



# Factors Associated with Teacher Wellbeing: A Meta-Analysis

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## Abstract

Teacher wellbeing has received widespread and increasing global attention over the last decade due to high teacher turnover, growing teacher shortages, and the goal of improving the quality of teaching and student performance. No review has yet sought to undertake a cumulative quantitative assessment of the literature pertaining to teacher wellbeing. Using meta-analysis, we address this gap by systematically examining the relative strength of key antecedents, consequences, and correlates of teacher wellbeing, using the Job Demands-Resources theory as a guide to positioning factors in the nomological network. Following PRISMA guidelines, our systematic search yielded 173 eligible studies for inclusion ( $N=89,876$ ). Results showed that hope, autonomous motivation, psychological capital and job competencies were the top four strongest positive predictors of overall wellbeing, whereas neuroticism and disengagement coping were the top two strongest negative predictors. Occupational commitment was the strongest positive consequence of overall wellbeing, and turnover intentions were the strongest negative consequence. Burnout and work engagement were the strongest correlates of overall wellbeing. We also found that some effects were moderated by factors such as whether teachers were in-service or pre-service, and the educational setting (e.g., K-12, initial teacher education). Our review provides a useful empirical resource that may help guide practice in terms of how teachers, school leaders, and policy makers can support teacher wellbeing.

**Keywords** Teacher wellbeing · Hedonic wellbeing · Eudaimonic wellbeing · Meta-analysis

Teaching is a stressful, intensive, and complex job that requires teachers to facilitate and support students' personal growth and enable school performance (Johnson et al., 2014). They also perceive pressures from above (e.g., principals) and below (e.g., students and parents) adding to their job demands (Pelletier et al., 2002).

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Heavy workload and stress, job dissatisfaction, inadequate recognition and rewards, and burnout are some of the leading reasons why in-service teachers leave the profession in high numbers globally (Li & Yao, 2022; OECD, 2020). Researchers have similarly identified possible benefits of teacher wellbeing, including enhanced occupational commitment, reduced stress levels (e.g., Heidari et al., 2022; Vazi et al., 2013), and high levels of work engagement (Burić et al., 2021). Teachers with higher wellbeing also seem to enjoy more harmonious teacher-student relationships (Spilt et al., 2011), and have students who experience higher wellbeing (Harding et al., 2019). Although the findings of prior research illustrate the importance of teacher wellbeing, we still lack a full understanding of its most essential antecedents and consequences. The present study, therefore, aims to address this gap by conducting a comprehensive systematic review and meta-analysis to quantify the strength of the associations involving the antecedents, consequences, and correlates of teacher wellbeing.

For the remainder of our introduction, we provide an overview of the ways in which wellbeing is typically conceptualized and present our model of teacher wellbeing that we used for the current meta-analysis. We then review prior research on this topic and subsequently detail the theoretical underpinning that guides our approach for classifying antecedents and consequences of teacher wellbeing: the Job Demands-Resources (JD-R) Theory (Bakker et al., 2014). Finally, we provide a summary of our goals and contributions for the current meta-analysis before turning to the review itself.

## Overview of Wellbeing

Wellbeing is a complex and multifaceted construct, yet most scholars generally theorize that it involves two overarching components: hedonia and eudaimonia (Ryan & Deci, 2001). *Hedonia*, a central tradition of wellbeing, was initially conceived of as a process of seeking pleasure and avoiding pain (Watson, 1895). More recently, it has shifted to a focus on subjective evaluations of happiness (Ryan & Deci, 2001). *Subjective wellbeing* is the modern operationalization of hedonic wellbeing, encompassing positive emotions, the relative absence of negative emotions, and life satisfaction (Diener, 1984). The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) and the Satisfaction with Life Scale (SWLS; Diener et al., 1985) have been widely used to measure positive and negative affect, as well as life satisfaction, respectively. Yet, this view of wellbeing is limited insofar as it lacks a focus on personal growth and development, such as striving for excellence and pursuing a meaningful and purposeful life, which are also considered central to a well-lived life (Ryff & Singer, 1998; Waterman, 1984). Thus, the second tradition of wellbeing is *eudaimonia*, which can be traced back to Aristotle's *Nicomachean Ethics* (Aristotle et al., 2009) and, in contrast to hedonic experiences, is generally concerned with human functioning and reaching one's true potential. *Psychological wellbeing* is a widely accepted modern operationalization of eudaimonic wellbeing, which Ryff (1989) theorized to contain six categories of positive functioning in her Psychological Wellbeing Scale (PWBS): self-acceptance, purpose in life, positive relationships,

autonomy, environmental mastery, and personal growth. More recently, Diener et al. (2010) constructed a more parsimonious 8-item Flourishing Scale (FS) with the aim of providing a broad overview of psychological wellbeing. This scale includes items that cover purpose and meaning of life, positive relationships, engagement and interest in activities, social contribution, social relationships, competence, self-respect, and optimism (Diener et al., 2010).

Beyond these two conceptions of wellbeing, other dimensions have also been proposed and applied to teacher wellbeing. However, the extent to which they add anything new remains a topic of debate (Huppert & So, 2013). For instance, Keyes (1998) proposed a social dimension focusing on broader functioning in society when encountering challenges. This dimension goes beyond interpersonal relationships, which generally falls under eudaimonia, and instead also encompasses broader intrapersonal evaluations of one's social world, including social integration, social actualization, social acceptance, social contribution, and social coherence (Keyes, 1998). Other studies have also examined this dimension as separate to hedonic and eudaimonic conceptions of wellbeing (e.g., Gallagher et al., 2009). Another related concept is subjective vitality, which is characterized by feelings of aliveness and energy (Ryan & Frederick, 1997). Although subjective vitality has been considered as a facet of eudaimonic wellbeing (Pritchard et al., 2020), other researchers have argued for its conceptual overlap with high arousal positive emotions in hedonic wellbeing, such as being active and enthusiastic (Capaldi et al., 2014). Thus, vitality does not fall neatly into either conception of wellbeing. Hence, we created a third category of wellbeing to accommodate these additions, which we refer to as *general wellbeing*, encompassing not only social wellbeing, but also broader facets of wellbeing that do not neatly fall under the hedonic and eudaimonic traditions. The social wellbeing scale in the Mental Health Continuum (MHC; Keyes, 2002) and its short form (MHC-SF; Keyes et al., 2008), as well as the Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) are widely used measures for assessing these two facets.

In addition to these wellbeing categories, there also exists domain-specific conceptions of wellbeing, such as teachers' occupational wellbeing. These forms of wellbeing are unique to the extent that they generally focus specifically on the teaching population and/or their occupational experiences. Some authors define occupational wellbeing by applying variations of hedonia, eudaimonia, or general wellbeing more specifically to the teaching profession (e.g., Acton & Glasgow, 2015; Hascher & Waber, 2021; Viac & Fraser, 2020). Other authors have also developed entirely new models that are conceptually distinct from hedonia and eudaimonia but are specifically intended for teachers. Yet a limitation of these models is that there is wide variation in the conceptualizations and the facets described. For instance, van Horn et al. (2004) included a wide variety of subcomponents in multiple dimensions, such as organizational commitment (which they deemed a subcomponent of affective wellbeing) as well as competence and autonomy (which they deemed subcomponents of professional wellbeing). Similarly, Renshaw et al. (2015) identified school connectedness and teaching efficacy as commonly researched indicators of teacher wellbeing, whereas Collie (2014) defined wellbeing in terms of factors that *affect* wellbeing, including workload, student–teacher interactions, and a broader dimension of organizational wellbeing (e.g., supportive school leadership). Aldrup

et al. (2018) concentrated on teachers' enthusiasm and emotional exhaustion at work as two aspects of occupational wellbeing.

