on prior studies (Hojo, 2021; Minihan et al., 2022), it is possible to argue that a greater number of students per class could be particularly straining for the teachers during lockdown. As with many other countries, Finnish and Estonian teachers utilized a combination of real-time teaching and individual assignments, along with focused feedback, during the lockdown (Tammets et al., 2021; Vuorio et al., 2021). According to Vuorio et al. (2021), teachers reported that their workload increased due to the extended amount of individual feedback that they had to give during the lockdown. Thus, it can be assumed that the number of students in a class is related to their workload, which, in turn, could potentially increase their occupational stress.

Generally, the present findings showing the relation between a greater number of students and increased occupational stress, as well as prior findings showing bigger class size as a job-related stressor, are troubling in the light of teachers' occupational well-being. This concern is present with respect to exceptional working conditions and beyond. While it is known that reducing the number of students in the classroom would be beneficial, such solution might not be possible for practical reasons, such as financial restrictions or decreasing age groups, in many countries. Currently, classes in Finland and Estonia are smaller than average as compared to other OECD countries (OECD, 2021). Yet, more research should be directed toward identifying ways in which students' independent learning strategies and self-regulation of their studies could be supported. Such skills could be beneficial for both teachers and students when studying either in school or at distance (Zimmerman, 2008; Veenman, 2011; Hong et al., 2021; Pelikan et al., 2021).

Contrary to what was expected (Hypothesis 2), the present findings showed that teachers' experience of occupational stress was not related to their work experience nor the grade level they taught in either of the countries. Research conducted before the pandemic has shown that less work experience is related to higher levels of stress (Klassen and Chiu, 2011), and that working with older students is related to lower levels of occupational well-being (Saloviita and Pakarinen, 2021). However, based on the present findings, it seems that teachers across the borders faced such novel challenges with the distance teaching that their work experience was not able to provide protection against occupational stress. This view is also supported by recent results by Collie (2021), which showed that work experience was not related to teachers' experiences of either stress or emotional exhaustion during the lockdown. Therefore, there is an evident need for more research focusing on the causes of work-related stress during the pandemic to find ways to handle these kinds of situations in the future.

In contrast to what was expected (Hypothesis 2) based on previous studies showing the relation between an increasing number of students needing special support and decreasing occupational well-being (Saloviita and Pakarinen, 2021), percentage of students needing special support was not found to be related to teachers' occupational stress when examining the whole sample of the study. However, somewhat surprisingly, the results showed a relatively interesting country difference: in the Finnish sample, the higher number of students needing special support was significantly related to lower levels of occupational stress while in the Estonian sample, a higher number of students needing special support was significantly related to higher occupational stress. Unexpectedly, the finding for Finnish teachers was in direct opposition to evidence regarding teachers' occupational well-being prior to the pandemic (Saloviita and Pakarinen, 2021). Therefore, it may be assumed that the present finding is related to an exceptional situation due to the lockdown.

One potential explanation for this country-based difference could be the practicalities of how teaching was conducted during the lockdown. In Finland, while studying at home was strongly recommended for all students, studying at school was an option for both students with intensified support needs and first through third graders who were not able to study at home (Finnish Government, 2020a,b). Therefore, given the greater number of students needing special support, Finnish teachers were perhaps also faced with enhanced possibilities, for example, for sharing the responsibility of teaching certain students with other teachers or teaching certain students in a small group at school while the rest of the class studied at home. In Estonia, government guidelines sent all students to study at home during the first lockdown (Estonian Government, 2020) which, in turn, might have resulted in increased occupational stress for teachers when the number of students needing special support was larger. This unexpected finding is important from the perspective of teachers' experience of occupational stress during exceptional times as it can be used to ponder whether it would be beneficial to allow certain students to study at school, even during lockdowns.

Finally, the third research question of this study focused on the extent to which teachers' experiences of occupational stress are related to either the group-level resource of collegial support or the leader-level resource of supervisory support. The literature from before the pandemic showed that greater support from colleagues and/or leaders is related to, for example, lower rates of exhaustion and burnout and greater self-efficacy and work engagement (e.g., Hakanen et al., 2006; Skaalvik and Skaalvik, 2011; Bermejo-Toro et al., 2016; Skaalvik and Skaalvik, 2018; Jensen and Solheim, 2020). Similar findings have been seen during the COVID-19 pandemic as well (Baker et al., 2021; Collie, 2021; Pöysä et al., 2022). However, while prior literature indicates that such resources should be considered important for teachers' occupational well-being, the relations between either collegial support or supervisory support and occupational stress have not been widely examined. That is regrettable, as it can be argued that it would be ideal that teachers could receive support for their occupational stress before it evolves into emotional exhaustion or burnout.

As was expected (Hypothesis 3), the results showed that the greater the level of support that teachers received from their colleagues or leaders, the lower their experience of occupational stress. This is an important finding as it highlights the notion that a group-level resource of collegial support and a leader-level resource of supervisory support are important job-related resources that can potentially reduce or prevent teachers' occupational stress when facing challenges with work. Perhaps such resources could be the focus when aiming to obviate experiences of stress during the exceptional times and beyond.

