School climate as a predictor of teacher job satisfaction and occupational well-being: TALIS 2018 evidence from Central and Eastern Europe

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Abstract

Building on evidence that contextual factors shape teacher outcomes, this study analysed TALIS 2018 data from six Central and Eastern European countries to compare the relative influence of school climate and socioeconomic status (SES) on teacher job satisfaction and occupational well-being. Multigroup structural equation models revealed that school climate—particularly distributed leadership, measured by stakeholders' (staff, students, and parents) participation in decision-making—explained substantially more variance in both satisfaction and well-being than an aggregate school SES measure. Positive teacher––student relationships also contributed to higher satisfaction, whereas elevated work-related stress—most strongly predicted by a negative disciplinary climate and, unexpectedly, by weaker stakeholder participation—served as the primary detractor. Although higher SES schools showed a modest direct boost in teacher satisfaction, SES was unrelated to stress levels or climate quality. Cross-country comparisons indicated that the strength of these associations, especially for distributed leadership, varied markedly by national context. These findings suggest that participatory governance, strengthening classroom relationships, and targeting disciplinary supports may enhance teacher well-being.

Keywords: **School climate, teacher job satisfaction, TALIS 2018, school socioeconomic status, structural equation modelling.**

Klimat szkoły jako czynnik przewidujący satysfakcję zawodową i dobrostan zawodowy nauczycieli: Analiza danych z badania TALIS 2018 z Europy Środkowo-Wschodniej

Streszczenie

W oparciu o wyniki badań wskazujące na związek między czynnikami kontekstowymi a funkcjonowaniem zawodowym nauczycieli przeanalizowano dane z badania TALIS 2018 z sześciu krajów Europy Środkowej i Wschodniej w celu porównania względnego wpływu klimatu szkoły i statusu społeczno-ekonomicznego (SES) szkoły na satysfakcję z pracy i dobrostan zawodowy nauczycieli. Wielogrupowe modele równań strukturalnych wykazały, że klimat szkoły – w szczególności rozproszone przywództwo, mierzone udziałem interesariuszy (pracowników szkoły, uczniów i rodziców) w podejmowaniu decyzji w szkole – wyjaśniał znacznie większą wariancję zarówno satysfakcji z pracy, jak i dobrostanu zawodowego nauczycieli niż zagregowana miara SES szkoły. Pozytywne relacje nauczyciel – uczeń również były związane z wyższą satysfakcją zawodową nauczycieli. Jednocześnie podwyższony stres związany z pracą — najsilniej przewidywany przez elementy klimatu szkoły związane z utrzymaniem dyscypliny w klasie oraz, nieoczekiwanie, przez niższy udział interesariuszy w podejmowaniu decyzji w szkole — okazał się głównym czynnikiem obniżającym satysfakcję zawodową nauczycieli. Mimo że nauczyciele pracujący w szkołach o wyższym statusie społeczno-ekonomicznym wykazywali nieznacznie wyższy poziom satysfakcji zawodowej, SES szkoły nie był powiązany z poziomem stresu ani jakością klimatu w szkole. Porównania między krajami wykazały, że siła tych związków, zwłaszcza w przypadku rozproszonego przywództwa, różniła się znacznie w zależności od kontekstu krajowego. Wyniki te sugerują, że zarządzanie partycypacyjne, wzmacnianie relacji w klasie i wsparcie w zarządzaniu zachowaniem uczniów mogą pozytywnie wpływać na dobrostan zawodowy nauczycieli.

Słowa kluczowe: **Klimat szkoły, satysfakcja zawodowa nauczycieli, TALIS 2018, status społeczno--ekonomiczny szkoły, modelowanie równań strukturalnych.**

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1. INTRODUCTION

Teacher shortages are one of the most urgent issues that educational systems are facing; the problem affects a variety of countries, regardless of economic resources or geographical location (UNESCO and International Task Force on Teachers for Education 2030, 2024). In Europe, the scale of teacher shortages is projected only to worsen in the coming years (Organisation for Economic Cooperation and Development [OECD], 2020). These shortages disrupt educational systems by impacting students' learning environments and quality of education. Schools face financial costs to recruit new teachers (Levy et al., 2012; Ronfeldt et al., 2013) while also dealing with cancelled lessons, larger classes, and increased teacher workloads (European Commission/EACEA/Eurydice, 2021). The latest PISA report (OECD, 2024) highlights the widespread severity of this issue. From 2018 to 2022, the proportion of students in schools where the principal indicated that instruction was hindered by insufficient teaching personnel rose in 58 educational systems. These increases surpassed 30 percentage points in 10 countries, with many nations seeing the proportion of schools facing teaching staff shortages doubling or tripling.

These statistics highlight the need to investigate teacher attrition, a key cause of teacher shortages, with low teacher job satisfaction being a major determinant (Borman & Dowling, 2008; Ingersol, 2001; Nguyen et al., 2019; Wyatt & O'Neill, 2021). A study by Federičová (2021) indicated that the main driver for approximately half of the teachers leaving the profession was a lack of satisfaction with their school. To a large extent, this occupational dissatisfaction can originate in various elements of the environment in which teachers work, and only to a limited extent with dissatisfying salaries (Borman & Dowling, 2008).

The situation of teachers in schools with a higher concentration of socioeconomically disadvantaged students merits particular attention since these schools are at a higher risk of teacher turnover (teachers moving to other schools) and attrition (teachers leaving the profession) than other schools (Ingersoll, 2001). In a longer perspective, this leads to an uneven distribution of qualified teachers (OECD, 2024; Qin & Bowen, 2019), as disadvantaged schools face considerable difficulties attracting and retaining qualified teachers (Glassow et al., 2023).

Therefore, understanding which school-level factors most influence teacher job satisfaction and occupational well-being is critical to improving retention and mitigating chronic shortages. Drawing on TALIS 2018 data from six countries in the under-researched region of Central and Eastern Europe, this study compares the relative impact of key school-climate dimensions—especially distributed leadership (stakeholder participation in decision-making) and teacher–student relationships—and

school socioeconomic status (SES), an environmental determinant of social climate (Toropova et al., 2020). By providing context-specific evidence on how these elements drive teacher outcomes in diverse post-socialist settings (Veletić et al., 2024), we highlight the contextual dynamics of teacher experiences in these educational systems.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Teacher job satisfaction

Teacher job satisfaction is a pivotal concept in understanding teacher retention and well-being, which are critical for maintaining educational quality. Job satisfaction is the degree of contentment a person has with their job, while dissatisfaction is the degree of discontentment (Spector, 1997). By extension, TALIS 2018 defines teacher job satisfaction as 'the sense of fulfilment and gratification that teachers experience through their work as a teacher' (Ainley & Carstens, 2018, p. 43). Since job satisfaction is a multifaceted concept, a teacher's overall satisfaction is influenced by their feelings towards various distinct aspects or components of their work. Understanding these different facets is crucial because various factors, such as those relating to school climate and student composition, may impact them differently. This section reviews key theoretical perspectives on teacher job satisfaction and synthesises empirical findings regarding its components and their relationship with contextual factors, setting the stage for the present study's analysis.

Research shows that teachers' personal qualities and mindset influence job satisfaction. Studies reveal two key insights: First, teachers who feel more confident in their teaching abilities tend to be more satisfied with their jobs (Skaalvik & Skaalvik, 2017). Second, a positive school environment can boost teachers' confidence, which then leads to greater job satisfaction (Aldridge & Fraser, 2016).

As for situational factors associated with teacher job satisfaction, evidence shows that working conditions are a major predictor of teacher job satisfaction regarding their current school as well as their profession in general. Prominent positive environmental contributors are collaboration with colleagues, teacher-student relations, school climate (Zakariya, 2020), and leadership practices (Sun & Xia, 2018). Distributed leadership, where teachers have a say in decision-making processes, enhances their feelings of empowerment and engagement (Torres, 2019). A positive disciplinary climate and fewer instances of students' misbehaviour also contribute positively to teacher job satisfaction (OECD, 2020).

Conversely, a heavy workload, an imbalance between tasks directly relating to teaching and administrative responsibilities, student misbehaviour, and insufficient administrative support undermine occupational well-being and job satisfaction (Aldrup et al., 2018; Collie et al., 2012; Federicova, 2021). The most important negative antecedent of teacher job satisfaction is stress.

Apart from school-level factors, institutional factors are significant antecedents of teacher job satisfaction. These typically include the broader characteristics of educational systems and policies that govern the teaching profession in a given country. These system-level influences include resource allocation, teacher autonomy, and job security (Federicova, 2021; Ingersoll, 2001).

2.2 Teacher occupational well-being and stress

In addition to job satisfaction, teacher occupational workplace well-being is recognized as another critical concept important to understand teacher effectiveness, resilience, and retention. Well-being is a wide, multidimensional construct, covering various outcomes, including psychological resilience, physical health, emotional stability or organisational commitment (Dodge et al., 2012; Granziera et al., 2020). Historically, the literature on teacher occupational well-being has often focused on stress and its negative consequences, such as burnout, which significantly contribute to retention challenges in the profession (Roffey, 2012). However, influenced by the growing field of positive psychology, the perspective has broadened to examine proactive strategies and factors that actively nurture teacher well-being, moving beyond simply addressing deficiencies (Weiland, 2021). This section will review the diverse conceptualisations of teacher well-being and stress and explore the key individual and environmental factors identified in the literature that influence them both.