A limitation of many of these models of occupational wellbeing is that they include facets that are widely considered exogenous (e.g., self-efficacy, workload) or endogenous (e.g., job satisfaction, organizational commitment) of teacher wellbeing, suggesting that such models often do not clearly differentiate wellbeing from its probable antecedent or consequent factors. Indeed, consensus has not yet been reached regarding whether many of the characteristics noted above should be considered a part of teachers' occupational wellbeing (e.g., Dreer, 2023; McCallum et al., 2017). For this reason, when studies measure occupational wellbeing with factors that are more widely considered to be antecedents or consequences of wellbeing, we do not include these specific models of teacher wellbeing in our meta-analysis. Rather, we follow more established traditions of wellbeing and thereby categorize occupational wellbeing as one or more of teachers' hedonic, eudaimonic, or general wellbeing (or facets thereof), experienced within the teaching context. We elaborate more on the specifics of our characterization of wellbeing later in the meta-analysis.

## Prior Research on Teacher Wellbeing

A large number of empirical studies have now investigated the associations of various antecedents, consequences, and correlates of teacher wellbeing, encompassing personal factors (e.g., self-efficacy, personality traits), interpersonal factors (e.g., social support and teacher-student relationships), work-related factors (e.g., commitment and job satisfaction), and demographics (e.g., age and teaching experience) (e.g., Ainsworth & Oldfield, 2019; Capone & Petrillo, 2020; Evans et al., 2019; Hohensee & Weber, 2022; MacIntyre et al., 2019; Wu et al., 2020; Yin et al., 2018).

In addition, several reviews have sought to synthesize these relevant findings. For instance, after analyzing 98 studies from 2000 to 2019, Hascher and Waber (2021) reviewed studies encompassing objective and subjective correlates of teacher wellbeing, concluding that social relationships are an important antecedent factor. More recently, Nwoko et al. (2023) systematically reviewed factors related to teachers' occupational wellbeing but did not address more accepted conceptions of this construct, such as hedonic wellbeing or eudaimonia. Moreover, because this study focused on occupational wellbeing, there was inevitably some confusion between wellbeing and its antecedent and consequent factors. Dreer (2023) conducted another systematic review that focused on the outcomes of teacher wellbeing and included the same limitations. Moreover, neither of these reviews used meta-analysis to aggregate results across studies, meaning the relative strength of relationships between different antecedents and consequences remains largely unknown. Acknowledging these limitations, Fox et al. (2023) conducted a review of the different measures of teacher wellbeing, yet did not examine its antecedents and consequences, nor did they employ meta-analysis. To our knowledge, the only meta-analysis that has previously examined teacher wellbeing was conducted by Maricuțoiu

et al. (2023), but this study was limited to exploring its relationship with students' school experience.

Thus, while existing research syntheses have taken important steps to demonstrate the broad array of antecedents and consequences of teacher wellbeing, as well as the different ways in which it is measured, they are limited in two ways. First, they lack a nuanced and comprehensive conceptualization of teacher wellbeing that is based on the well-established hedonic and eudaimonic traditions in wellbeing research (Ryan & Deci, 2001). This distinction is important given these two traditions have become quite well accepted in the wellbeing literature and offer a parsimonious operational framework that will be useful in categorizing the broad array of studies in this literature. It also offers a useful framework to help distinguish wellbeing from its antecedents and consequences, which is lacking in this literature. Second, existing research syntheses generally do not employ meta-analysis to statistically quantify the magnitude of the relations of teacher wellbeing within its nomological network, consequently, rendering them unable to determine the most central antecedents and consequences of teacher wellbeing (Littell et al., 2008). Meta-analysis is a useful technique not only for establishing the aggregate strength of associations in the literature, but also for correcting those associations for systematic biases that are present in the literature, such as measurement error (Schmidt & Hunter, 2015; Wiernik & Dahlke, 2020). Hence, meta-analysis will provide a more accurate and complete understanding of teacher wellbeing and its nomological network that accounts for such biases. Moreover, another limitation of prior reviews, is that it remains unknown whether these associations could be moderated by various factors, such as the type of teaching occupation, age, and gender (e.g., Collie et al., 2016). We will address these important needs in the present review. In the following section, we turn to our theoretical framework that guides our approach.

## **Job Demands-Resources Theory and Teacher Wellbeing**

We used the JD-R Theory as a conceptual framework to classify observed correlates as antecedents or consequences of teacher wellbeing. As its name suggests, this theory proposes that job-related phenomena can be modelled using two broad categories: job demands and job resources. Job demands (e.g., excessive workload, time pressures) generally consist of physical, social, psychological, or organizational aspects of jobs that require sustained mental or physical effort (Bakker et al., 2014). Thus, they tend to be associated with psychological costs, such as low wellbeing or burnout. By contrast, job resources (e.g., social support, autonomy) consist of the physical, social, psychological, or organizational aspects of jobs that aid the achievement of work-related goals and thereby stimulate growth and achievement (Bakker et al., 2023). Thus, job resources are important not only in buffering the detrimental effects of job demands (Bakker et al., 2014), but also in contributing to wellbeing benefits in their own right (Demerouti et al., 2017).

Research on the JD-R theory suggests that job demands and job resources uniquely predict positive and negative outcomes in the workplace, such as wellbeing and distress (Demerouti et al., 2017; Desrumaux et al., 2015). Further, they

