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Research paper

# From crisis towards recovery: Annual snapshots of teachers' well-being over six years since COVID-19

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ABSTRACT

We provide a snapshot in time of teachers' workplace well-being from the start of COVID-19 to six years later among 2489 Australian teachers from six independent samples. We examined contextual factors (relatedness with colleagues and students, time pressure, disruptive student behavior) and outcomes (emotional exhaustion, organizational commitment). Results showed that mean levels of these factors shifted over time. Additionally, although the job resources were consistently associated with better outcomes across the six years, the role of the job demands varied more across the years. These insights offer valuable guidance for better supporting teachers during and beyond major disruptions in future.

## 1. Introduction

Teaching as a profession has faced numerous challenges over the past few years (OECD, 2024). As a primary example, the onset of the COVID-19 pandemic meant that teachers had to rapidly shift to online teaching, and then back to in-person or hybrid teaching multiple times. These changes, along with broader concerns and uncertainty about health and safety during this time, had significant impacts on teachers' workplace experiences and well-being (e.g., El-Metaal and Sanchez, 2024; Jones et al., 2022; Van Bergen & Daniel, 2023). Although a plethora of research exists about teachers' experiences at the beginning of the COVID-19 pandemic, less is known about how these experiences varied across different phases of the pandemic. Research on natural disasters has shown that the impact of major disruptions on teachers' well-being typically involves two broad stages (e.g., Malinen et al., 2019; see also Center for Disease Control [CDC], 2024; CDC Museum, 2024). As we describe in more detail below, there is an acute phase during and immediately after the disaster relating to the emergency response and where teachers have to navigate the danger. Then, there is a post-acute phase lasting several years where teachers return to their working lives, while also navigating the fallout and longer-term impact of the disaster. Research across and within these two major phases is important for informing understanding of teachers' recovery from major educational disruptions. Such work is critical for guiding efforts to better support teachers in future disruptions (e.g., from pandemics, climate change, natural disasters), including what factors may be important to pay attention to within and across different phases of the disruption.

Integrating data from six independent samples collected each year since the start of the COVID-19 pandemic, the aim of our investigation is to yield insight into teachers' well-being across and within two phases of the pandemic. Data were collected from Australian teachers from 2020 to 2025. We examined teachers' experiences of four contextual (i.e., work-related) factors (relatedness with colleagues and relatedness with students as job resources; time pressure and disruptive student behavior as job demands), and two well-being outcomes (emotional exhaustion, organizational commitment). We considered the years 2020-2021 to represent the acute phase of the pandemic, and the years 2022-2025 to represent the post-acute phase of the pandemic (CDC, 2024; CDC Museum, 2024). We first examined mean levels of all factors and whether these differed each year. We also investigated the extent to which associations from the job resources/demands to the outcomes varied each year.

### 1.1. Conceptual framing

Two theories are highlighted as relevant to the study's conceptual framing because they help explain how individuals respond to their work contexts, which changed during the acute and post-acute phases of

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the pandemic. Conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018) is particularly relevant for understanding potential changes in these factors across the pandemic, whereas job demands–resources theory (Bakker & Demerouti, 2017) is especially informative for understanding the associations among these factors during the pandemic.

Conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018) posits that humans are motivated to obtain, maintain, and protect valued resources. Resources encompass objects, personal characteristics, conditions, and energies—such as time, energy, skills, and social support—that help individuals achieve their goals, manage demands, and maintain their well-being. A core premise of the theory is that people must often invest resources to gain additional resources and to protect themselves against future losses. According to the theory, stress occurs when individuals experience actual resource loss, perceive a threat of loss, or fail to gain resources following significant investment. When demands arise, individuals draw on their resource pool to cope effectively. Individuals can also draw down on resources in order to prevent further loss or to help replenish other resources. These investments can deplete resources if replenishment is not possible. Overall, poorer outcomes occur when resources are threatened or depleted and when individuals lack opportunities to restore or build resources.

Job demands-resources theory (Bakker & Demerouti, 2017) highlights that individual and contextual factors influence how employees perform and function in the workplace. Specifically, the theory distinguishes between job resources and job demands, which take many different forms including physical, social, psychological or organizational characteristics at work that impact individuals' well-being. Job resources, such as relatedness with colleagues and students, refer to contextual characteristics that make it easier for employees to perform their tasks efficiently and achieve their professional objectives—and as a result lead to positive work-related outcomes. These resources are aligned with the resources specified in conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018), but are specific to one's job. Conversely, job demands, such as time pressure and disruptive student behavior, are contextual characteristics that involve a psychological or physiological cost and so impede employees' ability to perform effectively and achieve their work-related goals, leading to negative work-related outcomes. More precisely, job demands-resources theory specifies a motivational process, whereby job resources are positively associated with positive outcomes, and a health impairment process wherein job demands are positively associated with negative outcomes. The theory also specifies two main interaction processes. The boosting process specifies that job demands enhance the positive effect of job resources on positive outcomes. The buffering process specifies that job resources reduce the detrimental effect of job demands so they are less strongly linked with negative outcomes.

### 1.2. Factors under examination

#### 1.2.1. Contextual factors

We examined four contextual factors that are important for teachers' functioning (e.g., Collie, 2023; Klassen et al., 2012; Skaalvik & Skaalvik, 2018). Two were job resources. *Relatedness with colleagues* describes teachers' perception of being connected to, caring for, and receiving care from their work peers (Ryan & Deci, 2017). Similarly, *relatedness with students* captures teachers' feelings of connection and mutual care with their students (Ryan & Deci, 2017). These two forms of relatedness are positioned as job resources because they mean that teachers' interpersonal interactions are more constructive and fulfilling (Collie, 2023; Klassen et al., 2012), and they assist teachers to use more effective teaching practices (X. Li, Bergin, & Olsen, 2022).

The remaining two factors were job demands. *Time pressure* refers to the perception of not having enough time to complete work-related tasks (Prieto et al., 2008). *Disruptive student behavior* refers to teachers' perceptions that students engage in actions—such as making noise, distracting others, or losing focus—that interfere with the learning process. These two factors have been identified as major stressors for teachers, and were designated as job demands because they require effort by teachers to overcome and also prevent or hinder teachers from conducting their work effectively and meeting their instructional goals (Collie, 2023; Skaalvik & Skaalvik, 2018). Together, the four factors capture common experiences of teachers that may also have been impacted by COVID-19.

#### 1.2.2. Workplace outcomes

Alongside the predictors, we examined two outcomes that are reflective of teachers' well-being. We ground our research in the well-recognized definition of feeling well and effective functioning at work (Huppert & So, 2013), which has been highlighted as particularly relevant to teachers' experiences (Collie & Carroll, 2023; Hascher & Mori, 2024; Klusmann et al., 2023; Skaalvik & Skaalvik, 2017), and is located under broader wellbeing conceptualizing (P. Li, Bergin, & Olsen, 2022). The first well-being outcome was *emotional exhaustion*—a central dimension of burnout—characterized by teachers feeling drained of both emotional and physical energy (Maslach et al., 2001). In reference to our well-being definition above, this variable represents "feeling (un) well" at work. The second outcome was (affective) *organizational commitment*, a psychological state reflecting an employee's emotional attachment to their organization (Meyer & Allen, 1991). Notably, organizational commitment is inversely correlated with turnover intentions, but it is not merely the opposite (e.g., McInerney et al., 2015). Instead, organizational commitment can be considered a measure of "desirable retention" because teachers are actively committed to their work due to a strong emotional connection. This variable thus represents "effective functioning" at work in relation to our well-being definition. Our two outcome variables symbolize salient experiences for teachers (Collie & Carroll, 2023; Klusmann et al., 2023; Skaalvik & Skaalvik, 2017) that may also have been impacted by COVID-19.