The occupational well-being of teachers is significantly shaped by their working conditions, with a positive school climate playing a critical role. Factors such as a strong sense of community, collegial support and cooperation among teachers, and constructive feedback on teachers' work are linked to higher levels of teacher occupational well-being (Zakariya, 2020). Beltman, Mansfield, and Price (2011) emphasise that mentoring and collegial networks are important forms of external support, which together with teacher's personal resources form the foundations for teacher resilience, enabling teachers to manage their work stressors. Moreover, a positive teacher-student relationship is a crucial factor in promoting teacher occupational well-being. Teachers who report strong, positive relationships with their students tend to experience less occupational stress and greater job satisfaction (Aldrup et al., 2018).

Research has consistently mapped stress as the major negative contributor to teachers' occupational well-being. Teacher work-related stress refers to the negative physical and psychological responses that occur when job demands surpass a teacher's perceived coping capabilities (Kyriacou, 2001). Teaching is widely recognised as a stressful profession (Gu & Day, 2007), given the intensive term-time workload, which aggravates stress levels and disrupts work-life balance (Worth and Van

Den Brande, 2019). High levels of occupational stress lead to burnout, emotional exhaustion, and reduced satisfaction with the teaching profession, which can ultimately result in attrition (Skaalvik & Skaalvik, 2016). Skaalvik and Skaalvik (2015) identified seven categories of job-related stressors for teachers: disruptive student behaviour, workload and time constraints, student diversity and adapting instruction to students' needs, lack of autonomy, lack of shared aims and ideals, teacher collaboration challenges, and lack of job prestige.

2.3 School population composition and its relation to teacher job satisfaction and occupational well-being

Schools with a higher concentration of students from low-SES backgrounds[1] often face significant challenges, which not only negatively impact students' educational attainment but also shape the overall learning environment. Such schools, referred to as low-SES/low-income/challenging/(socially) disadvantaged/high-need schools, are more likely than other schools to have, among others, limited access to resources, increased student behavioural issues and absenteeism, limited parental involvement, limited administrative support, and limited professional development opportunities for teachers (Johnson et al., 2012; McKinney, 2007; Ouwehand et al., 2022; Smith & Granja, 2017; Sullivan et al., 2018).

The stressors present in challenging schools negatively impact teachers' job satisfaction and well-being, creating a cycle of stress that can affect teacher retention (Toropova et al., 2020). Adverse working conditions in low-SES schools may foster feelings of isolation and overload resulting in heightened teacher turnover (Allensworth et al., 2009). Also, inadequate support structures and high workloads can act as factors contributing to high attrition rates in urban, high-poverty schools (McKinney et al., 2008).

2.4 Dimensions of school climate and their relation to teachers' job satisfaction and occupational well-being

Generally, school climate is a set of shared perceptions of a school's norms, values, and expectations shaping the experiences and interactions between school community members (Wang & Degol, 2016). Its systematic investigations date back to the 1950s (Cohen et al., 2009). Early research focused on 'school atmosphere' or 'school personality' and how a school's culture is shaped by the leadership styles and interpersonal relations between teachers (Halpin & Croft, 1963). The construct has been subsequently growing in scope and complexity, intersecting with organisational climate research and school effects research (Anderson, 1982). In the early 21st century, with the emergence of concepts of inclusivity and emotional safety in schools, the conceptualisations of school climate also began to reflect the importance of inclusivity, diversity, students' emotional safety, sense of belonging, and their links to students' well-being (Brand et al., 2003) or academic achievement (Cohen et al., 2009) as elements of school climate.

Johnson, Stevens, and Zvoch (2007), in their conceptualisation of school climate, included a broad area of student relations, which encompassed students' behavioural issues, teacher-student relations, and motivation to learn. In addition to the above-mentioned relational dimension of school climate, and to commonly examined components such as collaboration and school resources, Johnson and colleagues highlighted additional facets of school culture, including decision-making processes and instructional innovation. Currently, although most researchers agree that there are four primary areas that clearly influence the overall atmosphere and nature of school life, i.e., safety, relationships, teaching and learning (the academic layer), and the institutional environment (National School Climate Center, 2017), there is no single list of elements that shapes each of these.

Selected elements of school climate will be further discussed below: teacher-student relationships, disciplinary climate, collective teacher innovativeness, and stakeholders' involvement in school decisions (teacher-perceived distributed leadership). Following the conceptual framework for TALIS 2018, these particular factors were used in the present study as indicators of the broader concept of school climate.

2.4.1 School disciplinary climate

Research consistently underscores that adverse working conditions are related to elevated stress levels among teachers. The two most often quoted school climate-related sources of stress are students' misbehaviour and workload. Classroom indiscipline was identified by Simón and Alonso-Tapia (2016) as a significant challenge for teachers and an important contributor to teacher occupational stress and wasted classroom time. In a recent study of teachers in five selected Asian countries, Nalipay (2023) found school disciplinary climate to be one of the best predictors of Asian teachers' occupational stress.

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[1] Researchers typically measure SES either at the individual student level (using parental income, education, occupation, or home resources like books and computers) or at aggregate levels. School SES is commonly measured by the percentage of students eligible for subsidized lunches or other available indicators, while neighbourhood SES uses census or administrative data, e.g., on residents' educational attainment (Sirin, 2005). Indicators of this kind are, unfortunately, missing in TALIS data.

In their study of preservice teachers, Klassen et al. (2013) showed that students' behaviour and workload were important sources of teacher occupational stress, which in turn had a negative effect on teachers' commitment to continue teaching. There is some evidence that students' misbehaviour may predict not only the intention to leave teaching (Skaalvik & Skaalvik, 2016) but also actually leaving the profession (Amitai & Van Houtte, 2022).

Indiscipline is also associated with a drop in job satisfaction (Toropova et al., 2020). According to Aloe, Shisler, Norris, Nickerson, and Rinker (2014), students' misbehaviour was most consistently linked not only to lower job satisfaction (Zakariya, 2020), but also to emotional exhaustion, which is a core dimension of burnout. A poor classroom disciplinary climate, which absorbs teachers' time and energy, has long been recognised as elevating the risk of teacher burnout (Lewis et al., 2005).

At the other end of the scale are schools with established disciplinary procedures. Teachers employed in them report lower levels of occupational stress and higher levels of job satisfaction since such procedures lessen disruptions in the classroom, which improves overall job satisfaction for teachers and the teaching experience for students (Emmer & Evertson, 2016).

2.4.2 Teacher-student relationships

Multiple studies showed the significant role teacher-student relations play in shaping teachers' experiences of both job satisfaction and occupational stress. In two recent studies, Nalipay (2023) and O'Shea (2021) showed that teacher-student relations were a significant predictor of teachers' job satisfaction in Asia (Japan, South Korea, Shanghai, Singapore, and Taipei) and the United States, respectively. Also, Collie et al. (2012) established that supportive relationships and effective social-emotional learning, which constitute a positive school climate, were strong predictors of enhanced teacher commitment and job satisfaction.

The beneficial effects of positive teacher-student interactions are also more far-reaching. O'Connor (2008) found that such relationships are one of the primary reasons teachers remain in the profession. The connection is additionally corroborated by Veldman, van Tartwijk, Brekelmans, and Wubbels (2013), who investigated four senior teachers whose job satisfaction remained high. Teachers who had strong, positive relationships with students also reported higher levels of job satisfaction, even if students perceived the very same relationship less positively.

Research consistently highlights the negative impact of classroom misbehaviour on teacher-student relationships. Friedman (2006) found that persistent misbehaviour created stressful classroom environments, harming these relationships and negatively affecting teachers' professional satisfaction and occupational well-being, heightening the risk of emotional exhaustion and burnout. Spilt, Koomen, and Thijs (2011) stated that teachers' emotional investment in their relationships with students was closely tied to their professional identity, with frequent disruptions eroding the personal bonds between teachers and students. On the other hand, Aldrup et al. (2018) found that positive teacher-student relationships help teachers handle discipline problems more effectively, with the quality of these relations mediating the effect of students' misbehaviour on teacher occupational stress. Conversely, strains and conflict in teacher-student relationships may intensify behavioural challenges (Buyse, Verschueren, Doumen, van Damme, and Maes, 2008).

2.4.3 Teacher collective openness to innovation

In the rapidly developing world, schools are no longer expected to equip students only with foundational skills, like reading or mathematics, but also a broader set of complex skills. Innovation is frequently highlighted in this context, together with such skills as creativity, problem-solving, critical thinking, or digital literacy (OECD, 2015). As a result, fostering sustained innovation at the school level has become essential (Fullan, 2015).