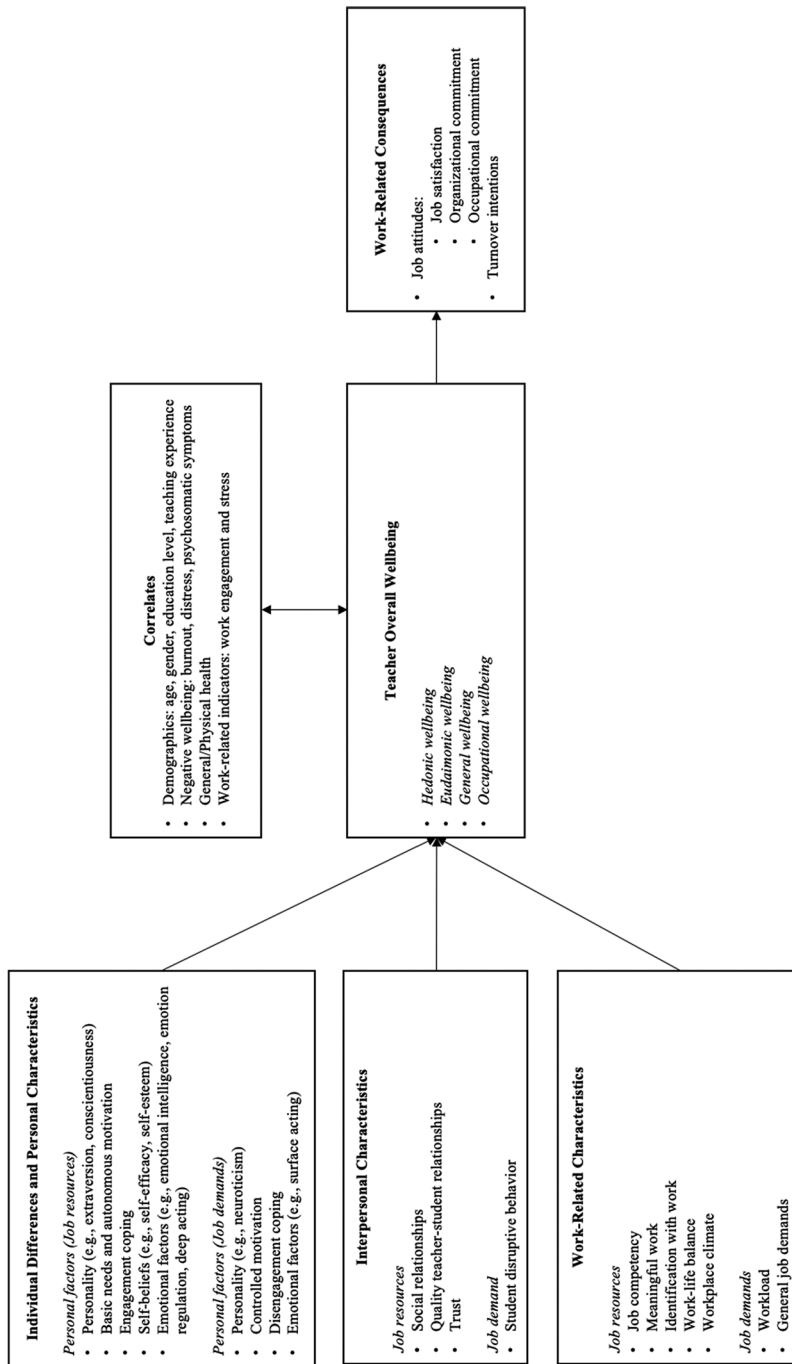
are proposed to influence these outcomes through two relatively independent processes, known as the health impairment and motivational processes. Job demands are thought to activate the health impairment process and therefore come at a cost to wellbeing. Thus, job demands typically lead to factors such as exhaustion, strain, and psychosomatic symptoms (Bakker & Demerouti, 2014). Job resources, however, are thought to activate the motivational process and are thus important for elevating wellbeing. Hence, job resources are typically predictive of factors such as autonomous motivation, work engagement, and wellbeing (Demerouti et al., 2017). A related dimension that comes under job resources are personal resources, which are broadly considered aspects of the self that stimulate resilience, a sense of control, and allow people to successfully navigate their environment (Hobfoll et al., 2003).

In the teacher literature, job demands and resources have both been associated with wellbeing related indicators in expected directions, such as ill-health and burnout (e.g., Hakanen et al., 2006), work engagement (Bakker & Demerouti, 2008), and wellbeing (e.g., Skaalvik & Skaalvik, 2018). Figure 1 draws on the JD-R theory and presents a conceptual model that places the observed correlates of teacher wellbeing within the nomological network, categorizing them as antecedents, consequences, or correlates according to their expected positions. As shown in the figure, we have grouped relevant antecedents into several refined subcategories, including individual differences and personal characteristics, interpersonal characteristics, and workplace characteristics, which we detail in more depth below. A full description of each variable shown in the figure can be found in a glossary (Table 1) within our supplemental materials (SM) that accompanies this meta-analysis.

### Individual Differences and Personal Characteristics

The first category of antecedents shown in the figure are individual differences and personal characteristics. The JD-R theory generally considers these as precursors of wellbeing as they are thought to influence its proposed health impairment or motivational processes, including personality, motivation, self-beliefs, coping, and emotional factors.

**Personality** Personality is widely regarded to precede employee wellbeing, with research indicting its influence on job demands and resources. For example, Bakker et al. (2010) showed that personality factors, such as neuroticism and extraversion influenced health impairment and motivation within the JD-R framework through job demands and job resources, respectively. Thus, both positively and negatively oriented personal factors operate in a similar fashion to job demands or resources to influence wellbeing outcomes. We therefore consider personality-related factors, as well as closely related constructs (e.g., grit, Duckworth et al., 2007), as antecedents to wellbeing, which is also consistent with prior meta-analytic work that also positions personality as antecedents to wellbeing (Anglim & Horwood, 2021; DeNeve & Cooper, 1998).



**Fig. 1** Conceptual model and nomological network of assumed antecedents, consequences, and correlates of teacher wellbeing

**Motivation and Basic Needs** Like personality, motivational factors are considered personal characteristics predicting wellbeing. This position is supported by the JD-R theory and extensive research in self-determination theory (SDT; e.g., Ryan & Deci, 2017), which suggests that motivational processes, including satisfying one's psychological needs for autonomy, competence, and relatedness, fosters autonomous (self-determined) forms of motivation and, in turn, wellbeing (Deci et al., 2017; Van den Broeck et al., 2016). A prior meta-analysis of teacher motivation also positions motivation as an antecedent to wellbeing (e.g., Slemp et al., 2020), providing further empirical support for its place in Fig. 1.

**Self-Beliefs** There are many different self-beliefs, including self-efficacy, self-esteem, and mindsets. Within the JD-R theory, self-efficacy is central to human agency and is therefore considered a crucial personal resource that allows teachers to experience more positive emotions, enhanced functionality, and wellbeing (Ballantyne & Retell, 2020; Capone & Petrillo, 2020; Shoshani, 2021; Zee & Koomen, 2016). Other closely related self-beliefs, such as self-esteem and growth mindsets, are generally considered as antecedents to wellbeing because they can provide personal protective resources that buffer against distress but are also important for motivation, satisfaction, environmental mastery, and experiencing positive emotions (Benevene et al., 2019; Frondozo et al., 2022; Nalipay et al., 2022; Orth & Robins, 2014; Paradise & Kernis, 2002).

**Coping** Coping strategies are often considered as personal resources in the workplace and therefore play a crucial role in stress management (Bakker et al., 2023). One form of such coping is engagement coping, referring to efforts where people proactively try and deal with the source of a stressor (Skinner et al., 2003). Such strategies typically instil a sense of accomplishment, environmental mastery, and competence, contributing to higher levels of positive emotions, life satisfaction, psychological functioning, and general wellbeing among teachers (Gustems-Carnicer et al., 2019; Parker et al., 2012; Stapleton et al., 2020). Conversely, disengagement coping strategies serve the opposite function and can therefore contribute to job demands. Some strategies, such as withdrawal or avoidant behaviors, tends to heighten teachers' anxiety and anger, reduce self-acceptance, and diminish overall wellbeing (De Klerk et al., 2013; Wang & Hall, 2021), likely because they do not allow teachers to exert control over their job demands.

**Emotional Factors** Personal emotional characteristics can also play a role in influencing wellbeing via job resources. For instance, emotional intelligence is thought to play a key role in psychological adjustment, potentially allowing people to adaptively cope with stressful events (e.g., Salovey & Mayer, 1990; Sánchez-Álvarez et al., 2016) and thus provides a potential personal resource to manage job demands. Emotion regulation strategies are thought to work in a comparable manner (e.g., Quoidbach et al., 2010). Specific emotion regulation strategies, such as exercising gratitude, often form the basis for interventions to improve wellbeing (e.g., Rash et al., 2011), supporting their position as antecedents. Similarly, factors that comprise psychological capital (PsyCap; Luthans et al., 2015), are often considered as antecedents to wellbeing because they provide powerful personal emotional resources that enhance motivation and allow people to deal with setbacks (Grover



et al., 2018). PsyCap is also commonly used as a basis for interventions targeting workplace wellbeing (e.g., Meyers & Van Woerkom, 2017).