### 1.3. The impact of COVID-19: differences across the acute and post-acute phases

The COVID-19 pandemic had two broad phases that had distinct features and that impacted teachers' experiences differently (e.g., Pressley et al., 2024; Sokal et al., 2025). The *acute phase* of the COVID-19 pandemic is defined here as the point at which initiation and acceleration of infections occurred and where large-scale lockdowns were in place, meaning that many schools were closed for weeks or months at a time (CDC, 2024; CDC Museum, 2024). As noted above, we designate the years 2020 and 2021 as the acute phase of COVID-19. In contrast, the *post-acute phase* is defined as 2022 onwards, when most of the population was vaccinated, there were no further large-scale lockdowns, and life was gradually returning to pre-pandemic functioning. This phase was characterized by greater stability in schooling arrangements and clearer public health guidance, although the virus continued to circulate widely and further pandemic-related disruptions remained possible (CDC, 2024; CDC Museum, 2024).

The two phases are distinguished from one another because they represent qualitatively different contexts for teachers' work and well-being. The acute phase involved sudden and large-scale disruption, emergency responses, and a lack of established routines. At this time, there was limited information about COVID-19, how it could be curtailed, and its likely impacts, contributing to heightened uncertainty and unpredictability for teachers. In contrast, during the post-acute phase, knowledge about COVID-19 was much greater, including understanding of transmission, risk, and protection through vaccination. This shift was associated with greater predictability of work conditions and more stabilized responses to disruption, allowing teachers to move from emergency responses towards longer-term adjustment and recovery under more familiar, conditions. Distinguishing between these phases allows for examination of whether teachers' work experiences changed as schooling shifted from an emergency response context to a more

settled period of adaptation.

Notably, a similar distinction between an initial acute phase and a subsequent post-acute phase has been described in relation to other major disruptions. For example, following a natural disaster (e.g., earthquake, flood, bushfire) or conflict (e.g., war), the acute phase typically involves the event itself and its immediate aftermath, including school closures, displacement, emergency responses, and heightened uncertainty. This is generally followed by a post-acute phase characterized by longer-term recovery, rebuilding, and adaptation as schooling resumes under altered conditions (Malinen et al., 2019). On this basis, examining teachers' experiences across acute and post-acute phases during COVID-19 may be informative for understanding how teachers respond to other disruptions that also involve sudden, large-scale change followed by a prolonged recovery period.

Research conducted within the different phases provides some evidence that the two phases impacted teachers differently. During the acute phase of the pandemic and when many teachers were required to teach online, studies suggest that relatedness with colleagues increased (Blair et al., 2024) and/or became particularly important (Stang-Rabrig et al., 2022) as teachers worked together to navigate the changes wrought by the virus. Some teachers reported poorer connections with students due to lockdowns, physical distancing, and hygiene measures like mask wearing (El-Metaal and Sanchez, 2024), while others highlighted how these experiences underscored the importance of their interactions with students (Van Bergen & Daniel, 2023). Jones et al. (2022) showed that teachers' time use during this phase decreased from pre-COVID levels; however, there was some nuance to this: instruction time went down, but planning, assessment, and interacting with parents increased. Other research showed that teachers' perceptions of their time pressure increased over the course of 2020 (Kim et al., 2022; Van Bergen & Daniel, 2023). Notably, teachers did not report heightened levels of disruptive student behavior at this stage of the pandemic (Herman et al., 2021); however, they did report difficulties in knowing if students were engaging in online/hybrid lessons and completing their work (Van Bergen & Daniel, 2023). Turning to our outcomes, emotional exhaustion increased significantly over the first year of the acute phase (Nabe-Nielsen et al., 2022; Klusmann et al., 2023) and well-being more broadly decreased (e.g., Beltman et al., 2021). Additionally, teacher turnover (a variable inversely related to organizational commitment) was similar in 2020 compared with previous years, but increased in 2021 (Bacher-Hicks et al., 2023; Goldhaber & Theobald, 2023). In combination, these studies suggest there were distinct conditions particular to the acute phase of the pandemic, including some differences within this phase—particularly increases in time pressure, emotional exhaustion, and turnover intentions.

There is also evidence of associations among our variables (or cognate constructs) during the acute phase. For example, Sokal et al. (2021) demonstrated that teachers' belonging in their school (which has relevance to relatedness with both colleagues and students) was negatively associated with emotional exhaustion and positively associated with organizational commitment during the acute phase of the pandemic. Also during the acute phase, researchers showed that time pressure was associated with greater emotional exhaustion (Klusmann et al., 2023). Moreover, work-life balance (a variable inversely related to time pressure) was linked with lower turnover intentions during the acute phase (Matthews et al., 2022). Together, these associations among factors during the acute phase align with the main processes within job demands-resources theory, indicating that job demands and resources are relevant for teacher well-being, and reinforcing the relevance of these constructs in the present investigation.

Less research has considered the mean levels of teachers' experiences during the post-acute phase, or across the acute and post-acute phases. However, there are a handful of exceptions. Reinke et al. (2025) examined teachers' emotional exhaustion and turnover intentions in the post-acute phase. Results showed elevated levels of both variables. Oxley et al. (2024) found that teachers reported an increase in student conduct problems at the start of the post-acute phase in 2022. Goldhaber et al. (2025) showed that job ads for teacher vacancies in the US increased substantially in 2022, suggesting a higher level of attrition in the post-acute phase of the pandemic than the acute phase. These results suggest differences in mean levels from the acute to post-acute phase, highlighting the importance of comparing these phases more formally.

Limited research has investigated the role of our job resources and demands in the post-acute phase, or differences across the two phases. One relevant study is that by Ní Chinseallaigh et al. (2025), where an examination of teacher burnout in the post-acute phase revealed four major contributing factors: administrative overload (e.g., increased paperwork), unrealistic expectations (e.g., from parents, authorities), low societal respect for teachers' experiences, and inadequate support for both teacher and student mental health. Other research supports the role of job resources and demands for teachers' well-being with data collected since 2022 (e.g., Arnold & Rahimi, 2025; McDaniel et al., 2024). However, the extent to which our focal job resources/demands played a different role across and within the two phases remains unknown. Based on this prior research and our conceptual frameworks (Bakker & Demerouti, 2017; Hobfoll, 1989), we expected that there might be differences between the acute and post-acute phases of the pandemic in terms of teachers' mean levels of the factors, and in the associations between factors.

### *1.4. Hypothesizing about potential mean-level differences across the pandemic*

Regarding mean levels and with reference to conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018), we hypothesized that teachers would activate their resources in the acute phase of the pandemic (from 2020 to 2021) resulting in an increase in mean levels of both job resources followed by lower levels in the post-acute phase (2022 onwards). For the acute phase, our hypotheses are based on research showing that teachers recognized the salience of their interactions with colleagues and students at that time (Van Bergen & Daniel, 2023), and that they experienced a sense of "being in this together" (Blair et al., 2024). Teachers may also have needed to draw down on social support in order to navigate broader challenges from COVID-19, and to help recover other lost resources as the pandemic progressed (e.g., relying on social support to manage emotional exhaustion; Hobfoll, 1989; Hobfoll et al., 2018). These experiences likely led to increases in reported relatedness.

Moving to the post-acute phase, we expected that teachers would report lower relatedness given their resources were depleted after being steadily drawn upon during the acute phase (Hobfoll, 1989; Hobfoll et al., 2018). Sustained resource expenditure without opportunities for replenishment leads to resource depletion, which in turn reduces individuals' capacity to invest in further resource-building activities (Hobfoll, 1989; Hobfoll et al., 2018). In this context, teachers may have found it more difficult to maintain or strengthen relationships because their social support resources had already been heavily taxed and potentially strained through intensive reliance. Moreover, the transition back to in-person teaching brought a rapid reinstatement of administrative and instructional responsibilities that had been deprioritized during the acute phase (Pressley et al., 2024; Sokal et al., 2025). This increase in demands likely limited teachers' capacity to rebuild or nurture relationships with students. Further still, many students faced social and behavioral difficulties in returning to in-person learning (Oxley et al., 2024), which may have decreased teachers' levels of relatedness with students in the post-acute phase.