Teachers are regarded as primary drivers of educational innovation, shaping the classroom and school environments (OECD, 2014) if they are receptive, open, and fully willing to embrace change (Fullan, 2015). Though teachers' personal inclination towards innovation plays an important role in fostering innovation in teaching practices, there is also an organisational angle to openness to innovation, influencing the initiation, maintenance, and spread of innovations at the school level (Schwabsky et al., 2020). In this sense, it encompasses the shared innovativeness within the groups of teachers, e.g., all teachers in a given school—how strongly they feel they share openness to new ideas and approaches (Anderson and West, 1998). This collective innovativeness is an essential aspect of a school climate supporting innovation.

Some school contexts are more open to innovation than others. An innovation-friendly school climate is characterised by supportive conditions, which reduce occupational stress and increase teacher engagement (Ainley & Carstens, 2018). In a systematic literature review, Zainal and Matore (2019) concluded that whereas teachers' innovative behaviour was shaped by multiple factors, there were two critical ones: leadership and teacher's self-efficacy. As for effective leadership styles, the study by Spillane, Halverson, and Diamond (2004) showed that distributed leadership fosters teachers' innovative practices by promoting shared responsibility and collective participation, thus creating a supportive climate that encourages collaboration among various stakeholders. Teacher cooperation and collaboration are viewed as instrumental in encouraging innovativeness. Nguyen et al. (2019) found that collaborative school culture had a greater impact on teacher innovation than individual autonomy.

2.4.4 Stakeholders' involvement in school decisions

Yet another element of school climate that affects teachers and their professional performance via the influence of the environment is school leadership. Among different leadership styles, distributed leadership is the focus of many studies. This approach decentralises decision-making, allowing teachers and other stakeholders (parents, students) to actively participate in school decisions.

There is accumulating evidence of a direct and positive relationship between distributed leadership and teachers' job satisfaction. It is often attributed to the fact that this type of leadership is associated with a collaborative school culture characterised by mutual support and the culture of shared responsibility (Diagne, 2023; Sun & Xia, 2018). Indeed, Torres (2019) argued that distributed leadership increased both teacher job satisfaction and professional collaboration. Also, Liu and Watson (2020) found a positive association between teachers' perception of their involvement in decision-making and three teacher-related variables: job satisfaction, professional collaboration, and organisational commitment.

Distributed leadership is also positively associated with teacher occupational well-being. Bellibaş, Gümüş, and Chen (2023) concluded that decentralised decision-making within the school community supports teacher professional commitment. Establishing a culture of collaboration and shared responsibility in school operations helps create a less stressful work environment, improving teachers' occupational mental and physical well-being, and reinforcing their professional engagement. Additionally, Liu, Qiang, and Kang (2023) found that distributed leadership can indirectly and positively influence occupational well-being through teacher self-efficacy.

3. THE PRESENT STUDY

The present study aims to determine which aspects of school climate are most important to teacher job satisfaction and occupational well-being. This study re-analyses data from the last cycle of the Teaching and Learning International Survey (TALIS) in 2018. TALIS remains the only large-scale, publicly accessible dataset containing nationally representative teacher data on the constructs that are investigated in this study.

Our study focuses on six selected Central and Eastern European countries: Bulgaria, Croatia, Estonia, Hungary, Lithuania, and Romania. This group of historically and geographically related countries was rather under-represented in the previous secondary TALIS 2018 analyses (Veletić et al., 2024). Moreover, we expand upon the previous TALIS 2018 analyses of school climate (e.g., Fayda-Kinik, 2023; Kang, 2023; Katsantonis, 2020; Nalipay, 2023; Veletić et al., 2023; Zhang et al., 2021; Zhao & Jin, 2023) by adding the aspect of the school's socioeconomic characteristics. Specifically, we explore whether and how teachers in schools with varying proportions of students from socioeconomically disadvantaged homes exhibit different patterns of job satisfaction, given that school composition shapes school climate and is a significant environmental factor in teacher job satisfaction (Toropova et al., 2002).

Based on the theoretical frameworks and existing evidence discussed above, the current investigation is guided by four hypotheses:

H1 School climate influences teachers' job satisfaction and occupational well-being and stress.
H2 Teacher occupational well-being and stress mediate the relation between school climate characteristics and teacher job satisfaction.
H3 Higher school socioeconomic status (SES) is related to higher teacher job satisfaction, higher teacher occupational well-being/lower stress, and positive school climate.
H4 Direct and indirect effects of school climate on teacher job satisfaction, and teacher occupational well-being and stress vary across different countries.

4. METHODS

4.1 Data source

This study used data from the Teaching and Learning International Survey (TALIS) 2018. TALIS is a large-scale survey conducted by the Organisation for Economic Cooperation and Development (OECD). It monitors trends in teaching quality by gathering data from representative samples of teachers and principals in numerous countries every five years since 2008. Since its first cycle, the core TALIS population has comprised teachers and school leaders from lower secondary schools (level 2 of the International Standard Classification of Education - ISCED 2) with each participating country/economy administering the survey at this level of education in every TALIS cycle. TALIS 2018 also offered the possibility of conducting the survey at the ISCED 1 and/or ISCED 3 level, as well as the TALIS-PISA link study, in which TALIS was administered

in the same schools as the Programme for International Student Assessment (PISA) 2018. Another survey module was TALIS Starting Strong 2018 focusing on Early Childhood Education and Care staff and centre leaders.

TALIS 2018 respondents completed self-administered paper or online questionnaires providing insights into, among other things, their teaching practices, work conditions, professional development, school environments, attitudes, motivation, and job satisfaction. A total of 48 countries/economies participated in the TALIS 2018 round. The comparability of collected data was ensured by standardised procedures at all stages of the survey, such as sample design, instrument preparation and translation, data collection, data processing, weighting and scaling (OECD, 2019).

TALIS 2018 employed a stratified two-stage probability sampling design. Implicit strata were used for all participating countries/economies and explicit strata were optional. Explicit strata were usually based on school characteristics such as location or source of financing and were determined in cooperation between the international sampling team and each participating country/economy. Within explicit strata, schools were sorted by a measure of size, typically the number of teachers per school. For each participating country/economy, in the first stage, a sample of schools was selected with probability proportional to school size within strata determined at the national level. In the second stage, a sample of teachers was selected in each participating school. The minimum required national sample size was 200 schools, with 20 teachers selected in each school. The TALIS data consist of survey responses provided by teachers from participating schools as well as obtained from the principals of these schools. To be included in the TALIS 2018 international dataset, at least 50% of teachers within each selected school had to participate in the survey. The Public Use Files for each cycle of TALIS are made available and can be accessed on the OECD website along with detailed documentation on the survey procedures, sampling and data quality, as reported in the Technical Report for TALIS 2018 (OECD, 2019).

4.2 Sample

This study used data from ISCED 2 (International Standard Classification of Education level 2—lower secondary education) teachers from six Central and Eastern European countries: Bulgaria (n = 2862), Croatia (n = 3358), Estonia (n = 3004), Hungary (n = 3245), Lithuania (n = 3759), and Romania (n = 3658). The sociodemographic and occupational characteristics of participants are presented in Table 1. The majority of teachers were women (from 73.0% in Romania to 84.9% in Lithuania), and graduates from a regular teacher education or training programme (from 71.4% in Romania to 87.6% in Hungary). In four out of six countries, the largest age group of teachers was 50- to 59-year-olds (from 31.8% of teachers in Estonia to 40.6% of teachers in Lithuania). In Croatia, the largest age group was teachers aged 30–39 (38.4% of teachers), and in Romania – teachers aged 40–49 (34.2% of teachers).

Table 1 *Sample characteristics by percentages with standard errors (SE) and means with standard deviations (SD)*

	BGR	HRV	EST	HUN	LTU	ROU
n	2862	3358	3004	3245	3759	3658
% of female teachers (SE)	79.5 (0.82)	78.2 (0.53)	83.8 (0.58)	79.1 (0.34)	84.9 (0.43)	73.0 (0.51)
% of teachers who graduated from a regular teacher education or training programme (SE)	– a)	84.9 (0.59)	77.4 (0.8)	87.6 (0.53)	78.1 (0.98)	71.4 (0.64)
% of teachers in age (SE):						
under 30	5.6 (0.36)	8.4 (1.02)	7.1 (0.54)	4.5 (0.28)	2.8 (0.27)	9.0 (0.46)
30-39	12.2 (0.51)	38.4 (0.84)	16.4 (0.76)	18.0 (0.35)	14.1 (0.58)	30.6 (1.24)
40-49	31.2 (0.67)	28.9 (1.73)	22.9 (0.80)	29.9 (1.11)	26.4 (0.76)	34.2 (1.47)
50-59	35.5 (1.33)	16.4 (0.64)	31.8 (0.85)	37.0 (0.91)	40.6 (0.67)	18.0 (0.82)
60 and above	15.5 (0.77)	7.9 (0.40)	21.9 (0.77)	10.6 (0.29)	16.1 (0.71)	8.2 (0.65)
teaching experience in years (mean, SD)	19.9 (12.6)	14.4 (9.8)	22.2 (13.1)	20.2 (11.5)	23.8 (11.1)	17.1 (10.6)

BGR = Bulgaria, HRV = Croatia, EST = Estonia, HUN = Hungary, LTU = Lithuania, ROU = Romania

a) The question on teachers' education path was not asked in Bulgaria

4.3 Variables

Variable operationalisation draws on the TALIS 2018 conceptual framework (Ainley & Carstens, 2018) and the TALIS 2018 Technical Report (OECD, 2019). As a result, the constructs of teacher satisfaction, their occupational well-being, and school climate are investigated using the scales provided in the TALIS 2018 dataset. The scales consolidate relevant questions to capture latent traits and abstract properties (Ainley & Carstens, 2018; OECD, 2019).