### **Interpersonal Characteristics**

The next category of antecedents in Fig. 1 is interpersonal characteristics, which reflect the social dynamics of work and can serve as either job demands or resources. Social relationships, positive teacher-student relationships, and trust serve as job resources, contributing to the achievement of work goals, fostering personal growth, and benefiting teacher wellbeing (Skaalvik & Skaalvik, 2018). By contrast, student disruptive behavior is widely considered a job demand, necessitating teachers' investment of time, emotion, and energy in enacting disciplinary actions to manage the behavior (Skaalvik & Skaalvik, 2018). Prior empirical research, for example, has demonstrated that teachers' relationships with their mentors and colleagues, as well as harmonious teacher-student relationships in the workplace, promote teachers' positive emotions, environmental mastery, the perceived meaningfulness of their work, and social connections (e.g., Harding et al., 2019; McInerney et al., 2018; Yin et al., 2022). Trust fosters a positive work environment that prompts support, collaboration, interaction, and contributions (Tschannen-Moran, 2014), which in turn contributes to teachers' autonomy, life satisfaction, personal growth, and wellbeing (Berkovich, 2018; Huang & Yin, 2020). Conversely, poor teacher-student relationships and student disciplinary issues tend to exacerbate teacher-student conflict, elicit teachers' negative emotions, and diminish work enthusiasm and wellbeing with corresponding adverse impacts on student wellbeing and performance (Aldrup et al., 2018; De Ruiter et al., 2020; Evans et al., 2019; Spilt et al., 2011).

### **Workplace Characteristics**

The final category of antecedents in Fig. 1 is workplace characteristics, which are very commonly studied under the JD-R theory. For example, job resources, such as job competencies, often lead incumbents to function more effectively in a job and thereby serve as fundamental to the achievement of work-related goals (Akkermans et al., 2013). Other job resources such as whether teachers identify with the profession, and relatedly, whether they experience their work as meaningful, are also important job resources that particularly impact the motivation process within JD-R theory to elevate wellbeing. For instance, it is commonly argued that people who identify with their work or perceive their work as meaningful are often more motivated to pursue work-related goals that lead to positive attitudinal or affective states, such as work engagement or wellbeing more broadly (e.g., Allan et al., 2019). There are also job resources closely tied to the working environment. For example, positive workplace climates are thought to facilitate higher levels of autonomous motivation for work, and in turn, wellbeing (e.g., Collie, 2023c; Slemp et al., 2018). Finally, factors such as work-life balance, are often considered job resources that are central to wellbeing because it allows employees to maintain harmony between their job and other important areas of life, such as family and leisure, which relieves distress and elevates wellbeing (Le et al., 2020).

## Correlates and Consequences of Teacher Wellbeing

In addition to antecedents of teacher wellbeing, Fig. 1 shows our classification of other variables as correlates and consequences of wellbeing. We include the correlates classification because some variables are not typically modelled as antecedents of wellbeing within the JD-R framework. For example, demographic indicators (e.g., age, gender) are typically used as control variables or covariates within studies (e.g., Marsh et al., 2023; Martinussen et al., 2007), and thus are generally not considered to be job demands, job resources, or influential thereof. In fact, their findings on job demands and resources are relatively mixed (e.g., Bianchi & Caso, 2021; Evans et al., 2019). We also place in this category any related mental health indicator that does not fall into our wellbeing framework, such as negative indicators of wellbeing (e.g., burnout, illness symptoms) or indicators of physical health. Similarly, we place in this category work-related indicators that do not fall into our wellbeing framework, such as stress, or work engagement. The latter we include due to its very close relationship with burnout, as several studies now provide some evidence that work engagement and burnout are opposite ends of the same continuum (e.g., González-Romá et al., 2006; Maslach & Leiter, 2006).

Finally, Fig. 1 also shows our proposed consequences of teacher wellbeing. For instance, we consider job attitudes as consequences of wellbeing. This includes factors such as organizational commitment, and the closely related construct of occupational commitment, as well as job satisfaction. Within literature on organizational behavior and applied psychology, these factors are considered job attitudes (e.g., Judge & Kammerer-Mueller, 2012; Judge et al., 2017), and are widely modelled as outcomes within literature focusing on JD-R theory and wellbeing (e.g., Hakanen et al., 2008; Hu et al., 2011; Mazzetti et al., 2023). We also consider turnover intentions as an outcome of wellbeing, which is consistent with prior work on turnover in general (Bakker et al., 2003; Carlson et al., 2017) and also teacher turnover (e.g., Collie, 2023a, 2023b).

## The Present Review

To summarize, the present meta-analysis addresses prior limitations with the teacher wellbeing literature, which does not currently have a broad meta-analysis that quantifies the aggregate strength of associations with key antecedents, consequences, or correlates. Thus, we do not currently know which antecedents are most strongly associated with teacher wellbeing, and also do not know how strongly related teacher wellbeing is to its important consequences and correlates. These gaps are even more evident when considering the systematic biasing effects of measurement error, which have not yet been addressed in this area. Thus, to the extent that existing estimates of associations of teacher wellbeing and its key antecedents, consequences and correlates exist, they are systematically biased by such artefacts and are not reflective of their true value (Schmidt & Hunter, 2015; Wiernik & Dahlke, 2020). In addition, this meta-analysis could offer a more nuanced understanding of teacher wellbeing, exploring the most important antecedents, consequences, and correlates with each wellbeing type and across overall teacher wellbeing, which is limited in existing systematic reviews and a meta-analysis. Moreover, there is no review that seeks to clarify whether associations of

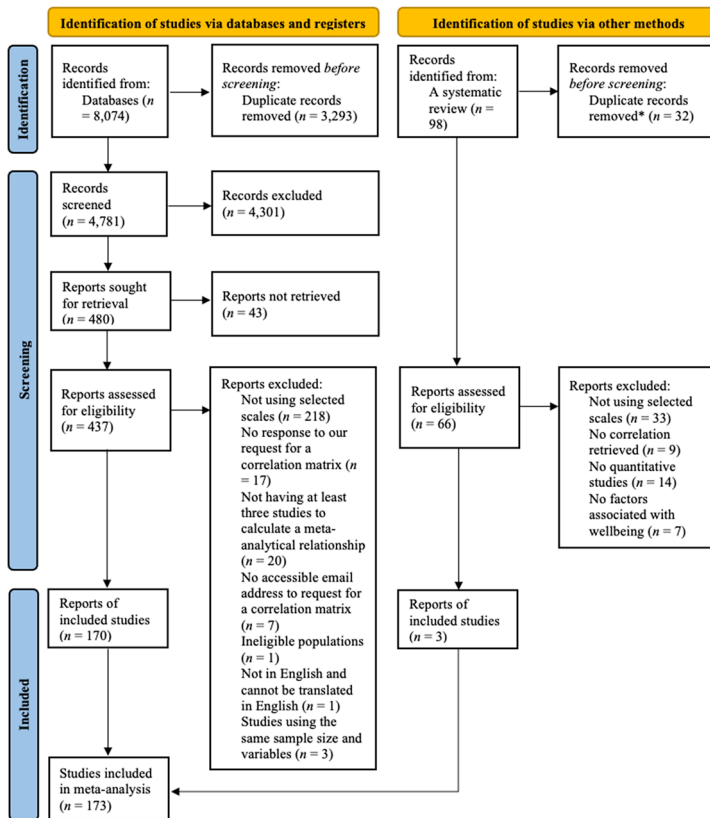
teacher wellbeing and its antecedents or consequences are moderated by various factors. Testing potential moderating factors is important because they may highlight potential boundary conditions of a theory, such as the JD-R theory, and thus provide a quantitative assessment about conditions under which various job demands or resources are more or less important for teacher wellbeing. Similarly, it may shed light on conditions under which teacher wellbeing is more or less important for its consequences. We did not have specific predictions or hypotheses about these analyses, so we present these results as exploratory.