For the job demands in our study, we anticipated that teachers' reports of time pressure and disruptive student behavior would show an inverted-U over the six years of our data collection: starting at lower levels in 2020, rising to higher levels in 2021, and returning to lower levels from 2024. During the acute phase, teachers needed to suddenly manage uncertainty, health risks, and novel tasks (Pressley et al.,

2024)—leading to increases in workload and time pressure to navigate these challenges. In 2020, teachers were likely able to draw on their existing resources to manage these demands (cf. Hobfoll, 1989). However, by 2021, teachers may have started to feel more diminished in their resources—meaning job demands became more salient, which is what occurs when individuals are not able to replenish their resources (Hobfoll, 1989). Continuing to the post-acute phase, we expected high levels of job demands in 2022 and 2023 as teachers navigated these additional changes and as students reacquainted themselves with in-person learning. More precisely, teachers were required to return to pre-pandemic functioning with little opportunity to replenish their reserves (Sokal et al., 2025). As noted, many administrative requirements were reinstated at this time (Pressley et al., 2024). We also anticipated that levels of job demands would return to lower levels from 2024, as teachers had opportunities to recover (cf. Hobfoll, 1989) when fewer disruptions from the pandemic impacted their work and as students reacclimatized to in-person learning.

For the two outcomes, we expected differences would occur for similar reasons. We hypothesized that emotional exhaustion would increase from 2020 to 2021 and then return to lower levels from 2024 as teachers' demands initially increased, and their resources were depleted and then slowly replenished over time (inverted-U; Hobfoll, 1989; Hobfoll et al., 2018). For organizational commitment, we hypothesized that this might see the reverse patterns—declines in 2021 and then a return to lower levels from 2024 based on the gradual replenishment of resources.

### 1.5. Hypothesizing about potential differences in associations across the pandemic

Turning to associations among factors, we first broadly refer to expected associations among factors irrespective of the COVID-19 phase. Based on job demands-resources theory (Bakker & Demerouti, 2017), we hypothesized that the job resources would be negatively associated with emotional exhaustion and positively associated with organizational commitment each year. We expected the reverse associations between the job demands and the outcomes. Relatedness with colleagues and students helps teachers to have more positive interpersonal interactions at work, which are important for reducing the prevalence of challenging interactions (relevant to emotional exhaustion) and also for boosting psychological attachment to their school (relevant to organizational commitment; Collie, 2023; Skaalvik & Skaalvik, 2018). In contrast, time pressure and disruptive student behavior mean that teachers are working harder to get their work done (relevant to emotional exhaustion), and are likely also struggling to meet the learning outcomes and build psychological attachment due to disrupted classrooms (relevant to organizational commitment; Kingsford-Smith et al., 2023; Skaalvik & Skaalvik, 2017).

At this point, it is worth noting that although we anticipated mean levels of the resources and demands would at times shift in alignment with each other, this does not preclude negative associations among these factors. Even when means shift in the same direction, there remains variance around those means. Thus, consistent with job demands-resources theory, teachers with higher personal or job resources are still expected to report lower demands, resulting in a negative association between these constructs.

Now, we turn to hypothesizing specifically in relation to similarities and differences across years. For this, we return to conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018). We expected that the two job resources would play a similar role through the two phases, given the importance of social support (and resources more broadly) during challenging times (e.g., Blair et al., 2024). Teachers may have also relied on social job resources to assist in replenishing other lost resources in each phase of the pandemic (Hobfoll et al., 2018). Thus, although levels may have changed as detailed above, we expected the association among the job resources and the outcomes to be similar in valence (negative for emotional exhaustion, positive for job commitment). In contrast, we expected that job demands would have a progressively stronger link with the outcomes before waning. This is because teachers were unlikely to have opportunities to replenish their resources to cope with these demands as the pandemic went on (Malinen et al., 2019). Given inconsistency in prior research around the evidence of the boosting and buffering processes (Granziera et al., 2026), we did not hold any hypotheses about how these may play out across the different years.

## 2. Study overview

The aim of the present investigation is to provide a snapshot in time of teachers' well-being from the start of COVID-19 up to six years later. Our study involved six different years of data collection with independent samples of teachers. We examined teachers' experiences of two resources (relatedness with colleagues, relatedness with students), two demands (time pressure, disruptive student behavior), and two well-being outcomes (emotional exhaustion, organizational commitment). The years 2020-2021 were considered to represent the acute phase of the pandemic, and the years 2022-2025 to represent the post-acute phase of the pandemic (CDC, 2024; CDC Museum, 2024). We first examined mean levels of the different factors and whether these differed across the years. We also investigated the extent to which associations from the job resources/demands to the outcomes differed across years (while controlling for gender and teaching experience). The findings offer insight into teachers' work experiences during the acute phase of COVID-19, as well as how these experiences have evolved in the post-acute phase as schools transitioned back to standard practices.

## 3. Method

### 3.1. Sample and procedures

The sample comprised 2489 Australian teachers integrated from separate samples collected annually between 2020 and 2025. This integrative multi-sample design reflects the fact that data were drawn from an ongoing yearly survey administered to different teacher cohorts each year. The combination and comparison of these samples supports understanding of the different situations that teachers face. Table 1 provides characteristics of each sample. Data collection in all years occurred in April and May, which corresponds to the first half of the academic year in Australia.

In 2020, the first year of the acute phase of COVID-19, data collection occurred near the end of the first pandemic lockdown, when many students were learning remotely in Australia. Of the 2020 sample, 31% of the sample were teaching as usual, 62% teaching remotely or hybrid due to COVID-19, 6% were not teaching at the time due to COVID-19. In 2021, which was still during the COVID-19 acute phase, 100% of the sample were teaching as usual during time of data collection. This is because Australia had very few cases of COVID at that time. However, many schools experienced lockdowns due to COVID-19 at other points in the year and there were strong isolation and hygiene requirements all year. In 2022, which represents the start of the post-acute phase, 96% of the sample were teaching as usual and 4% teaching remotely or hybrid due to COVID-19. There were no lockdowns due to COVID-19 that year in Australia. In 2023-2025, teachers were teaching as usual during data collection. There were no lockdowns due to COVID-19 in these years in Australia.

Data are shared with other studies that have examined single years of the data (see Supplementary Materials). Importantly, the present study represents the first time any of the samples have been integrated together. For all six datasets, data collection occurred via Qualtrics and their market research panel partners. Adults who had previously shown an interest in taking part in education-related surveys were informed about the project invitations each year. Participants who had

**Table 1**
Sample characteristics.

| Sample size | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| | 325 | 426 | 502 | 492 | 368 | 376 |
| *Gender* | | | | | | |
| Woman | 67% | 82% | 87% | 87% | 82% | 48% |
| Man | 31% | 18% | 13% | 12% | 17% | 52% |
| Non-binary | 2% | 0% | <1% | 1% | <1% | <1% |
| Average age (years) | 39 (*SD* = 12) | 36 (*SD* = 10) | 34 (*SD* = 9) | 36 (*SD* = 10) | 39 (*SD* = 11) | 39 (*SD* = 11) |
| Average teaching experience (years) | 12 (*SD* = 11) | 11 (*SD* = 9) | 10 (*SD* = 8) | 11 (*SD* = 9) | 13 (*SD* = 10) | 12 (*SD* = 8) |
| % English speaking background | 84% | 92% | 92% | 94% | 93% | 98% |
| *School level* | | | | | | |
| Primary | 48% | 52% | 58% | 56% | 56% | 40% |
| Secondary | 39% | 40% | 37% | 39% | 40% | 44% |
| Both levels | 13% | 7% | 5% | 6% | 4% | 16% |
| *School SES* | | | | | | |
| Low | 9% | 19% | 17% | 20% | 20% | 10% |
| Below average | 12% | 18% | 17% | 18% | 17% | 12% |
| Average | 48% | 39% | 42% | 41% | 38% | 43% |
| Above average | 25% | 18% | 20% | 18% | 21% | 27% |
| High | 5% | 5% | 5% | 3% | 4% | 8% |
| *School location* | | | | | | |
| Inner city | 13% | 10% | 10% | 9% | 10% | 28% |
| Suburban | 61% | 71% | 74% | 68% | 72% | 57% |
| Rural | 23% | 17% | 16% | 22% | 17% | 12% |
| Remove | 3% | 1% | <1% | 1% | 1% | 3% |
| *School sector* | | | | | | |
| Government | 64% | 68% | 63% | 73% | 70% | 77% |
| Systemic Catholic | 15% | 16% | 19% | 15% | 15% | 9% |
| Non-government/ independent | 20% | 16% | 17% | 12% | 15% | 14% |