Each scale consisted of four or five items with a 4-point rating (construction of scales and items wording in Annex A). Due to the non-invariance of scales of interest across the countries selected for the present study, an alignment procedure was performed. In consequence, the current study did not use the original TALIS 2018 scale scores.

4.3.1 Dependent variable

TALIS 2018 measured teachers' job satisfaction with one composite scale: *Job satisfaction, overall* and two subscales: *Job satisfaction with work environment* and *Job satisfaction with profession*. The present study used the first, i.e., school-based measure of job satisfaction as the main dependent variable, since our major area of exploration—school climate—is closely tied to the immediate school environment. *Job satisfaction with work environment* (JSENV) considers teachers' occupational contentment with various aspects of their work environment, encompassing school resources, collegial and leadership support, as well as the school's physical conditions. A high score on this scale indicates high job satisfaction.

4.3.2 Independent variables

TALIS 2018 operationalised school climate not by means of a single overall school climate scale but by means of a set of scales based on data from the Teacher Questionnaire and Principal Questionnaire. This study uses scales pertaining to the school climate only from the Teacher Questionnaire. These are: *Teachers' perceived disciplinary climate* (DISC), *Teacher–student relations* (STUD), *Participation among stakeholders* (STAKE). The scale *Teachers' perceived disciplinary climate* reflects teachers' perceptions of challenges relating to classroom discipline, including delays due to noise, student disruptions, or time lost to manage behaviour. The higher the score on this scale, the more problems with discipline were reported by teachers. The scale *Teacher–student relations* refers to positive interactions, teachers' belief in the value of their students' well-being, teachers' interest in hearing the students' voice, and support for students in need. The higher the score on this scale, the more positive teacher-student relations teachers reported. The scale *Participation among stakeholders* pertains to the extent to which the school offers opportunities for staff, parents/guardians, and students to engage in decision-making, promoting shared responsibility, and mutual support. It is associated with distributed leadership, so this scale can also be operationalized as the teachers' perspective on distributed leadership. The higher the score on this scale, the more stakeholder involvement was reported by teachers.

The present study also uses the scale *Team innovativeness* (TEAM) to capture teachers' shared perceptions of collective, as opposed to individual, innovativeness. Kang (2023) used this scale as a measurement of innovative school climate. The TALIS 2018 conceptual framework eventually classified this scale as a separate theme (Innovation), but originally it was conceived as 'a cross-cutting issue closely related to teachers' instructional practices and also school climate' (Ainley & Carstens, 2018, p. 23). The scale pertains to a collective attitude towards a certain phenomenon: innovativeness. As such, it does not concern resources connected to innovations but rather expresses the idea of togetherness—how much teachers feel they all share the same predisposition, i.e., openness to innovations. Following this line of reasoning, also expressed by Johnson et al. (2007) in their Revised School Level Environment Questionnaire, *Team innovativeness* was included as a school climate factor in the present study.

4.3.3 Mediating variable

TALIS 2018 measured work stress and well-being in the workplace with the scale *Workplace well-being and stress* (WELS), which was used in the present study as a mediating variable. The scale pertains to teachers' overall occupational well-being and stress levels capturing aspects of job-related emotional and physical strain. The higher the score on this scale, the higher the stress and the lower the occupational well-being. The role of school climate as a mediator between the socioeconomic status of schools and teachers' job satisfaction was also tested in our study.

4.3.4 Control variables

In our model we controlled for the total work experience as a teacher (TT3G11B) as an occupational characteristic that was recognized to be relevant to teachers' perception of school climate. The model also controlled for the school's socio-economic status. TALIS 2018 obtained school SES data from school principals. They were asked to estimate the proportion of students from socioeconomically disadvantaged homes[2] in their school by selecting one of five categories: none; 1% to 10%; 11% to 30%; 31% to 60%; and more than 60%. We consolidated these five categories into three broader

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[2]   Socioeconomically disadvantaged homes were defined in TALIS 2018 as households lacking basic necessities such as adequate housing, nutrition, or medical care.

ones: high-SES schools (10% or fewer students from socioeconomically disadvantaged homes), medium-SES schools (11% to 30% of such students), and low-SES schools (more than 30% of such students). More than half of the teachers in each country worked in high-SES schools—from 51.4% in Bulgaria to 72.2% in Estonia (see Annex B).

4.4 Data analysis procedures

4.4.1 Multigroup structural equation model alignment modelling

As noted in the TALIS 2018 Technical Report (OECD, 2019), the constructs (scales) used were not fully invariant. To address the measurement non-invariance of latent constructs across the six countries included in our analysis (Bulgaria, Croatia, Estonia, Hungary, Lithuania, and Romania), the alignment method proposed by Muthén and Asparouhov (2014) was applied using Mplus 8.0 software. The alignment method adjusts for cross-country differences in measurement parameters to maximize the comparability of latent constructs while allowing for partial non-invariance. More specifically, in the first step, measurement models for each latent variable (JSENV, WELS, DISC, STUD, STAKE, TEAM) were estimated using a mixture model with known classes corresponding to each country. These models allowed factor loadings and intercepts to vary across countries, capturing country-specific measurement characteristics. The alignment method was subsequently applied to optimize factor loadings and intercepts, achieving approximate measurement invariance. By identifying the most invariant parameter configuration across countries, this approach minimizes non-invariance across countries without imposing strict equality constraints, allowing meaningful cross-country comparisons to be made while acknowledging inherent differences in measurement.

The model estimation employed the expectation-maximization (EM) algorithm with random starts and the maximum likelihood with the robust standard error (MLR) estimator. To address potential local maxima, 100 initial random starts and 10 final-stage optimizations were used. Although largely effective, occasional convergence issues arose, reflecting the complexity of working with large-scale survey data and missing observations.

In the second step, the aligned measurement parameters from the first stage were incorporated as constraints in a multigroup structural equation model (SEM). Factor loadings and intercepts were fixed at alignment-derived values for each latent construct and country, ensuring consistency in construct measurements across contexts. The structural model examined the relationships between these latent constructs and predictors, including school socioeconomic status (operationalized with binary variables for low-SES and high-SES schools, using medium-SES as the reference category) and teacher experience (in years, centred on the mean). This two-step alignment and SEM approach provided a robust methodological framework for addressing measurement non-invariance, maintaining construct comparability, and enabling the accurate assessment of structural relationships. Furthermore, it accounted for the complex survey design and appropriately applied sampling weights, ensuring a valid estimation of standard errors and statistical tests.

The measurement model performed well. Across the latent classes, the factor loadings for the six latent constructs —JSENV, WELS, DISC, STUD, STAKE and TEAM—on their respective observed variables were consistently strong and statistically significant. The standardised factor loadings typically ranged between 0.5 and 0.9, indicating a robust relationship between latent variables and their indicators.

4.4.2 Weighting and missing data

We estimated Multigroup Structural Equation Models using data from the two-stage TALIS sampling design. While we included teacher weights (TCHWGT) to account for unequal selection probabilities and used cluster-robust standard errors based on school identifiers to address nesting, we did not incorporate replicate weights or a multilevel specification that would better reflect the hierarchical data structure and complex sampling. This was driven by the technical limitations in integrating these procedures with the multigroup modelling framework, particularly when combined with the alignment method used for measurement invariance.

As part of our sensitivity analyses, we calculated intraclass correlation coefficients (ICCs) for each scale in each country (Annex C), revealing meaningful clustering at the school level. For job satisfaction with the work environment (JSENV), ICCs indicate that 10–17 % of variability is attributable to between-school differences. Workplace well-being and stress (WELS) ICCs range from 0.035 (Croatia) to 0.122 (Bulgaria), underscoring the influence of school-level factors on teachers' occupational stress and well-being. Disciplinary climate (DISC) and stakeholder participation (STAKE) also exhibit substantial clustering, with ICCs reaching 0.146 and 0.138, respectively. These findings suggest that our current analysis approach might have decreased the accuracy of our conclusions. By not accounting for school-level differences, we may be underestimating how much schools actually matter for teacher job satisfaction. Secondly, we might be overestimating the importance of individual teacher characteristics.

Missing data was addressed using full information maximum likelihood (FIML). The extent of missing data is examined and detailed in Annex D. To address potential deviations from normality, we employed the maximum likelihood estimator with robust standard errors (MLR).

5. RESULTS

Based on the literature review, a conceptual model was developed (Figure 1), in which school climate factors directly influence both teachers' occupational well-being and job satisfaction. The model assumes that school climate factors indirectly influence job satisfaction via teacher occupational well-being. It posits positive direct and indirect effects of specific school climate components, such as teacher–student relations, stakeholder participation, team innovativeness, and high school SES on both teacher occupational well-being and job satisfaction. Conversely, it predicts negative direct and indirect effects of the disciplinary climate and low school SES on both teacher occupational well-being and job satisfaction.