Thus, we advance research on teacher wellbeing by focusing on three primary aims. The first aim is to conduct the most comprehensive meta-analysis to date of associations between teacher wellbeing and its commonly studied antecedents, consequences, and correlates. In doing so, we provide a robust theoretical framework for classifying antecedents, consequences, and correlates of teacher wellbeing. Similarly, as much as possible, we use a theoretically derived model of teacher wellbeing that is rooted in established philosophical traditions, enhancing their validity (Gallagher et al., 2009; Ryan & Deci, 2001). The second aim is to examine whether these associations are moderated by various factors including, for example, whether teachers were pre-service or in-service (i.e., sample type), the sector in which they work (i.e., educational setting), age, and gender. Finally, we aim to provide directions for ongoing research and practice in this area, shedding important light on gaps in knowledge or practice to inform where to focus attention in the future.

## Method

### Literature Search

The literature search was completed in August 2022 using four electronic databases: *PsycINFO*, *Web of Science*, *ERIC*, and *Scopus*. A combination of the first set of keywords associated with wellbeing (i.e., “wellbeing” OR “well-being” OR “well being” OR “wellness” OR “flourish\*”) and the second set of keywords associated with teacher (i.e., “teacher\*” OR “teaching” OR “educator\*”) was used. This approach considered the spelling variations of wellbeing and a broader conceptualization of teachers. We used the Boolean operator “OR” to separate keywords within the same set and used proximity operators (i.e., “adj7”, “NEAR/7” or “W/7”) in different databases, to filter studies that contained the chosen keywords in one set within seven words of any of the keywords in another set, regardless of the order. To increase the possibility of searching relevant studies, the seven-word distance was designated through a trial-and-error process in our searches, along with advice given by an experienced librarian. This is because there are no current guidelines to suggest the best proximity operator. We did not impose any restraints on languages, publication status, or publication date. By searching these keywords and following the procedures outlined in the PRISMA 2020 Statement to identify eligible studies (see Fig. 2 below), a total of 8,074 studies were identified (Page et al., 2021).



**Fig. 2** PRISMA flowchart showing the study screening process. Note. \* = duplicates within this search and compared to the search via databases and registers

## Inclusion and Exclusion Criteria

Studies were included in the current meta-analysis if they satisfied the following *a-priori* criteria: (a) more than 50 per cent of participants were either pre-service or in-service teachers/educators who had a primary teaching responsibility involved in educational settings, which is consistent with the criteria set in other meta-analyses on teachers (e.g., Beames et al., 2023). Studies that only included teacher assistants or educators (e.g., principals) who did not hold any teaching responsibilities were excluded; (b) one or more of our pre-selected measures of wellbeing were used in the study (detailed more in the following section). Studies that redefined or reconceptualized wellbeing to primarily encompass exogenous (e.g., self-efficacy; Dilekçi & Limon, 2020) or endogenous (e.g., job satisfaction; Klassen et al., 2012) constructs of wellbeing were excluded, as these constructs are widely regarded as distinct from wellbeing and should instead be considered either antecedents or consequences; (c) at least one correlation coefficient between a wellbeing facet assessed by one of our selected measures and another variable that could be considered as its antecedent, consequence, or correlate was included. We also excluded studies

where the required information could not be accessed and obtained online. Because we needed at least three studies to calculate each meta-analytic relationship (Schmidt & Hunter, 2015), we were only able to use 173 of the 192 studies that met all of our inclusion criteria. A full list of all included studies can be found in our SM Section G.

## Wellbeing Measures Selection

As noted above, because many studies purporting to measure wellbeing really measure aspects that are widely considered as distinct from wellbeing (e.g., self-efficacy, organizational commitment; Renshaw et al., 2015; van Horn et al., 2004), we employed a procedure whereby we identified measures a-priori that we were satisfied were measuring wellbeing, and subsequently used those measures as an inclusion criterion for the meta-analysis. This strategy has been successfully employed in a range of previous meta-analyses (e.g., Capaldi et al., 2014; Kleine et al., 2019; Slemp et al., 2020).

In this meta-analysis, two inclusion criteria needed to be met regarding the use of measures in each study. First, we required the definition of wellbeing that underpins the measures to align with the conceptualization of the one of the four wellbeing types examined in this meta-analysis. Hence, we excluded studies that measured factors such as work engagement and job satisfaction as facets of teacher wellbeing, as these are more typically and historically conceptualized as job attitudes (e.g., Judge et al., 2017). Second, we required that the reliability and validity of the measure to have been confirmed. Thus, we not only included widely used measures applicable to general populations, such as the PANAS (Watson et al., 1988) and the FS (Diener et al., 2010), but expanded this to context-specific wellbeing measures, such as the Teacher Emotions Scale (TES; Frenzel et al., 2016) and the Teacher Enthusiasm Scale (Kunter et al., 2011). SM Table 2 provides a comprehensive classification of teacher wellbeing, defining each facet and listing the corresponding measures based on these criteria. Figure 3 displays visually the different types of wellbeing that guided our review and the measures associated with each type of wellbeing.

In tracking back to the original developmental studies of wellbeing measures, we excluded studies for the following reasons. First, we excluded studies that were written in languages other than the native languages of the author team, such as those in languages other than English and Chinese. Second, we excluded studies that measured factors *affecting* wellbeing by including factors considered to be exogenous or endogenous of wellbeing (e.g., Konu & Lintonen, 2006). Finally, we excluded studies that were not accessible online. These criteria are designed to maintain a rigorous and consistent approach to defining and measuring wellbeing, thereby mitigating potential biases (Higgins et al., 2003).