*Note*. The population parameters for the Australian teaching population were similar to our sample statistics. For example, 82% female in primary school, 61% female in secondary schools, teachers work in government (63%), systemic Catholic (19%), and independent schools (17%; Australian Bureau of Statistics, 2022).

participated in previous years were excluded from future invitations. Potential participants accessed the online survey, gave informed consent, and completed screening questions to verify their employment as teachers in Australian schools. Participants who met the screening criteria, but who completed the survey in less than one-third of the median completion time, gave identical responses to over 80% of items, or responded similarly to pairs of items with opposite valence (Dewitt et al., 2019) were exited from the survey. The response rates varied between 36% (2020) to 94% (2022) ($M$ = 78%) across the six years. Ethics approval was obtained from the UNSW Human Ethics Research Committee (approval number HC210317).

### 3.2. Measures

Scores from all scales have demonstrated evidence of validity in prior research (e.g., Collie, 2023; Klassen et al., 2012; Maslach & Jackson, 1981), and reliability estimates in the present study were all at adequate levels (see Table 2 and Results for details). Items for all substantive variables were scored from 1 (strongly disagree) to 7 (strongly agree). Four items adapted from Chen et al.'s (2015) Basic Psychological Need Satisfaction and Frustration Scale were used to measure relatedness with colleagues. The adaptations included inserting the phrase "in my job" and substituting "people" with "colleagues" (e.g., "I feel that the colleagues I care about in my job also care about me"). Relatedness with students was measured with Klassen et al.'s (2012) four items (e.g., "I feel connected to my students"). Collie's (2023) Time Pressure Scale (four items; e.g., "I feel pressed for time in my job") and Disruptive Student Behavior Scale (four items; e.g., "It is difficult to ensure my students concentrate on their schoolwork") were used to measure the two job demands. Emotional exhaustion was measured with Maslach and Jackson's (1981) four items (e.g., "I feel emotionally drained from my work"). Collie et al.'s (2016) four items were used to measure organizational commitment (e.g., "I am proud to belong to this school community"). Background factors comprised gender (coded 0 for men and 1 for women) and teaching experience (continuous variable scored in years).

### 3.3. Data analysis

We conducted our analyses using M*plus* 8.11 (Muthén and Muthén, 2025) and these involved multigroup confirmatory factor analysis (CFA) and multigroup structural equation modelling (SEM). For all models, we used robust maximum likelihood (MLR) as the estimator, and applied full information maximum likelihood to integrate missing data (<1%). We refer to the root-mean-square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker Lewis Index (TLI) to inform model fit. RMSEA values $\leq$ .08 and CFI/TLI values $\geq$ .90 were taken to indicate adequate fit (e.g., Hu & Bentler, 1999).

Raw means and standard deviations were calculated for each substantive factor. Next, we examined mean differences across the samples. There was evidence of heterogeneity in variances for all variables except organizational commitment (Levene's statistics ranged from 2.82 to 76.41, $df = 5$, $ps \leq .015$). This heterogeneity can bias the standard errors and distort the sampling distributions, leading to unreliable or invalid conclusions. Given this and given there are no controls for measurement error with raw means, we opted to run comparisons using latent means. To obtain these, and also to provide evidence of comparable response processes for the six independent samples, we conducted measurement invariance tests using multigroup CFA with three models: configural (all parameters freely estimated across samples), metric (loadings constrained across samples), and scalar (loadings and intercepts constrained across samples). We interpreted changes in RMSEA of $\leq$.015 and CFI/TLI of $\leq -.01$ from one model to the next in the series as evidence of measurement invariance (Chen, 2007; Cheung & Rensvold, 2002).

Standardized latent means were obtained from the scalar model (assuming invariance was met) and were compared with each other via *z*-tests using the "Model Constraint" option in M*plus*. Given our main hypothesizing about mean differences was broad in nature—reflecting general expectations of trends—we compared all possible combinations of means across all years using two-tailed tests. Means in each year were assigned a unique parameter identifier and pairwise comparisons involved subtracting means from one another (or zero in the case of comparisons with the first year; e.g., yr2vyr3trel = yr2trel – yr3trel). Alongside that, our hypothesizing also included two directional hypotheses for each factor that could be tested with one-tailed tests (i.e., 2021 levels of the two job resources would be higher than 2020 and 2022 levels; for the two job demands and emotional exhaustion, 2021 levels would be higher than 2020, and 2024 levels would be lower than 2023; and organizational commitment would show the reverse pattern). To test these directional comparisons, the direction of the difference was checked from the earlier *z*-tests and the two-tailed *p*-value from M*plus* was divided by two.

In order to examine associations among factors, we began with a measurement model using multigroup CFA. This provided correlations among the substantive and background factors for each sample, and allowed us to calculate reliability estimates for the substantive factors using McDonald's omega—again for each sample. In this model, all parameters were freed across samples (except latent means to allow convergence). Substantive variables were entered into modelling as latent factors. Gender and teaching experience were entered into modelling with loading set to 1 and residual set to 0. This manifest-as-latent approach ensures all factors within the model are treated as latent and can aid with model convergence. Notably, results are

**Table 2**
Reliability and raw means (and standard deviations).

| | ω | *M (SD)* | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
| *Predictors* | | | | | | | |
| Relatedness with colleagues | .89/.92/.91/.92/.88 | 5.24 (1.22) | 5.63 (1.13) | 5.43 (1.13) | 5.59 (1.03) | 5.69 (.88) | 5.10 (1.13) |
| Relatedness with students | .90/.83/.84/.81/.83 | 5.66 (1.14) | 6.35 (.70) | 6.21 (.80) | 6.26 (.71) | 6.33 (.67) | 5.48 (1.25) |
| Time pressure | .85/.90/.89/.89/.90 | 4.65 (1.31) | 5.65 (1.28) | 5.74 (1.23) | 5.92 (1.17) | 5.85 (1.24) | 4.60 (1.40) |
| Disruptive student behavior | .83/.85/.84/.86/.89 | 4.09 (1.29) | 3.96 (1.42) | 4.47 (1.34) | 4.53 (1.38) | 4.58 (1.48) | 4.22 (1.24) |
| *Outcomes* | | | | | | | |
| Emotional exhaustion | .88/.90/.89/.90/.91 | 4.29 (1.44) | 5.00 (1.44) | 5.39 (1.31) | 5.55 (1.27) | 5.49 (1.39) | 4.37 (1.49) |
| Organizational commitment | .92/.90/.88/.88/.90 | 5.16 (1.29) | 5.26 (1.25) | 5.06 (1.27) | 5.08 (1.24) | 5.14 (1.23) | 5.05 (1.26) |

*Note*. Omegas are presented for 2020/2021/2022/2023/2024/2025. Raw means were calculated based on mean scores. All scales ranked from 1 (Strongly disagree) to 7 (Strongly agree).

unchanged from treating these as manifest variables.