Figure 1 ***The simplified conceptual model***
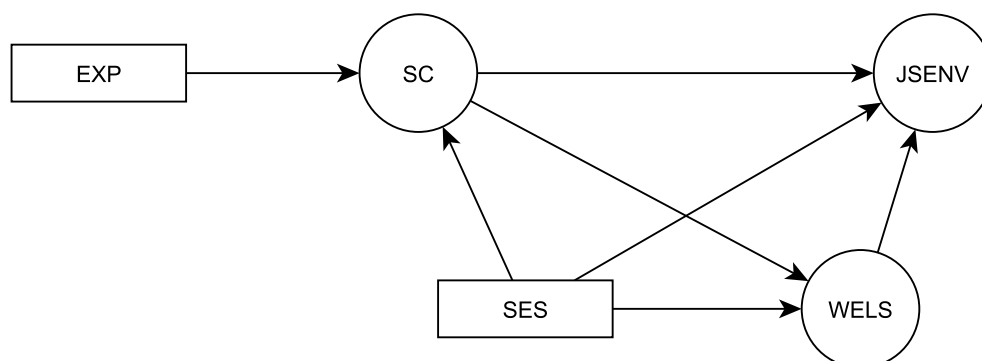
Note: SC = school climate; JSENV = job satisfaction with work environment; WELS = workplace well-being and stress; EXP = total work experience as a teacher; SES = school socioeconomic status

The multigroup structural equation model (SEM) analysis validated the theoretical model, revealing both direct and indirect relationships between school climate factors and teacher job satisfaction with the work environment. Our findings partially supported the theoretical model regarding the effects of school socioeconomic status (SES) on teacher job satisfaction, occupational well-being and stress. SES exhibited marginal and mostly insignificant direct and indirect effects on job satisfaction and no effect on occupational well-being and stress.

SEM results—standardised regression coefficients with corresponding standard errors and p-values for direct, indirect, and total effects of school climate and school SES on WELS and JSENV—are presented in Annex F. Path diagrams for each country with statistically significant standardised regression coefficients are presented in figures 2A–2F. As for the regression coefficients, we interpreted the values of ≥0.10 as small effects, ≥0.30 as medium effects, and ≥0.50 as large effects (Cohen, 1988). Additionally, we considered coefficients smaller than 0.10 as marginal. The results are discussed below.

5.1 Direct effects

The structural model largely corroborated H1 by showing the direct paths between school climate variables (STAKE, STUD, TEAM, DISC) and teacher job satisfaction with work environment (JSENV) and teacher occupational well-being and stress (WELS) when controlling for school SES and teachers' job experience.

JSENV was positively predicted by STAKE in all countries; the strength of the effect was medium in Croatia, Bulgaria, Estonia and Lithuania (β from 0.318 to 0.442) and small in Hungary and Romania (β = 0.265 and 0.22). Another positive predictor of JSENV was STUD which had a small effect in all countries (β from 0.153 to 0.239). TEAM had a small positive effect in Hungary and Croatia (β = 0.122 and 0.106). The effect of TEAM in other countries was marginal but positive and statistically significant.

On the other hand, JSENV was negatively predicted by teachers' occupational stress and lower well-being (WELS) and disciplinary problems with students (DISC). WELS had a medium negative effect in Bulgaria, Estonia, and Croatia (βfrom -0.354 to -0.362) and a small negative effect in Hungary, Lithuania, and Romania (β from -0.226 to -0.265). The negative effect of DISC was marginal but statistically significant in all countries (β from -0.035 to -0.80).

In the developed model, WELS was positively predicted by DISC (teachers' occupational stress was higher in schools with more disciplinary problems), with a small effect in all countries (β from 0.149 to 0.262), and negatively predicted by STAKE (teachers' occupational stress was lower in schools where stakeholders were involved in the decision-making process)—also with a small effect in all countries (β from -0.176 to -0.228). Further, there was a negative and marginal effect of TEAM on WELS (β from -0.023 to -0.068), which means that a climate conducive to team innovation was associated with higher teachers' occupational well-being. The effects of STUD on WELS turned out to be not statistically significant.

As for the effect of school socioeconomic status (SES) on teachers' occupational satisfaction, occupational well-being/stress, and school climate, H3 was only partially supported. High SES had a positive and low SES a negative effect on

JSENV in comparison to medium school SES; however, the majority of these effects were marginal. The only exception was Bulgaria, where the negative effect of low school SES was small (β = -0.105). Next, neither high SES nor low SES predicted WELS. The investigation of the paths between school socioeconomic status and school climate revealed only one statistically significant path: high SES was associated with lower DISC with marginal effects (β from -0.035 to -0.057). The effects of high or low SES—in comparison to medium SES—on other school climate characteristics (STUD, TEAM and STAKE) were not statistically significant.

5.2 Indirect effects

Indirect effects were analysed to describe the role of workplace well-being and stress (WELS) as a mediator between school climate and JSENV. We explored the paths from school climate through WELS to JSEV, next from school SES through school climate to JSENV, and finally from school SES through school climate and WELS to JSENV. Our results partially support H2.

We found that the indirect effects of WELS were positive but marginal for STAKE (β from 0.040 to 0.080) and TEAM (β from 0.010 to 0.20) for all countries. This means that these characteristics were associated with a lower level of occupational stress, which negatively predicted JSENV. On the other hand, a negative and marginal indirect effect of DISC through WELS was discovered (β from -0.040 to -0.089). Thus, the challenging disciplinary climate had not only negative direct effects on JSENV, but also an indirect effect by being associated with a higher level of WELS. The indirect effects of STUD through WELS on JSENV were found to be not statistically significant in all countries.

Most of the indirect effects of SES through school climate and through school climate and WELS on JSENV were not statistically significant. The developed model showed a significant, marginal indirect effect of high SES through DISC on JSENV (β = 0.003) and high SES through DISC and WELS on JSENV (β = 0.003) only in Bulgaria.

5.3 Total effects

The analysis of the total effects of school climate and SES on JSENV showed an important positive role of stakeholders' involvement in school decision-making processes (STAKE) in all countries. Its total effect was large in Croatia (β = 0.520), medium in Bulgaria, Estonia, Hungary, and Lithuania (β from 0.310 to 0.445), and small in Romania (β = 0.260). This total effect was partially mediated by WELS—indirect effects account for approximately 15–16% of total effect of STAKE on JSENV in all countries.

The total effect of positive student–teacher relationships (STUD) on JSENV was positive and small in all countries (βfrom 0.158 to 0.230) and a small proportion of it was mediated by WELS (from 3.3 to 5.9%).

Further, a total positive effect of team innovativeness (TEAM) was small in Croatia, Hungary and Romania (β from 0.110 to 0.140) and marginal in other countries. The proportion of mediated effects was 9.0 to 16.7%.

A challenging disciplinary climate (DISC) had a small negative total effect in all countries (β from -0.110 to -0.169) but Hungary, where it was marginal. More than half of this effect was mediated through WELS (50.0–54.5%).

The total effect of high school SES in comparison to medium school SES was positive but did not exceed 0.100 in any country. The negative effect of low school SES was small in Bulgaria and lower than 0.100 in other countries.

5.4 Comparison across the countries

The SEM analysis tested H4, which posits that the direct and indirect effects of school climate variables (STAKE, TEAM, STUD, DISC) on teacher job satisfaction (JSENV) and occupational stress and well-being (WELS) vary across the six countries. The results support H4, indicating cross-country differences in the strength and relevance of these predictors.

The total effect of stakeholders' involvement in decision-making (STAKE) on teachers' job satisfaction with work environment (JSENV) was positive. Still, its strength varied across countries—it was small in Romania, medium in Bulgaria, Estonia, Hungary, and Lithuania, and large in Croatia.

Next, collective team innovativeness (TEAM) was a positive predictor of JSENV with small strength in Croatia, Hungary, and Romania, and of marginal importance in the other countries. The total effects of teacher–student relationships (STUD), disciplinary climate (DISC), as well as high and low school SES on JSENV across countries had the same direction and were at similar levels in all countries: positive and small for STUD, positive and marginal for high SES, negative and small for DISC (marginal in one country), negative and marginal for low SES (small in one country). The analysis of indirect effects indicated that half or more of the total, negative effect of disciplinary problems (DISC) on JSEV was mediated through work stress (WELS), indicating that poor classroom conditions affect teachers' job satisfaction by increasing their occupational stress levels.

Variables relating to school climate explained a higher proportion of variance in JSENV in Croatia, Bulgaria, and Estonia (R-square respectively 0.466, 0.401, and 0.379) than in the other three countries (R-square from 0.203 to 0.252; for details see Annex E). This indicates that for teachers in Croatia, Bulgaria, and Estonia, the school climate elements investigated in this study matter significantly more in shaping their job satisfaction than for teachers in Lithuania, Hungary, and Romania. For teachers in the second group of countries, other factors might play a more substantial role in influencing their occupational well-being.