## Study Screening

After removing 3,293 duplicates, the following screening of titles and abstracts led to the exclusion of 4,619 articles due to clearly irrelevant content, an inability to access, or clear failure to meet the inclusion criteria (explained above). A total of

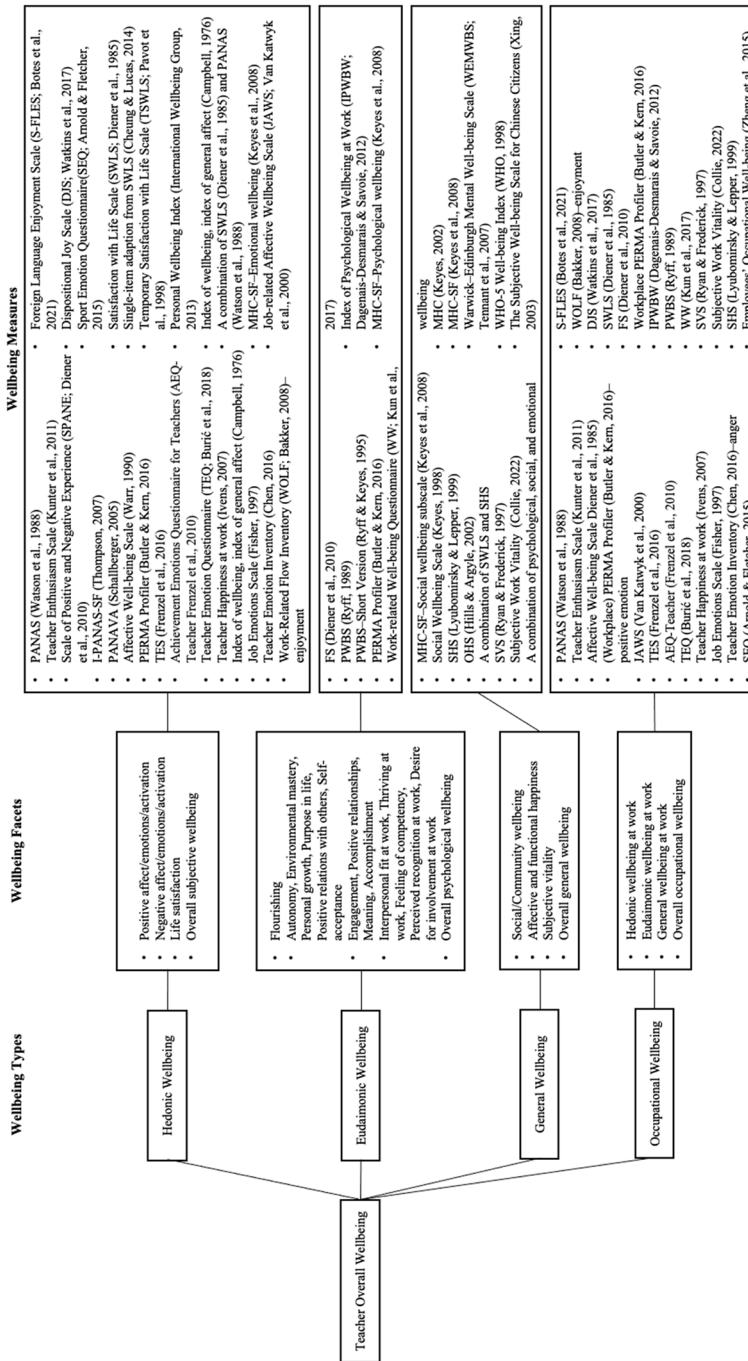


Fig. 3 Classification and measures of teacher wellbeing

437 studies were examined in the final screening stage. Of these, 245 studies were excluded by the first author due to inconsistencies between the wellbeing measure used and the measures listed within the inclusion criteria for this study. A random subset of 88 studies (36%) underwent independent double screening by the second author to ensure reliability in these decisions, and the Cohen's (1960) Kappa interrater agreement was .99.

We contacted the corresponding author to request the correlation matrix if the study met all other inclusion criteria but failed to provide correlations ( $n=34$ ). Among these, the corresponding authors of 10 studies provided the relevant matrices, authors of 15 studies did not provide their correlation matrices upon request, and the email addresses of corresponding authors in nine studies were no longer in use. In addition, we conducted a grey literature search to screen and assess 98 studies selected from Hascher and Waber's (2021) systematic review of teacher wellbeing and included three more studies. Overall, we included a total of 173 studies in the review, encompassing 161 peer-reviewed papers, seven unpublished dissertations, three conference papers, and two book chapters after applying the eligibility criteria across all sources and following the detection procedure by Wood (2008) (see Fig. 2).

## Study Coding and Transformations

### Coding

All 173 studies were initially coded by the first author using a systematic coding template co-developed with the second author. So that we could establish an interrater reliability estimate to assess the accuracy of the coding, a random subset of 34 studies (20%) were independently double coded by a research assistant. An accuracy check revealed 92% agreement across all coding items. The interrater agreement of nominal variables (e.g., publication status) was estimated using Cohen's (1960) Kappa. Kappa ranged from .82 to .98, which indicates substantial agreement. For continuous variables (e.g.,  $R_{xx}$ ,  $R_{yy}$ ,  $r$ ), a two-way mixed, absolute, single measures intraclass correlation coefficient (ICC; McGraw & Wong, 1996) was computed, which again indicated high agreement (.84 to .97). The full interrater reliability results are displayed in SM Table 3.

Manually coded database fields in the coding template included: (a) the variable names of each antecedent, consequence, or correlate variable, (b) the correlation coefficient ( $r$ ) between each variable and a facet of wellbeing, (c) sample size, (d) the reliability of wellbeing scores ( $R_{xx}$ ), (e) the reliability of the correlate scores ( $R_{yy}$ ), (f) the name of each facet of wellbeing, (g) the scale used to measure wellbeing, (h) the scale used to measure the correlate variable, (i) the publication status of each study (i.e., published or unpublished), (j) the country/countries of participant origin, (k) sample type (i.e., pre-service teacher, in-service teacher, mixed), (l) mean sample age (in years), (m) percentage of sample who were female, (n) study design (i.e., cross-sectional and time-lagged), (o) teaching experience (in years), and (p) educational setting, including K-12 settings, mixed settings (e.g., vocational schools, language



learning centers), or initial teacher education (ITE). To minimize the impact of common method variance in our analyses (Podsakoff et al., 2003), when studies provided both cross-sectional and time-lagged cross correlations, we only utilized the lagged correlations, consistent with the causal direction proposed in Fig. 1.

## Data Transformations

Many studies showed separate correlations between multiple sub-dimensions of a construct and a wellbeing facet, but did not report aggregated composite correlations between these sub-dimensions and wellbeing. If entered into the meta-analysis independently, such cases would cause conceptual replication and underestimate sampling errors due to lack of statistical independence (Schmidt & Hunter, 2015). We therefore used procedures outlined by Schmidt and Hunter (2015) to statistically aggregate individual correlations to create composited correlations for the respective higher-order variables (e.g., depersonalization, emotional exhaustion, or personal accomplishment → burnout, see the full summary of groupings in SM Table 1). We did this by using the compositing procedure that is available in the psychmeta package in R (detailed shortly). In some cases, if one sub-dimension of a construct (e.g., personal accomplishment) has opposite attributes to its higher-order variable (e.g., burnout), we reverse-coded the correlation between this sub-dimension and a wellbeing type. Likewise, where necessary, we used the same procedure to aggregate the facets of wellbeing into four wellbeing types, as previously explained (e.g., positive affect, life satisfaction, or contentment → hedonic wellbeing). Because some components of hedonic wellbeing are thought to reflect negative attributes of wellbeing, including negative affect and similar constructs, correlations with these negative facets were also reverse coded where necessary, so that they could be aggregated with positive attributes of wellbeing. In the interest of scientific transparency and to facilitate the reproducibility of the results, we make available all of our study materials on the open science framework (see <https://osf.io/4r6pf/>).

## Meta-Analytic Procedure

All analyses were conducted in R (version 4.2.3), using the “psychmeta” package (Dahlke & Wiernik, 2019) and the “metafor” package (Viechtbauer, 2010) within the RStudio interface (2023.03.0), following Schmidt and Hunter’s (2015) psychometric approach. We calculated a sample size-weighted mean effect size estimate (i.e.,  $r$ ) that corrects for sampling error only. Subsequently, we calculated a meta-analytic mean correlation (i.e.,  $\rho$ ) that was corrected for both sampling and measurement error, for the relationships involving hedonic, eudaimonic, general, occupational, and overall wellbeing. Because our reliability information was generally incomplete for each meta-analyzed association, we constructed artifact distributions for reliability coefficients and used these distributions in the diattenuation procedure (see SM Table 4 for descriptive statistics for reliability distributions).