Next, structural paths were estimated using multigroup SEM to compare model-level path invariance across samples. This provides broad understanding about whether the associations among all factors within the model are similar or different across samples. The job resources and demands were entered as predictors of the two outcomes. Background factors served as covariate controls for all substantive factors.[1] The same factor specifications as those described for the measurement model were used, along with controls for shared variance among factors. We ran two models to test model-level path invariance: a model with all parameters freed across samples and a model with beta estimates constrained across samples. The two models were compared using a chi-square difference test to provide broad evidence of model-level path invariance. To interpret standardized betas, we refer to Keith's (2015) guidelines: small ($|\beta| < .10$), moderate ($.10 \leq |\beta| < .25$), and large ($|\beta| \geq .25$) effect sizes. Then, individual paths were compared to provide more specific path-level differences using the freed model. This provides nuanced understanding of how specific associations among factors are similar or different across years. For this, Wald tests were run—starting with omnibus tests and then with follow-up tests for any significant omnibus tests. These tests used the "Model Test" option in M*plus*, where unique parameter identifiers for a specific path within each year were tested for equality in year-by-year pairwise comparisons. A significant result indicated inequality across years in the paths. This provides a more robust test than comparing significance levels of betas. More precisely, significant tests reveal if the betas are significantly different from zero. In contrast, Wald tests compare two betas to see if they are significantly different from one another. In a final analysis, latent interactions among job resources and demands were also tested using an omnibus model with all samples combined. This approach was taken given mixed findings in prior work regarding the existence of interactions (e.g., Granziera et al., 2026) and to avoid identifying spurious results.

## 4. Results

Table 2 shows raw means and standard deviations for substantive factors.[2] Measurement invariance was established across the six samples (see Supplementary Materials for details). Latent means from the scalar model, which included controls for measurement error, are presented in Table 3 (including significant differences) and displayed in Fig. 1. Latent mean comparisons revealed several differences in mean equivalence. Starting with the two job resources, the 2020 and 2025 samples had the lowest levels. This was generally followed by the 2022 and 2023 samples, and then the 2021 and 2024 samples with the highest levels. For our directional comparisons using one-tailed tests, 2021 levels were higher than 2020 levels and 2022 levels ($ps < .001$). Chronologically, this shows that the two job resources increased from 2020 to 2021, dipped in 2022, increased again in 2023 and 2024, and then dipped in 2025.

Turning to the job demands and focusing on time pressure first, the equivalence comparisons showed that 2020 and 2025 samples had the lowest levels. This was followed by the 2021, 2022, and 2024 samples. The highest levels were evident in the 2023 sample, though not significantly so. Our directional comparisons revealed 2021 levels were higher than 2020 levels ($p < .001$), but 2024 levels were not lower than 2023 levels ($p = .12$). Chronologically, this shows that time pressure progressively increased from the 2020 to 2023 samples, and then decreased back to 2020-levels for the 2025 sample. For disruptive behavior, the equivalence comparisons revealed that the 2020 and 2021 samples had the lowest levels. This was followed by the 2025 sample (which had similar levels to 2020), and then the 2022, 2023, and 2024 samples with the highest levels. The directional comparisons aligned with these findings: disruptive behavior did not increase from 2020 to 2021 ($p = .97$), and it did not decrease from 2023 to 2024 ($p = .27$). Chronologically, this shows that disruptive behavior was low in 2020 and 2021, and then increased from 2022 to 2024, before decreasing in 2025.

Moving to the outcomes and beginning with emotional exhaustion, the equivalence comparisons showed that the 2020 and 2025 samples had the lowest levels, followed by 2021, then 2022 and 2024, and then

**Table 3**
Latent mean comparisons from scalar invariance model.

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|
| Relatedness with colleagues | .00 [a] | .37 [c] | .18 [b] | .35 [c] | .58 [c] | −.14 [a] |
| Relatedness with students | .00 [a] | 1.09 [c] | .76 [b] | .99 [b,c] | 1.14 [c] | −.15 [a] |
| Time pressure | .00 [a] | .84 [b] | .95 [b] | 1.21 [c] | 1.02 [b, c] | −.04 [a] |
| Disruptive student behavior | .00 [a, b] | −.14 [a] | .25 [c] | .30 [c] | .32 [c] | .12 [b] |
| Emotional exhaustion | .00 [a] | .53 [b] | .89 [c] | 1.06 [d] | .92 [c,d] | .08 [a] |
| Organizational commitment | .00 [a, b] | .09 [b] | −.08 [a] | −.07 [a] | .01 [a,b] | −.11 [a] |

*Note*. Superscript values that are identical within row indicate non-significant difference in latent means across years. Different superscripts indicate a significant difference in means. For all factors, the comparison between 2020 and 2021 was also tested as a one-tailed directional hypothesis, as was the comparison between 2021 and 2020 (for the job resources) or between 2023 and 2024 (for the remaining factors; see Results for details).

[1] For completeness, we also tested our model with all background factors as shown in Table 1. Results were very similar to our main results presented below (i.e., with gender and teaching experience). All significant findings remained and beta estimates were very similar in strength. In addition, *R*-squared for the two outcomes changed by only 1-2%. As such, we proceeded with our original model specification on the grounds of parsimony.

[2] For completeness, we also provide raw means by two characteristics (gender and school level) in Supplementary Materials because these two characteristics shifted over the samples and they have been linked with teacher well-being in prior research (e.g., Herman et al., 2021; Klusmann et al., 2023). These results show similar patterns to our whole sample raw means.

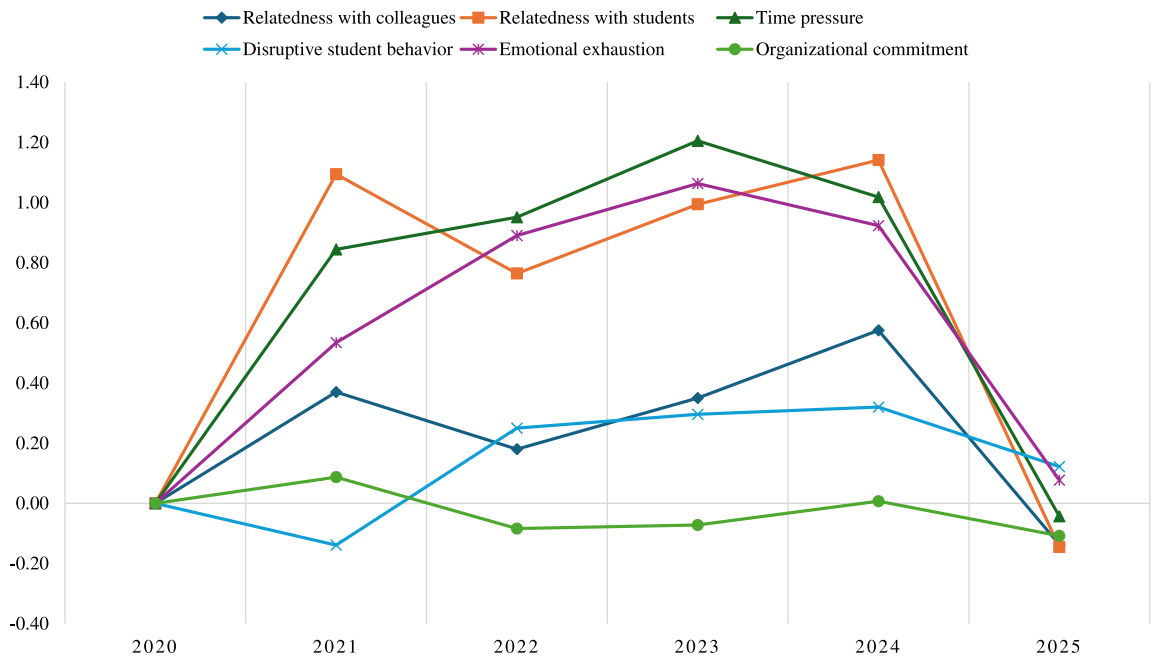



**Fig. 1.** Graph of standardized latent means for each year (in reference to 2020).

2023 (which had similar levels to 2024). Directional comparisons confirmed these findings: 2021 levels of emotional exhaustion were higher than 2020 levels ($p < .001$), but 2024 levels were not lower than 2023 levels ($p = .25$). Chronologically, this shows that emotional exhaustion increased from 2020 to 2023, before dropping back to 2020-levels in 2025. For organizational commitment, similar levels were evident in all years, except 2021 which had higher levels than 2022 and 2023. In the directional comparisons, organizational commitment did not decrease from 2020 to 2021 ($p = .13$) and it did not increase from 2023 to 2024 ($p = .14$). Chronologically, this indicates largely stable levels across the six years.