By and large, school climate variables explained a smaller proportion of variance in WELS than in JSENV (Annex E), indicating that STUD, DISC, STAKE, and TEAM have a stronger impact on teachers' level of job satisfaction than on how stressed they feel. The extent of school climate's influence on teachers' occupational well-being varied across countries. Our model explained approx. 10% of the variance in teachers' occupational well-being and stress for Bulgaria, Croatia, Lithuania, and Romania, while for Estonia and Hungary it was approx. 6%.

Figure 2A **Structural equation model results – Bulgaria**
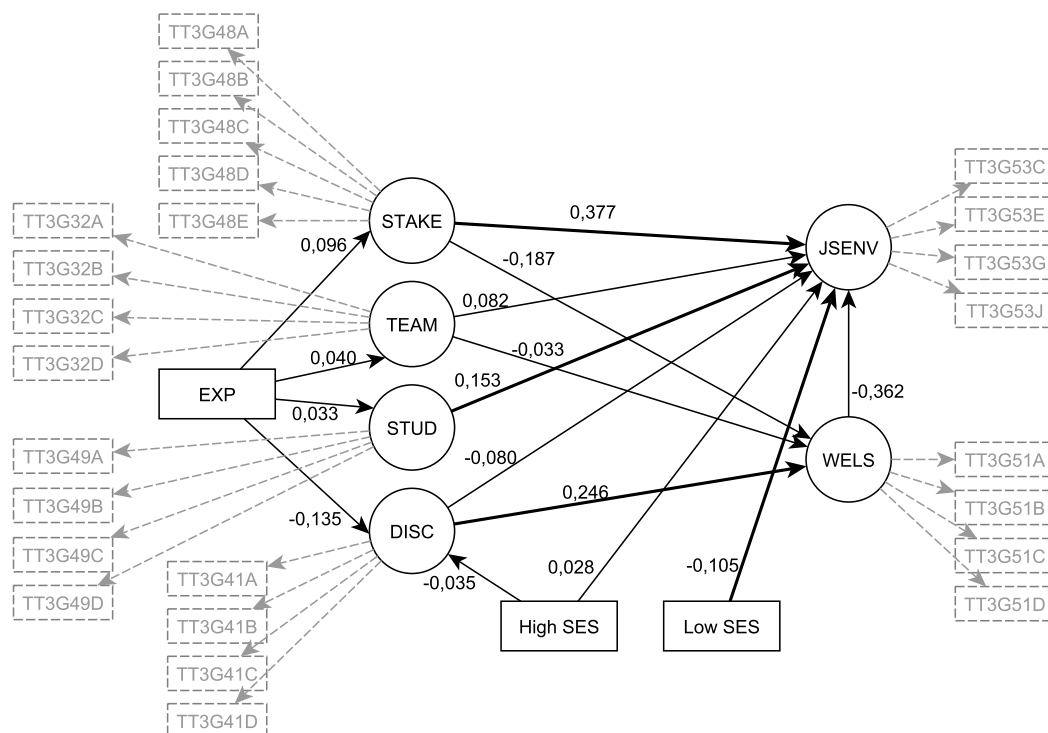
Note: Standardised regression coefficients. Only significant paths are presented

Figure 2B **Structural equation model results – Croatia**
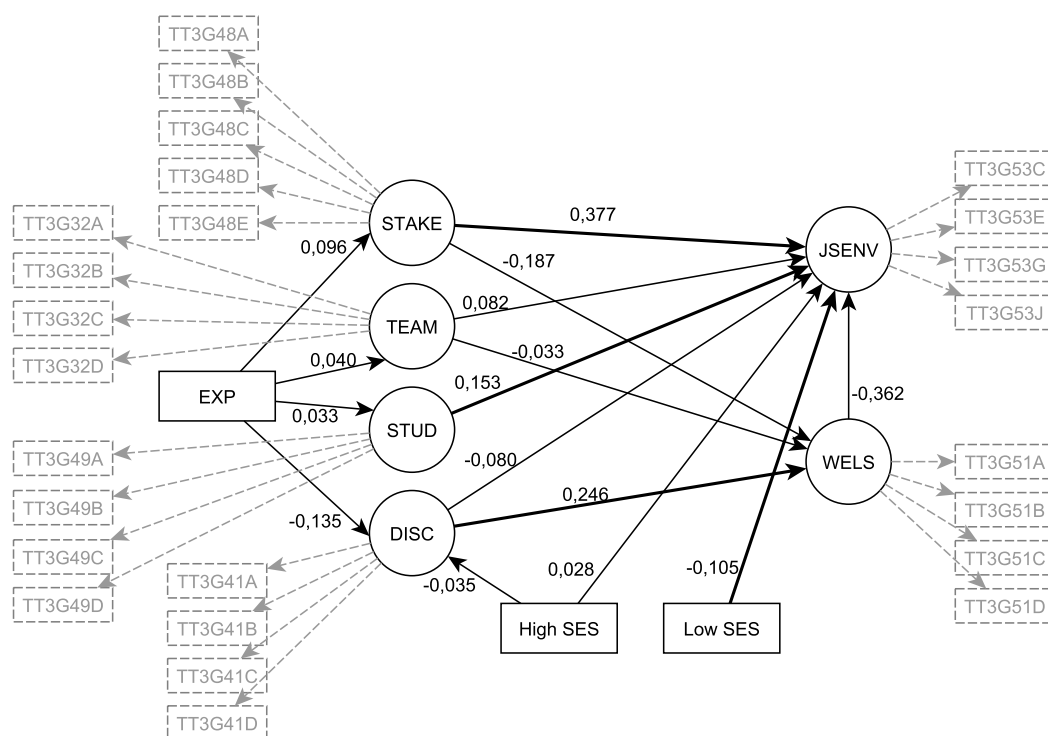
Note: Standardised regression coefficients. Only significant paths are presented

Figure 2C **Structural equation model results – Estonia**
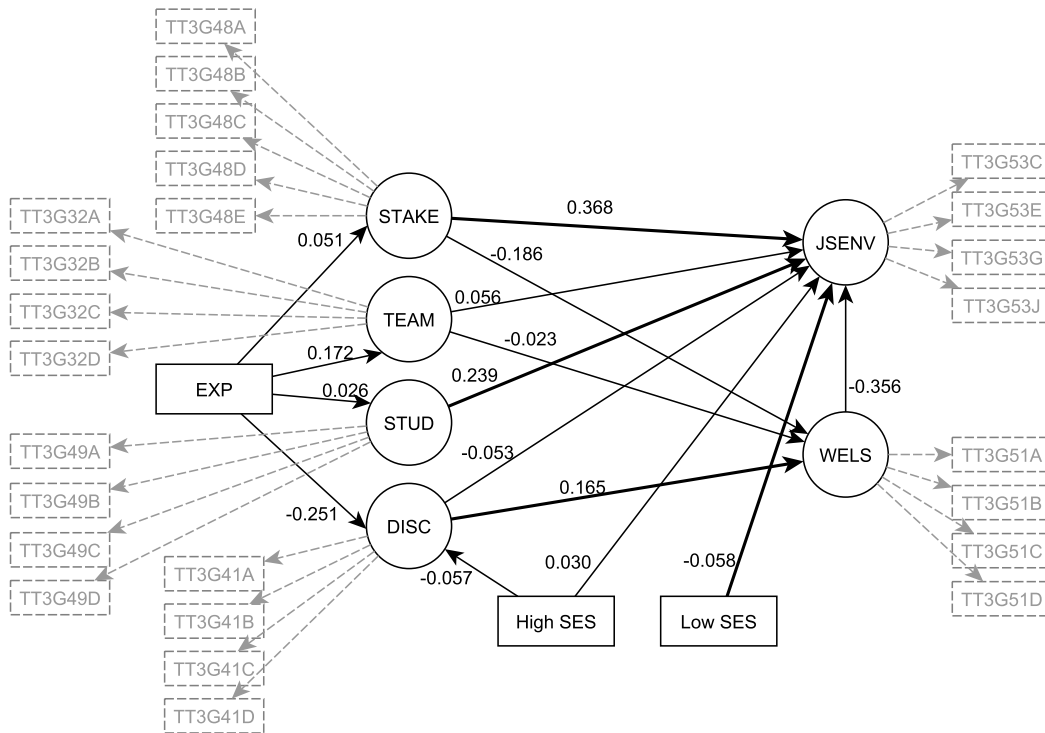
Note: Standardised regression coefficients. Only significant paths are presented