The Schmidt and Hunter (2015) approach to meta-analysis is based on a random-effects model which assumes that effect sizes vary across studies and are estimated to be distributed within a normal distribution of the mean of true effects. This model employs an inverse-variance weight and shares between-study variance to compute the summary effect (Borenstein, 2009). An advantage of random effect meta-analyses is that they provide more accurate results and lead to more plausible confidence intervals (CI), in contrast to fixed-effects models (Borenstein, 2009). We calculated a meta-analytic correlation when a minimum of three studies were available, and constructed a 95% CI to indicate the uncertainty of effect estimates (Hespanhol et al., 2019; Whitener, 1990). If a CI did not encompass zero, we concluded that the correlation between the variable and a type of teacher wellbeing was significant. To evaluate the magnitude of the meta-analytic correlation, we used correlations of  $|r| = .07$ ,  $.16$ , and  $.32$  as benchmarks for small (25th percentile), moderate (50th percentile), and strong (75th percentile) effect sizes, respectively (Bosco et al., 2015). These benchmarks were based on Bosco et al. (2015)'s empirical benchmarking study from nearly 150,000 research findings in applied psychology, which provided more robust empirical support than Cohen's (1988) effect size benchmarks, which are based on intuited rather than empirical guidelines.

Heterogeneity was assessed using the  $I^2$  statistic, 80% credibility interval (CV), and standard deviation of true score correlations ( $SD_p$ ).  $I^2$  quantifies the percentage of variation attributed to true heterogeneity and is not dependent on the number of studies (Higgins et al., 2003). Values of 25%, 50%, and 75% were interpreted as low, moderate, and high levels of heterogeneity, respectively (Higgins et al., 2003). An 80% CV indicates that 80% of the  $p$  values fall within the distribution of true-score correlations (Borenstein, 2009). Likewise,  $SD_p$  measures the dispersion between true effects in a group of studies and observed effects in each study (Borenstein, 2009). Higher  $SD_p$  indicates greater variability in study effects.

We summarize the meta-analytic findings with 11 pieces of information: (a)  $k$  = number of independent effect sizes; (b)  $N$  = cumulative sample size; (c)  $r$  = sample size-weighted meta-analytic mean effect size estimate; (d)  $SD_r$  = observed standard deviation of  $r$ ; (e)  $SD_{res}$  = residual standard deviation of  $r$ ; (f)  $\rho$  = meta-analytic mean effect size estimated corrected for sampling and measurement error; (g)  $SD_{rc}$  = observed standard deviation of corrected correlations ( $r_c$ ); (h)  $SD_p$  = residual standard deviation of  $p$ ; (i) 95% CI = 95% confidence interval; (j) 80% CV = 80% credibility interval; and (k)  $I^2$  = percentage of variation attributable to real heterogeneity.

The final step of our meta-analysis was to perform a variety of sensitivity analyses to investigate the robustness of our meta-analytic results. We did this via Meta-Sen (<https://metasen.shinyapps.io/gen1/>; Field et al., 2021), which contains a range of analyses to determine if the trustworthiness of the observed meta-analytic results may be threatened by outliers or publication bias. The analyses include the contour-enhanced funnel plot (Peters et al., 2008), trim and fill models (Duval & Tweedie, 2000), cumulative meta-analysis by precision (Kepes et al., 2012), and precision-effect test-precision effect estimate with standard error analysis (PET-PEESE; Stanley & Doucouliagos, 2014). As recommended by Higgins et al. (2022), we performed these analyses on overall wellbeing because it generally contains 10 or more effect sizes and also encompasses the effect sizes across each wellbeing type. Overall, 32% (17/53) of the

distributions in our study were included in the comprehensive sensitivity analysis. Full results for these analyses can be found in SM Table 7. Section F of the SM contains figures for the respective sensitivity analyses (e.g., contour-enhanced funnel plot).

## Results

The results of our meta-analysis are presented in Tables 1, 2 and 3. We categorized the factors into four dimensions: individual differences and personal characteristics, interpersonal indicators, work-related indicators, and demographic indicators. Table 4 presents the correlations between four wellbeing types. After we report the omnibus meta-analytic findings, we assess the moderating effects of categorical and continuous variables, and report comprehensive sensitivity analyses of the observed meta-analytic results.

### Main Effects: Antecedents

#### Individual Difference and Personal Characteristics

Table 1 shows the association with *individual differences and personal characteristics*. Neuroticism emerged as the strongest negative predictor of hedonic ( $\rho = -.46$ ), eudaimonic ( $\rho = -.46$ ), and overall wellbeing ( $\rho = -.48$ ), whereas disengagement coping was strongly associated with both general wellbeing ( $\rho = -.46$ ) and occupational wellbeing ( $\rho = -.48$ ). Autonomous motivation was the strongest positive predictor of hedonic wellbeing ( $\rho = .83$ ) and competence satisfaction was the strongest positive predictor of occupational wellbeing ( $\rho = .67$ ). Hope was the strongest positive predictors of eudaimonic ( $\rho = .75$ ) and overall wellbeing ( $\rho = .76$ ). Optimism was the strongest positive indicator related to general wellbeing ( $\rho = .59$ ). Most predictors in other sub-dimensions, such as resilience and self-efficacy, also showed moderate to large associations with the corresponding wellbeing types.

#### Interpersonal and Work-Related Predictors

Among four *interpersonal indicators*, the strongest effect size with hedonic ( $\rho = .55$ ), occupational ( $\rho = .60$ ), and overall wellbeing ( $\rho = .51$ ) was found for teacher-student relationships. Social relationships showed the strongest associations with eudaimonic wellbeing ( $\rho = .75$ ) and general wellbeing ( $\rho = .37$ ). Teachers' perceived student disruptive behavior had negative and significant associations with hedonic, occupational, and overall wellbeing, ranging from  $-.32$  to  $-.42$ . Regarding

*work-related indicators*, job demands were the strongest negative predictors of hedonic, occupational, and overall wellbeing, ranging from  $-.29$  to  $-.31$ . On the other hand, workplace climate, work-life balance, and job competencies showed the strongest correlations with hedonic wellbeing ( $\rho = .45$ ), general wellbeing ( $\rho = .64$ ), and overall wellbeing ( $\rho = .71$ ). Meaningful work was the strongest positive predictor of eudaimonic wellbeing ( $\rho = .60$ ) and occupational wellbeing ( $\rho = .54$ ).

## Main Effects: Consequences and Correlates

Table 2 displays the observed relationships with four *consequences*, revealing notably strong and significant associations with each wellbeing type. Except for overall wellbeing, job satisfaction was the strongest positive outcome of the other four wellbeing types, ranging from  $.58$  to  $.85$ . Overall wellbeing exhibited its strongest association with occupational commitment ( $\rho = .66$ ), while also presenting robust relationships with other consequences. Turnover intentions had negative associations with hedonic, eudaimonic, occupational, and overall wellbeing, ranging from  $-.38$  to  $-.51$ .