The measurement model using multigroup CFA yielded good fit: $\chi^2$ (1638) = 2684.78, $p < .001$, RMSEA = .039, CFI = .96, TLI = .96. Reliability estimates are provided in Table 2 and were adequate for all factors and in all samples. Correlations among substantive factors are shown in Table 4. Across all samples, both job resources were positively interrelated, as were the two job demands. Associations between job resources and demands varied across the samples, but were generally in the expected negative direction. However, there were a few interesting differences. Namely, relatedness with colleagues was positively associated with time pressure in 2020, but unassociated in other years. Relatedness with students was positively associated with time pressure in all years except 2024, where it was unassociated. The job resources were unassociated or negatively associated with emotional exhaustion, with the exception of a positive association between relatedness with students and emotional exhaustion in 2020. Time pressure and organizational commitment were negatively associated in all years, except 2020 where a positive association was evident. Finally, the two outcomes were negatively interrelated.

Next, we ran the two multigroup (by year) SEMs. The freed model yielded adequate fit: $\chi^2$ (1638) = 2684.78, $p < .001$, RMSEA = .039, CFI = .96, TLI = .95. The beta constrained model did as well: $\chi^2$ (1678) = 2769.88, $p < .001$, RMSEA = .040, CFI = .96, TLI = .96. A chi-square difference test was significant ($\Delta\chi^2$ [40] = 85.08, $p < .001$), indicating that the constrained model significantly worsened fit. As such, we retained the freed model, indicating that there were model-level differences in paths across the samples. Results are presented in Table 5 and Fig. 2. Only results with medium or large effect sizes are considered meaningful (see Data Analysis), and we summarize those here. Relatedness with colleagues predicted lower emotional exhaustion in the 2020 and 2021 samples. Relatedness with students predicted lower emotional exhaustion in the 2023 and 2024 samples. Across all years, both job resources predicted greater levels of organizational commitment. Time pressure predicted greater emotional exhaustion in all years, and it predicted lower organizational commitment in all years except 2020. Disruptive student behavior predicted greater emotional exhaustion in all years except 2023, and it predicted lower organizational commitment only in the 2020 sample.

**Table 4**
Correlations among substantive factors.

| | Relatedness with colleagues | Relatedness with students | Time pressure | Disruptive student behavior | Emotional exhaustion |
|---|---|---|---|---|---|
| Relatedness with colleagues | | | | | |
| Relatedness with students | .72/.36/.53/.56/.49/.80 | | | | |
| Time pressure | .16/-.01/.04/-.02/-.13/.01 | .36/.16/.17/.11/.03/.18 | | | |
| Disruptive student behavior | .02/-.19/-.17/-.12/-.20/-.23 | −.01/-.31/-.27/-.22/-.18/-.19 | .41/.16/.22/.25/.37/.46 | | |
| Emotional exhaustion | −.07/-.17/-.10/-.14/-.21/-.21 | .11/-.01/.01/-.10/-.15/-.03 | .71/.71/.84/.79/.84/.87 | .56/.33/.33/.33/.47/.63 | |
| Organizational commitment | .78/.61/.63/.61/.70/.85 | .68/.53/.52/.64/.49/.77 | .16/-.12/-.18/-.16/-.24/-.09 | −.10/-.25/-.22/-.24/-.30/-.22 | −.22/-.33/-.31/-.34/-.36/-.32 |

*Note*. Order of estimates are as follows: 2020/2021/2022/2023/2024/2025. $|r| > .15$ are significant at $p < .05$.

**Table 5**
Standardized beta estimates from multigroup SEM with all parameters freed.

| | Emotional exhaustion | | | | | | Organizational commitment | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
| *Covariates* | | | | | | | | | | | | |
| Gender | .07 | −.04 | .02 | .01 | .06 | .02 | −.05 | −.01 | .05 | .02 [a] | −.07 [b] | −.05 |
| Teaching experience | .03 | −.08 | −.06 | −.04 | −.01 | −.02 | −.03 | .05 | .05 | .04 | .01 | −.01 |
| *Job resources* | | | | | | | | | | | | |
| Relatedness with colleagues | −.20* | −.12* | −.08† | −.04 | −.03 | −.17 | .62* | .46* | .47* | .34* | .58* | .58* |
| Relatedness with students | .02 | −.01 | −.07 | −.14* | −.14* | .02 | .23* [a,b] | .39* [a,b] | .31* [a,b] | .47* [a] | .20* [b] | .38* [a,b] |
| *Job demands* | | | | | | | | | | | | |
| Time pressure | .59* [a] | .68* [a] | .83* [b] | .79* [b] | .78* [b] | .76* [a,b] | .05 [b] | −.17* [a] | −.26* [a] | −.20* [a] | −.12* [a] | −.18* [a] |
| Disruptive student behavior | .34* [c] | .19* [a,b,c] | .11* [a,b] | .08 [a] | .15* [a,b,c] | .24* [b,c] | −.14* | −.01 | .01 | −.03 | −.10 | .06 |
| *R-squared* | .62 | .57 | .75 | .68 | .76 | .86 | .65 | .51 | .51 | .55 | .57 | .77 |

*Note*. For each outcome, identical superscript values within a row indicate a non-significant difference in paths for that outcome. Different superscripts indicate a significant difference in paths. Estimates in rows without superscript values are all non-significantly different from one another.
*$p < .05$. †$p < .05$, but the effect size is small and so is not considered meaningful.

Next, we compared betas across samples using Wald tests to provide understanding of path-level differences across the samples. Wald tests revealed many similarities in the paths across samples, along with several significant differences. This involved the freed model. For completeness, we also reran the multigroup SEM while also including scalar constraints in a subsidiary model. Findings and Wald tests involving substantive factors were very similar to our main model (all significant with the same direction). Here, we present results from our main model, but note the one instance where findings were different in the scalar-constrained model.

Starting with the job resources, although some paths were statistically significant (i.e., different from zero) and others were not, Wald tests revealed no significant differences in the paths linking the two job resources with emotional exhaustion across years, and there were no differences in paths between relatedness with colleagues and organizational commitment (omnibus Walds [1-5] = .56-9.81, *ps* < .06-.57). There was only one significant difference and it occurred for relatedness with students, which was significantly more positively associated with organizational commitment in the 2023 sample compared with the 2024 sample (Wald [1] = 6.38, $p = .01$).

Moving to the job demands, time pressure was significantly more positively associated with emotional exhaustion in the 2022, 2023, and 2024 samples compared with 2020 (Walds [1] = 4.52-10.57, *ps* < .04) and 2021 (Walds [1] = 3.95-10.54, *ps* < .05). However, these significant differences were not evident in the scalar-constrained model, meaning results should be taken with some caution.

Time pressure was significantly more negatively associated with organizational commitment in all years compared with 2020 (Walds [1] = 3.83-12.13, *ps* < .04). Disruptive student behavior was significantly more positively associated with emotional exhaustion in 2020 than in 2022 or 2023 (Walds [1] = 5.34-8.36, *ps* < .02), and in 2025 than in 2023 (Wald [1] = 7.13, $p = .008$). There were no differences in the path between disruptive student behavior and organizational commitment over the years (omnibus Walds [1-5] = 2.79-7.44, *ps* < .09-.41). Finally, the model with the interactions yielded significantly greater fit ($\Delta\chi^2$ [8] = 19.43, $p = .01$); however, the change in *R*-squared for each outcome was only 1%, suggesting that the inclusion of the interactions did not explain a substantial amount of additional variance. On the grounds of parsimony, we focused on main effects.