Figure 2D **Structural equation model results – Hungary**
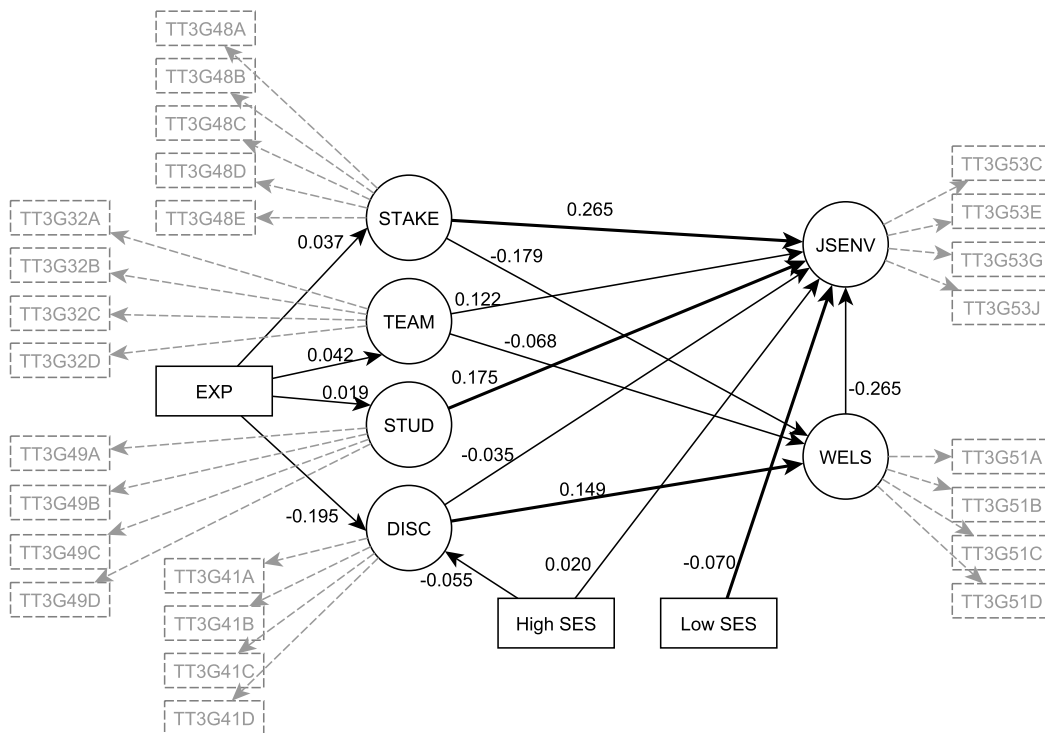
Note: Standardised regression coefficients. Only significant paths are presented

Figure 2E **Structural equation model results – Lithuania**
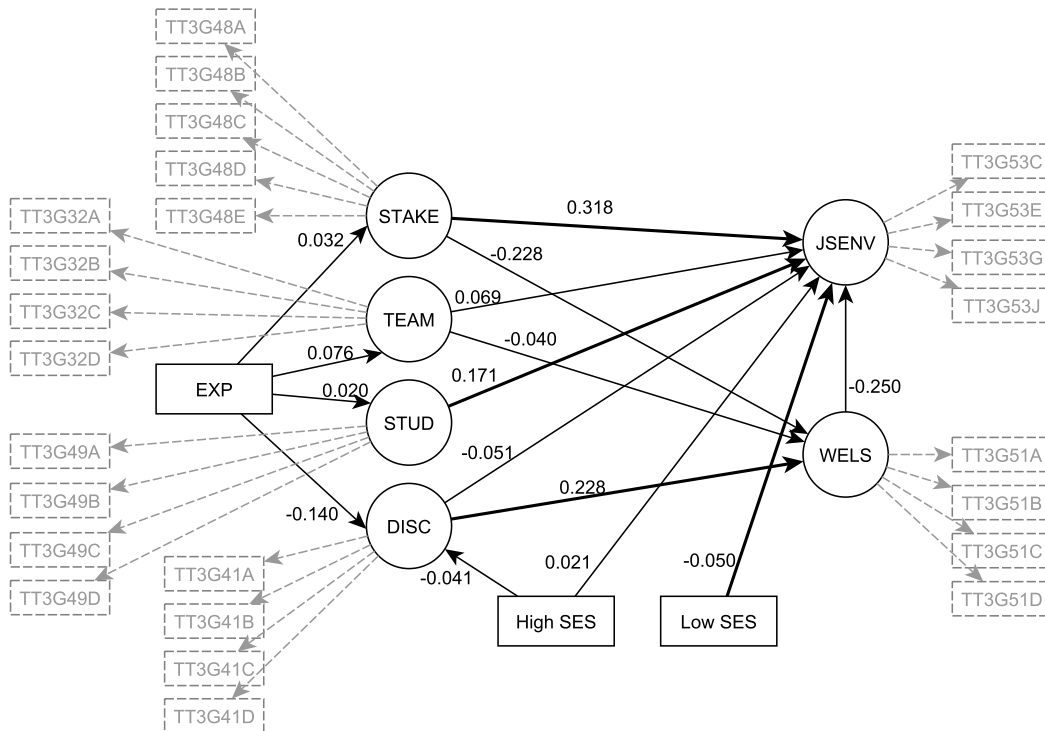
Note: Standardised regression coefficients. Only significant paths are presented

Figure 2F **Structural equation model results – Romania**
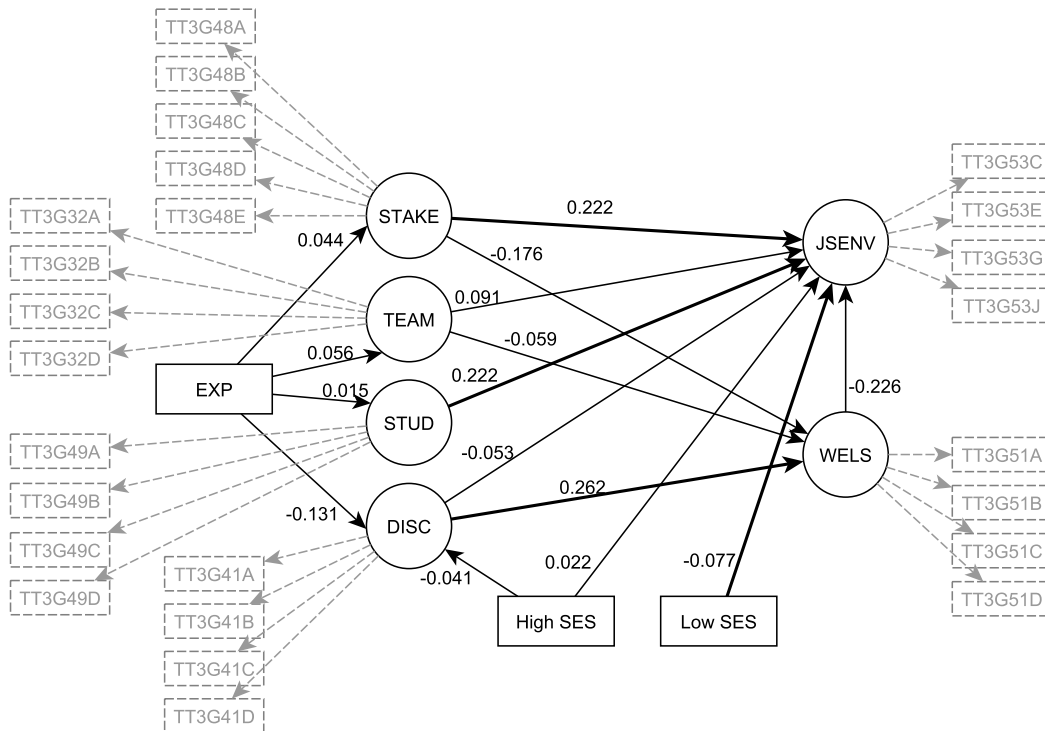
Note: Standardised regression coefficients. Only significant paths are presented

6. DISCUSSION

Teachers' job satisfaction and occupational well-being strongly affect both their teaching effectiveness and their decision to stay in the profession. High job satisfaction is linked to greater retention, while dissatisfaction often signals an increased risk of attrition (Skaalvik & Skaalvik, 2011). One of the well-documented factors affecting teacher job satisfaction, and in turn teacher outcomes, is school climate. Still, identifying the specific aspects of school climate that most impact teacher job satisfaction and occupational well-being is crucial, as it could inform some targeted educational policies that better meet teachers' needs.

To that end, this study examined the role of school climate and school socioeconomic status in predicting teacher job satisfaction and occupational stress, and the mediating effect of teacher occupational stress in the relation between school climate and job satisfaction, using international data from TALIS 2018 for selected Central and Eastern European countries (Bulgaria, Croatia, Estonia, Hungary, Lithuania, Romania). The results of structural equation modelling, preceded by the alignment procedure, yielded several important findings.

6.1 The role of school climate in predicting teacher job satisfaction and occupational well-being (H1)

Our analyses showed that school climate affects both the work satisfaction and occupational well-being of teachers, which is in line with previous research (Aldridge & Fraser, 2016; Ghavifekr & Pillai, 2016). Notably, in our research, teachers' perception of stakeholders' involvement in school decision-making, which is associated with distributed leadership, showed the strongest positive association with teacher job satisfaction consistently in all six countries. It was also significantly associated with higher teacher occupational well-being in all countries. In parallel with our conclusions, Liu and Watson (2020) found a positive association between teachers' perception of their involvement in decision-making and their job satisfaction. Considering these results, the involvement of stakeholders in decision-making seems to be a potentially impactful area of teacher job satisfaction-oriented policies. Moreover, thanks to its particular emphasis on promoting teamwork in the work environment, distributed leadership also plays a role in supporting teacher innovativeness. Collective teacher innovativeness was found to be a weak but significant contributor to teacher job satisfaction in our study, echoing the results of Buyukgoze, Caliskan, and Gümüş (2022), who also found job satisfaction to be a mediating variable between distributed leadership and collective teacher innovativeness.