While the relation between receiving collegial and supervisory support and occupational stress were similar in both countries, the results also revealed that teachers in Finland experienced less support from their leaders than teachers in Estonia. Such a difference was somewhat surprising as the educational contexts and consequences of the COVID-19 pandemic were rather similar in the two countries.

However, according to the TALIS survey that was conducted in OECD countries prior to the COVID-19 pandemic, teachers in Estonia were formally appraised significantly more than teachers in Finland (OECD, 2020c). In addition, the TALIS report shows that Estonian teachers received more feedback, which had a positive impact on their teaching practices (OECD, 2020c). Therefore, it can be assumed that Estonian teachers might have also received more feedback during the lockdown, which, in turn, may have made them feel more supported. Based on recent findings, new practices to enhance teachers' collegiality and mutual support, such as established communication and collaboration platforms, were experienced and tried out during the pandemic, and principals sought ways to provide emotional support for teachers in changed settings (Ahtiainen et al., 2022). However, more studies are needed to examine the role of both feedback and collegial support on teachers' occupational stress levels both during the lockdown and in everyday practice.

4.1. Theoretical and practical implications

The findings of this study lead to substantial theoretical and practical implications. As a theoretical contribution, this study provides evidence of teachers' experiences of occupational stress in two countries with rather similar educational contexts. In addition, the findings enhanced the understanding of factors related to teachers' experiences of stress during the COVID-19 pandemic. This kind of knowledge is central, as it can be theoretically argued that a sense of stress comes before experiences of exhaustion or burnout. Thus, finding ways that may prevent the sense of stress from evolving into more serious risks for occupational well-being is crucial.

Second, the findings of this study provide several practical implications for teachers and supervisors in schools as well as policy makers. This study highlights the importance of providing support for teachers during exceptional times such as lockdowns. Policy makers should consider, for instance, how they could provide additional professional training for teachers in order to be more prepared if similar kind of lockdowns would occur in future. In addition, they should consider whether some students should study at school despite national lockdowns.

From the perspective of teachers and supervisors, the findings showing the importance of the group-level resource of collegial support and the leader-level resource of supervisory support can be seen to lead into the most valuable practical implications. Based on the findings it can be argued that the sense of receiving adequate support is crucial for lowering teachers' occupational stress. Thus, recognizing the power of collegial and supervisory support should guide the ways in which teachers collaborate with each other and with their leaders on a day-to-day basis. Collegial trust could be increased, for instance, via constructive collaboration and supportive interaction in everyday practice. Overall, the results of our study could be used to suggest that teachers should believe that they can ask for and receive help from their colleagues or leaders if needed.

4.2. Limitations and future directions

This study has some limitations. First, while the educational contexts and national restrictions, as well as severity of the COVID-19 pandemic, were rather similar in Finland and Estonia during the lockdown, they were not identical. In addition, there are always some country-specific differences due to evolving situations in the societal and educational sectors. Thus, it is possible that there are some country-based features, such as the number of COVID-19 cases in the area in each country, that may partially explain the results. Second, it should be noted that single items were used to measure teachers' occupational stress and their experiences of receiving support. Usage of single items is suggested in larger data collection batteries mostly to lessening the participants' burden (Sebastian et al., 2023). As single-items are time- and cost-efficient way of measuring certain aspects of occupational well-being, those are also widely used in research focusing on teachers' occupational well-being (Elo et al., 2003; Eddy et al., 2019; Sebastian et al., 2023). When planning the present study, researchers relied on the suggestions from the pragmatic measurement framework to ensure that the items involved in the analyses were as unambiguous, comparable between both countries, and maximally informative as possible (Kosovich et al., 2019). However, while the reliability and validity of the used instruments were seen as actualized in the present study, caution is warranted when comparing the findings with the previous studies using broader measures of occupational well-being. Thus, in future studies, broader scales could be used to capture teachers' experiences of stress and support in more nuanced manner.

4.3. Conclusion

The findings of the present study compliment the teachers, researchers, and policy makers across nations in different ways. The findings provide information on teachers' occupational stress during the lockdown due to the COVID-19 pandemic. Such knowledge is important when preparing for possible future crises and emergent situations in which teachers will face unexpected changes in their work. Endorsing teachers' occupational well-being and finding ways to diminish their occupational stress is essential as their occupational well-being affects both themselves and their students. Moreover, due to the two-country setting, the findings highlight the notion that these matters should be considered in different settings.

Data availability statement

The datasets presented in this article are not readily available because of the ongoing research. Requests to access the datasets should be directed to SP, sanni.poysa@jyu.fi (Finnish data set); KT, kairit@tlu.ee (Estonian data set).

Ethics statement

The studies involving humans were approved by the University of Jyväskylä and Tallinn University. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required from the participants or the participants' legal guardians/next of kin

because only electronic agreements to confirm the voluntary and anonymous participation were requested based on national and institutional requirements.

Author contributions

SP, A-LJ, KT, EE, EP, and M-KL contributed jointly to the conception and design of the present manuscript. A-LJ, SP, and KT organized the database. A-LJ performed the statistical analyses. The Finnish data were collected under project lead by M-KL, and the Estonian data were collected under project lead by KT. SP wrote the first draft of the manuscript and she functioned as a corresponding author. A-LJ, KT, EE, EP, and M-KL wrote the sections of the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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