Taken together, there was little variation over time in how the two job resources related to each outcome. However, the positive association between time pressure and emotional exhaustion intensified from 2022 onwards relative to 2020–2021, and time pressure emerged as a negative predictor of organizational commitment in 2021 and persisted thereafter. Disruptive student behavior was more strongly associated with emotional exhaustion in 2020 than in later years, whereas its association with organizational commitment did not vary across samples.

## 5. Discussion

We examined teachers' well-being in independent samples of teachers across six years from the start of the COVID-19 pandemic in 2020 up to 2025. Results showed that mean levels of teachers' job resources, job demands, and outcomes varied across the six samples with, for example, time pressure and emotional exhaustion showing notable increases up to 2023 and then declines thereafter. Multigroup SEM also revealed that the job resources played similar roles in relation to both outcomes across the six years, whereas there was more differentiation in relation to the job demands. Notable findings are discussed below.

### 5.1. Differences in mean levels

Our findings showed that means for the two job resources demonstrated an "M-shaped" pattern, generally aligning with our hypotheses. These findings reflect meaningful differences across and also within the two phases. In the acute phase, the increases may have occurred because there was a sense of "being in this together" (Blair et al., 2024), which may have promoted feelings of social support. Then, in moving to the post-acute phase, teachers' resources were depleted from navigating the previous two years (Hobfoll, 1989; Hobfoll et al., 2018) and they did not initially have time to replenish these when in-person teaching resumed along with many administrative tasks that had been on hold (Pressley et al., 2024). Many students experienced social and behavioral difficulties upon returning to in-person learning (Oxley et al., 2024), which may also explain the dip in relatedness with students at the start of the post-acute phase. Then, as time went on in 2023 and 2024, teachers were able to replenish their resources. It was interesting to see that both job resources returned to initial levels in 2025. One possible reason for this is that our 2025 sample differed from the other samples, with a greater proportion of male teachers and those working in secondary schools. When examined separately by gender and school level, the mean trends remain similar (see Supplementary Materials), suggesting that these factors do not explain the 2025 declines. Another potential reason for why these drops occurred may relate to conservation of resources theory: by four years after the acute phase, teachers likely had numerous opportunities to recover lost resources (e.g., vacations, no more major disruptions from COVID-19; Hobfoll, 1989; Hobfoll et al., 2018). This means that they no longer needed to draw down on social support as strongly to compensate for other lost resources. It is also possible this finding reflects normalization processes, where factors that were initially salient become less so overtime due to recalibration (e.g., Sheldon & Lyubomirsky, 2012). Importantly, the 2025 levels still reflect positive appraisals (see Table 2)—and thus do not suggest that teachers' mean levels dropped substantially.

Turning to the job demands, results showed that time pressure and disruptive student behavior generally followed an inverted-U pattern, broadly aligning with our hypotheses—though only one directional

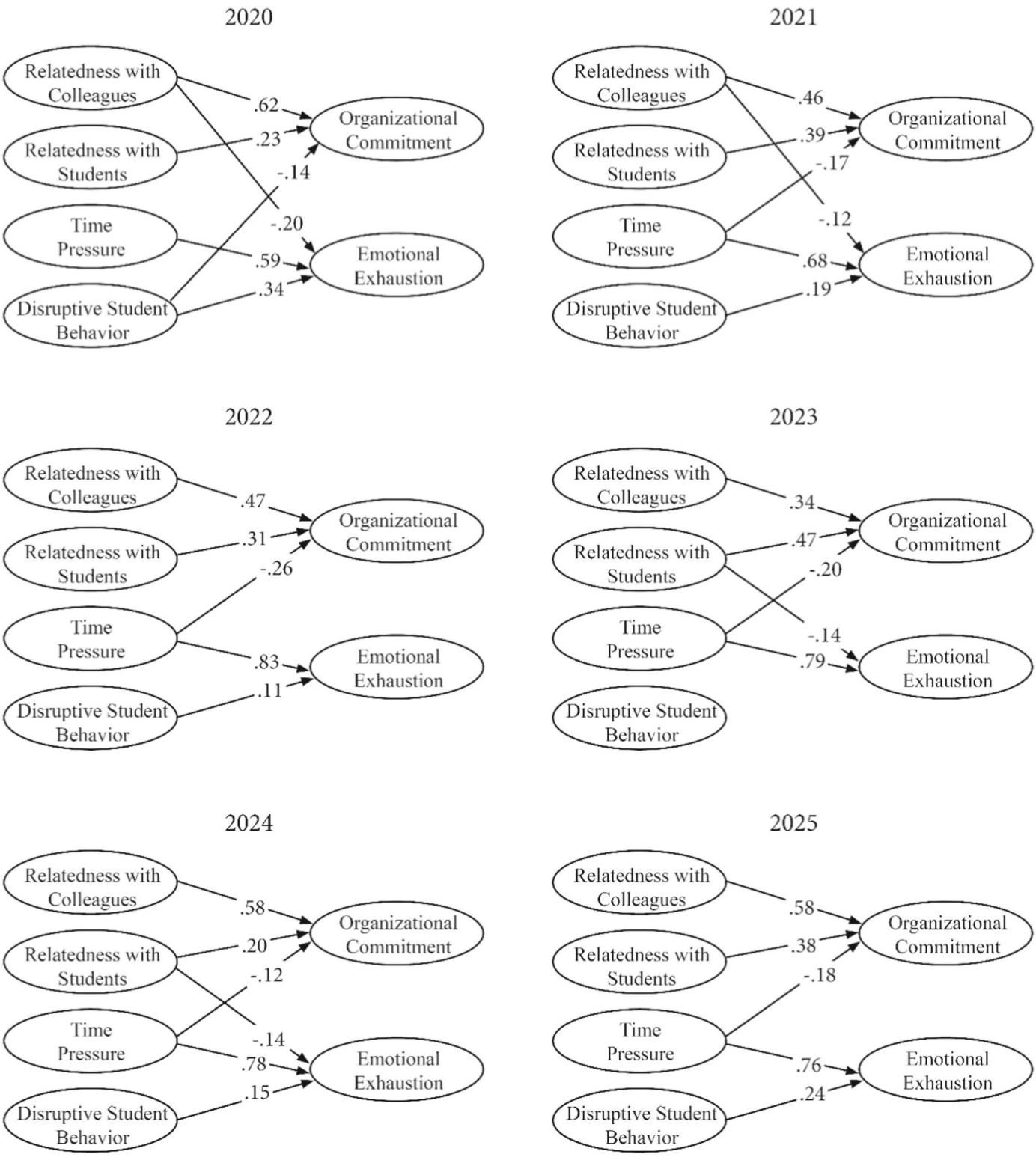



**Fig. 2.** Significant results from multigroup Sem

comparison was significant: 2021 levels of time pressure were higher than 2020 levels. Once again though, the findings demonstrate differences both within and across phases. In 2020, teachers were likely able to draw on their existing resources (Hobfoll, 1989; Hobfoll et al., 2018). By 2021, however, teachers may have started to lack resources due to ongoing uncertainty and challenges, which would have impacted their ability to navigate job demands. Then, in the post-acute phase, teachers were required to return to pre-pandemic functioning with little opportunity to replenish their reserves to begin with (Pressley et al., 2024; Sokal et al., 2025). Notably, the mean levels started dropping from 2024 (though not significantly compared with 2023) and in 2025 returned to 2020 levels, suggesting that teachers had by this point received sufficient opportunities to recover their resources.

For our outcomes, emotional exhaustion followed an inverted-U, as broadly hypothesized and further supported by one of the direction comparisons (2021 levels were higher than 2020 levels). These findings

likely occurred for similar reasons to the job demands: teachers needed to manage increasing and changing demands upon the onset of the pandemic and had few opportunities to replenish their resources and reserves (Pressley et al., 2024; Sokal et al., 2025). This is also supported by research on natural disasters, which has shown that teachers can experience prolonged emotional exhaustion after the emergency phase as they come to terms with the disruption and navigate to a new normal (Malinen et al., 2019; O'Toole, 2018). Notably, the findings hold relevance to students' outcomes given that emotional exhaustion is implicated in teachers' instructional approaches and motivational style in the classroom (Simões & Calheiros, 2019). This highlights the importance of examining the downstream effects of teacher well-being factors like emotional exhaustion. At the same time, there is evidence of regional variation in how teachers' instructional approaches and motivational styles relate to students' outcomes, likely reflecting differences in cultural norms, educational systems, and expectations placed on teachers (Wang et al., 2024). This highlights the importance of extending work to test how our associations generalize across cultures.