We found that teacher-student relationships also reliably predicted teacher job satisfaction but not teacher occupational well-being and stress, whereas school disciplinary climate (similarly to stakeholder engagement) was a consistent driver of both workplace well-being and stress. This means that good teacher–student relationships raised job satisfaction without affecting stress, whereas student misbehaviour reduced satisfaction and heightened stress. Supporting our findings, Nalipay's (2023) research on Asian teachers reached the same conclusions, suggesting that rapport with students and disciplinary problems show similar patterns of influencing teacher job satisfaction irrespectively of educational system and cultural background.

Our findings corroborate existing literature (Veldman et al., 2013; Lopes & Oliviera, 2020; Liu et al., 2023), indicating that initiatives aimed at improving teacher job satisfaction should focus on the classroom, particularly on improving teacher–student relationships and mitigating teacher occupational stress, which in our study turned out to be associated mainly with students' misbehaviour. Offering support to teachers in aspects such as classroom instruction and management may enhance their self-efficacy and job satisfaction.

6.2 The mediating role of occupational stress in the relationship between school climate and job satisfaction (H2)

This study confirmed a statistically significant, yet marginal, mediating role of teacher occupational stress in the relationships between each of the three school climate elements— (1) stakeholders' involvement in decision-making, (2) collective team innovativeness, (3) disciplinary climate—and teacher job satisfaction. For stakeholders' involvement in decision-making and collective team innovativeness, the indirect effect through occupational stress and well-being accounted for only a small proportion of the total effect on teacher job satisfaction. Notably, in the case of disciplinary climate, half of its negative effect on job satisfaction was mediated through occupational stress.

Disciplinary climate also had a direct negative effect on teacher occupational well-being in all six countries. This means that teachers who experience disciplinary problems with their students have lower job satisfaction, and to a large extent this is so because behavioural problems elevate teachers' occupational stress levels, lowering their job satisfaction.

Thus, in order to tackle the detrimental effect of student misbehaviour on teacher occupational satisfaction, educational policies should focus not only on measures designed to improve students' behaviour, but also on equipping teachers with tools to weaken the association between student misbehaviour and increased occupational stress, such as training in effective classroom management or programmes fostering positive student–teacher relationships. Stakeholder involvement plays a notable role, demonstrating a small but significant indirect effect on job satisfaction via stress reduction,

which is consistent with distributed leadership theory. Collaborative decision-making fosters teacher autonomy and shared responsibility, which lowers stress levels (Bellibaş et al., 2023; Liu et al., 2023). While the total effect of stakeholders' involvement in decision-making on job satisfaction exceeds its mediated effect through occupational stress—accounting for 15–16% of the total effect across countries—its stress-mitigating role remains significant but context-dependent.

6.3 School socioeconomic context and school climate, teacher job satisfaction and occupational well-being (H3)

There was no significant association between school socioeconomic status (SES) and teacher occupational well-being. However, job satisfaction showed a weak but consistent association with school SES across all six countries. This aligns with prior studies by Johnson et al. (2012), who found that teacher job satisfaction and the likelihood of transferring schools are more strongly influenced by workplace factors—such as collegial support, school leadership, and school culture—than by the composition of the student body. Similarly, Grissom (2011) emphasized the role of principal efficacy in shaping teacher job satisfaction, irrespective of individual or broader school characteristics.

Moreover, the negative relation between school SES and teacher job satisfaction was not mediated by almost any of the school climate elements (the only exception was the finding that fewer disciplinary issues occurred in high SES schools compared to medium SES schools). This suggests that school socioeconomic context did not influence school climate in a way that would either enhance or diminish teacher job satisfaction. When interpreting the results, it is important to high-light the limitations of our SES measure. The SES variable was recoded into three categories, which facilitated analysis and interpretation, but also introduced simplifications. Furthermore, SES data were derived from principals' responses to the TALIS questionnaire. This approach may have oversimplified the complexities and nuances of socioeconomic diversity.

Still, in every country the detrimental effect of school low socioeconomic status on teacher job satisfaction was bigger than the favourable effect of school high socioeconomic status, suggesting that the elements of school climate included in this study can increase teacher job satisfaction only to a certain level. Beyond a certain threshold, additional advantages from a positive disciplinary climate, good teacher–student relationships, and a participative decision-making leadership style may not lead to substantial gains in job satisfaction since teachers' needs and expectations may already be met to a sufficient degree in medium SES environments. What is more, other factors not accounted for in our model, such as workload, the personal predispositions of teachers, or other elements of school climate, may be more substantial in shaping the school environment and raising teacher job satisfaction and occupational well-being. This implies that initiatives designed to enhance teacher job satisfaction should address the unique challenges encountered in low and high SES schools.

6.4 Patterns of interaction between the study variables: differences between the researched countries (H4)

Some factors influencing teacher job satisfaction in this study showed similar results across the six countries examined. How well students behave and the quality of teacher–student interactions had similar effects on teacher job satisfaction in all contexts. Also, school socioeconomic composition consistently showed a statistically significant but marginal impact on teacher job satisfaction across the region. However, the impact of stakeholders' participation in school decisions varied across countries. Its impact on teacher job satisfaction varied from small in Romania to medium in Bulgaria, Estonia, Hungary, and Lithuania, to large in Croatia. The findings highlight that country-level variations are likely to be shaped by cultural and institutional factors. This finding aligns with the results of Eryilmaz and Sandoval-Hernandez (2023), who compared the latent means of distributed leadership based on TALIS 2018 data from principals using the alignment optimisation approach. They found substantial differences in leadership styles across education systems that were attributed to cultural and contextual factors shaping how distributed leadership is perceived and implemented across countries. Due to traditional authority models, principals in countries with low scores on teacher-perceived distributed leadership may be required to assume accountability for decision-making, blocking teachers from being involved in school decisions. Variability in the between-school variations of the scales used (Annex C) also suggests more localized differences.

7. CONCLUSIONS

Our findings align with the theoretical perspectives commonly used in organisational behaviour research, such as exchange theory and self-determination theory, showing that relational and participatory aspects of school life outweigh broader contextual disadvantages (i.e., school socioeconomic status) in shaping teacher experiences. Specifically, stakeholder involvement in decision-making (distributed leadership) was most strongly associated with higher job satisfaction and occupational well-being. Positive teacher–student relationships were associated with greater satisfaction, whereas a more challenging disciplinary climate was linked with elevated stress levels that partly mediated its adverse association with satisfaction. Although school socioeconomic status showed a small direct association with job satisfaction, it was not linked to lower stress or a more positive climate, underscoring the primacy of organisational and interpersonal factors over socioeconomic background.

Our study is observational and we cannot make causal claims. However, from a policy and practice standpoint some organisational and relational conditions seem to support teacher well-being. More specifically, fostering distributed leadership practices to increase teacher agency in school governance can reinforce a sense of autonomy and organisational commitment (Leithwood et al., 2019). Strengthening teacher competence in building good teacher–student relationships may further enhance job satisfaction, while targeted efforts to improve the disciplinary climate through, e.g., consistent, fair, and supportive behaviour policies, can help mitigate teacher stress. These strategies can be applied across diverse school contexts, highlighting the need for systemic attention to cultivating inclusive, collaborative, and psychologically safe school environments, beyond socioeconomic considerations.

8. LIMITATIONS

This study has several important limitations that need to be acknowledged. First, as a secondary analysis, it relied on predefined constructs and measures, which, despite their widespread use and careful translation verification and psychometric testing, may not capture the full nuance of teachers' experiences. Second, the single-level model does not account for the hierarchical nature of the TALIS two-stage sampling design (schools and teachers). This was a deliberate methodological choice that prioritized measurement invariance over model complexity. However, future research could explore more sophisticated, multilevel approaches. Third, the SES variable was based on principals' self-reported data recoded into three broad categories, which may have introduced subjective biases and oversimplified the socioeconomic diversity. Finally, the cross-sectional design precludes ruling out unobserved confounders.

The temporal limitations are also important. The dataset predates the COVID-19 pandemic, which substantially affected educational systems and teachers in particular. More recent data—such as the ongoing TALIS 2024 collection—could provide more insights into how global disruptions have reshaped teacher job satisfaction and school climate. Future research could profitably expand on several fronts: exploring the cultural and institutional factors underlying cross-national differences, developing longitudinal analyses to track the evolution of teacher job satisfaction, or possibly testing specific mechanisms in randomised experiments. Additionally, employing mixed-method approaches that integrate quantitative findings with qualitative insights to teacher experiences could further inform this strand of research. Such comprehensive investigations would offer a more holistic understanding of the complex dynamics that influence teacher job satisfaction and occupational well-being.

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