Moving to organizational commitment, levels were generally very similar across all six samples, which was contrary to our hypotheses. Perhaps this speaks to the relative security of teaching work during a time of significant job losses, and/or teachers' dedication to the critical role of their profession at such a tumultuous time. Prior studies in Australia from before COVID-19 show means of organizational commitment that are similar to our study's levels (Granziera et al., 2022). This further suggests that teachers' organizational commitment was not unduly impacted by the pandemic. Similar stability was also observed for professional commitment in Israel in a two-wave study conducted during the third COVID-19 lockdown and following the return to face-to-face teaching (Amir et al., 2025).

### 5.2. Differences in associations

In line with our hypotheses, results showed that the job resources were positively and strongly associated with organizational commitment, and that the job demands were positively and strongly associated with emotional exhaustion. These results reflect the dual process in job demand-resources theory, where factors of a similar valence are more strongly associated (e.g., a job demand and a maladaptive outcome) than factors of different valence (Collie et al., 2020).

Our results revealed some similarities and differences over the six years. The job resources had largely similar associations with the outcomes in each year, in line with our expectations. Perhaps there was little difference across the pandemic phases because relatedness is a basic psychological need (Ryan & Deci, 2017) and thus is consistently essential for teachers (Blair et al., 2024; Klassen et al., 2012; Van Bergen & Daniel, 2023).

Time pressure varied in its associations with emotional exhaustion and organizational commitment. For emotional exhaustion and generally aligning with our hypothesis, time pressure was more strongly predictive in the post-acute phase than in the acute phase (however, these findings were not evident in the subsidiary scalar-constrained model suggesting some caution in interpreting these differences). Time pressure was unassociated with organizational commitment in the 2020 sample, but became negatively associated from the 2021 sample onwards—once again, broadly aligning with our expectations. These patterns may be attributable to the heightened time demands associated with COVID-19, alongside a gradual depletion of teachers' resources to manage them.

Disruptive student behavior was a weaker predictor of emotional exhaustion in the 2023 sample compared with other years, and there was no difference in its role for organizational commitment over the six years. These results varied from our hypotheses. It is not clear why the finding for emotional exhaustion occurred, but it is interesting that the strongest associations were at the start and end of our six years. Student disruptive behavior was generally weakly or unassociated with organizational commitment across the six years. Thus, this demand did not appear to be influential in teachers' attachment to their school of employment.

### 5.3. Practice implications

Our findings provide tentative guidance for efforts to support teachers prior to and during future educational disruptions. Here, we provide strategies based on our findings, but that are also grounded in prior work examining similar factors. A key finding from our study that underscores prior work (e.g., Klassen et al., 2012) was the critical role of relatedness as a resource for teachers to navigate challenges. During the acute phase of disruptions, schools and school leaders may want to make efforts to ensure time is dedicated to maintaining strong interpersonal relationships among teaching staff (e.g., Ribosa et al., 2024) and in the classroom (e.g., Spilt et al., 2011). This could potentially involve leaning on any social-emotional learning programs the school implements to ensure solid interpersonal supports are activated (e.g., Jennings et al., 2017). Also during the acute phase, disruptive student behavior was linked with greater emotional exhaustion. To assist teachers, school leaders may want to focus on providing additional discipline support, modelling respectful interactions, and listening to teacher perspectives (Vanlommel et al., 2024). Such practices might serve as a new resource that teachers can draw upon, help prevent student behavior problems, and support teachers' self-efficacy for classroom management (Lazarides et al., 2020). Turning to the post-acute phase, where mean levels of disruptive student behavior increased, professional learning communities might be a helpful strategy. Teachers can share experiences, ideas, and learnings (Liu et al., 2022) on how to engage students and manage classrooms as everyone adapts to the new normal.

Reducing time pressure for teachers appears particularly important in the post-acute phase. Practical strategies may include streamlining administrative tasks, reducing the number of meetings, and other similar measures to reduce fragmentation and interruptions to core pedagogical work (Creagh et al., 2025; Gavin, Fitzgerald, Stacey, McGrath-Champ, & Wilson, 2025). As noted above, many administrative tasks were paused during the acute phase, but implemented again at the start of the post-acute phase (Pressley et al., 2024). Given our findings, it may be worth postponing those activities a little longer in the post-acute phase to give teachers more time to recover. This is also relevant to teachers' heightened levels of emotional exhaustion.

### 5.4. Limitations and future directions

Our findings should be interpreted in relation to several limitations that provide directions for future research. First, the data were drawn from six independent annual samples. It is notable that we were able to capitalize on six snapshots of teachers' workplace well-being to provide understanding about their functioning during the acute and post-acute phases of COVID-19. However, it is possible that any differences we observed relate to variations across our samples. Research with longitudinal methods capturing data from the same teachers is needed to ascertain how individual levels change across time. Importantly though, our measurement invariance tests provided evidence that the response processes were similar across the separate samples. In addition, data were collected at the same time every year, albeit from distinct samples (see original studies from which our integrated data stem for further details of sample representativeness). We also tested a subsidiary model involving a wider range of background factors as covariates, with results showing minimal differences (see Footnote 1). Notwithstanding these tests, we also cannot rule out the possibility that unexamined variables, or other developments unrelated or resulting from the pandemic may have played a role in findings (e.g., growing teacher shortages in Australia; OECD, 2024). Relatedly, the findings should be interpreted cautiously when considering other educational disruptions that do not involve a similar pattern of acute onset and post-acute recovery.

Second, we examined two job resources and two job demands across the six years. Although our factors have been recognized as salient for teachers (e.g., Collie & Carroll, 2023; Klassen et al., 2012), future research should endeavor to examine additional job resources and demands (and outcomes) as there may be other factors that are salient to teachers' experiences during disruptions. Given crises such as COVID-19 may disrupt schooling and alter the work context, it also seems promising to investigate the role of personal resources, such as resilience (Granziera, 2022).

Third, the process for data collection meant that teachers were spread across numerous schools. This meant we could not account for clustering in our analyses. Because our teachers came from a wide number of schools, there were unlikely to be clustering effects, which can occur when the sample is concentrated in a smaller number of schools (Kline, 2023). However, future efforts to collect data from teachers within a selection of schools should allow for additional analytical approaches to be conducted, including multilevel modelling which will reveal knowledge about school-wide effects.

## 6. Conclusion

In this study, we examined the experiences of teachers working during the acute and post-acute phases of COVID-19. Results provide understanding about how teachers' experiences change across the two phases, and highlight several job resources and demands that are particularly salient for teacher well-being at different points. In particular, the job resources played consistently important roles for organizational commitment across the years, whereas the job demands played more changeable roles for emotional exhaustion. Notwithstanding the caveats of our cross-sectional design and the Australian focus, our results are informative for understanding how to better support teacher well-being generally and in the face of future disruptions to schooling.

## CRediT authorship contribution statement

**Rebecca J. Collie:** Writing – review & editing, Writing – original draft, Project administration, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Tina Hascher:** Writing – review & editing, Conceptualization. **Manuela Haldimann:** Writing – review & editing, Conceptualization. **Andrew J. Martin:** Writing – review & editing, Conceptualization.

## Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Rebecca J. Collie reports financial support was provided by Australian Research Council. Given her role as Editorial Board Member for Teaching and Teacher Education, Rebecca J. Collie had no involvement in the peer-review of this article and has no access to information regarding its peer-review. Full responsibility for the editorial process for this article was delegated to another journal editor. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tate.2026.105676.

## Data availability

The authors do not have permission to share data.

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