Table 3 shows the relationships with *correlates*. The results suggest that male teachers tend to have slightly higher levels of hedonic wellbeing ( $\rho = -.08$ ), occupational wellbeing ( $\rho = -.09$ ), and overall wellbeing ( $\rho = -.08$ ) than female teachers, although all effects were weak in magnitude. In addition, experienced teachers are likely to have slightly yet significantly higher levels of hedonic wellbeing ( $\rho = .04$ ), eudaimonic wellbeing ( $\rho = .14$ ), occupational wellbeing ( $\rho = .08$ ), and overall wellbeing ( $\rho = .05$ ) than junior teachers, but not with general wellbeing. We also observed nonsignificant associations between age, education level, and the corresponding wellbeing types. The strongest significant correlate with all five types of wellbeing was burnout, ranging from  $-.55$  to  $-.71$ . Distress, on par with burnout, was another strong correlate of eudaimonic wellbeing ( $\rho = -.55$ ). General/physical health was the strongest correlate of general wellbeing ( $\rho = .60$ ) and work engagement had its strongest correlations with the other four wellbeing types, ranging from  $.53$  to  $.65$ .

## Exploratory Moderator Analyses

To ensure an adequate number of independent effect sizes for exploratory moderator analyses, we only examined the moderating effects on overall wellbeing, since more effect sizes were available for this type. For categorical moderator models, we identified two moderating variables and their categories: (a) sample type: in-service teachers, pre-service teachers, and mixed samples and (b) educational setting: K-12, ITE, and mixed (i.e., a combination of K-12 and other settings). We further analyzed 12 constructs representing at least  $k = 3$  cases in each category (Higgins et al., 2022). By using the Schmidt and Hunter (2015) method, the observed results did not show

**Table 1** Summary of meta-analytic results: Antecedents of teacher wellbeing

JD-R	Antecedents	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>r</sub></i>	<i>SD<sub>res</sub></i>	$\rho$	<i>SD<sub>rc</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>I</i> <sup>2</sup>
Individual differences and personal characteristics													
<i>Personality traits</i>													
PF/JR	Agreeableness	Hedonic wellbeing	4	525	.15	.09	.02	.19	.11	.03	[.01, .36]	[.14, .23]	6
		Eudaimonic wellbeing	4	473	.26	.12	.08	.33	.15	.10	[.09, .58]	[.17, .50]	45
		Overall wellbeing	7	951	.19	.12	.08	.25	.15	.11	[.11, .39]	[.09, .41]	51
PF/JR	Conscientiousness	Hedonic wellbeing	6	1,207	.31	.15	.14	.40	.20	.18	[.19, .60]	[.14, .66]	82
		Eudaimonic wellbeing	5	871	.32	.25	.24	.42	.33	.32	[.01, .82]	[−.07, .90]	92
		Occupational wellbeing	3	558	.24	.30	.29	.28	.35	.34	[−.60, 1.00]	[−.37, .93]	95
PF/JR	Extraversion	Overall wellbeing	9	1,633	.29	.21	.19	.36	.26	.24	[.16, .56]	[.02, .70]	88
		Hedonic wellbeing	8	1,510	.23	.17	.16	.28	.21	.19	[.10, .45]	[.01, .55]	83
		Eudaimonic wellbeing	4	473	.24	.19	.17	.29	.24	.21	[−.09, .66]	[−.05, .63]	79
PF/JR	Neuroticism	Occupational wellbeing	5	1,009	.19	.16	.15	.23	.20	.18	[−.01, .48]	[−.04, .51]	82
		Overall wellbeing	11	1,936	.25	.15	.13	.30	.19	.17	[.18, .43]	[.08, .53]	77
		Hedonic wellbeing	7	1,709	−.40	.14	.13	−.46	.16	.15	[−.61, −.31]	[−.68, −.24]	83
PF/JR	Openness	Eudaimonic wellbeing	4	473	−.36	.13	.10	−.46	.17	.13	[−.72, −.19]	[−.67, −.24]	59
		General wellbeing	3	390	−.44	.21	.19	−.60	.28	.26	[−1.00, .10]	[−1.00, −.12]	82
		Occupational wellbeing	4	1,208	−.40	.11	.09	−.45	.12	.10	[−.64, −.26]	[−.62, −.28]	75
PF/JR	Grit	Overall wellbeing	11	2,305	−.41	.14	.13	−.48	.17	.15	[−.60, −.37]	[−.69, −.28]	80
		Hedonic wellbeing	4	525	.10	.11	.07	.12	.14	.08	[−.10, .34]	[−.02, .26]	37
		Eudaimonic wellbeing	4	473	.23	.20	.18	.29	.26	.23	[−.11, .70]	[−.08, .67]	80
PF/JR	Grit	Occupational wellbeing	4	525	.10	.11	.07	.12	.14	.08	[−.10, .34]	[−.02, .26]	37
		Overall wellbeing	9	1,171	.16	.14	.11	.22	.19	.15	[.07, .36]	[.01, .42]	62
		Eudaimonic wellbeing	3	416	.43	.29	.28	.50	.33	.32	[−.33, 1.00]	[−.11, 1.00]	94
PF/JR	Grit	Overall wellbeing	3	416	.42	.29	.28	.49	.33	.32	[−.33, 1.00]	[−.11, 1.00]	94

**Table 1** (continued)

JD-R	Antecedents	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>r</sub></i>	<i>SD<sub>res</sub></i>	$\rho$	<i>SD<sub>te</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>r</i> <sup>2</sup>
<i>Basic needs and motivation</i>													
PF/JR	Autonomy satisfaction	Eudaimonic wellbeing	3	2,309	.33	.49	.49	.38	.56	.56	[-1.00, 1.00]	[-.68, 1.00]	100
		Occupational wellbeing	3	2,419	.30	.47	.46	.35	.54	.54	[-.99, 1.00]	[-.67, 1.00]	99
		Overall wellbeing	6	3,862	.34	.34	.34	.40	.40	.40	[-.02, .82]	[-.18, .98]	99
PF/JR	Competence satisfaction	Hedonic wellbeing	3	796	.50	.07	.04	.60	.08	.05	[.41, .80]	[.50, .70]	46
		Occupational wellbeing	3	1,037	.56	.15	.14	.67	.18	.17	[.23, 1.00]	[.36, .98]	85
		Overall wellbeing	5	1,571	.59	.11	.10	.70	.13	.12	[.54, .87]	[.52, .88]	79
PF/JR	Relatedness satisfaction	Hedonic wellbeing	3	796	.27	.09	.07	.32	.11	.08	[.05, .58]	[.16, .47]	59
		Occupational wellbeing	4	1,362	.41	.24	.23	.47	.27	.27	[.03, .91]	[.03, .91]	96
		Overall wellbeing	6	1,896	.45	.18	.18	.52	.21	.20	[.30, .75]	[.22, .83]	93
PF/JR	Autonomous motivation	Hedonic wellbeing	3	1,467	.71	.21	.21	.83	.24	.24	[.23, 1.00]	[.38, 1.00]	96
		Eudaimonic wellbeing	4	1,744	.54	.09	.08	.65	.11	.10	[.48, .83]	[.50, .81]	78
		Overall wellbeing	6	2,545	.62	.19	.18	.73	.22	.22	[.50, .96]	[.41, 1.00]	94
PF/JR	Controlled motivation	Overall wellbeing	3	1,075	.02	.25	.24	.03	.31	.30	[-.73, .79]	[-.54, .59]	95
<i>Coping</i>													
PF/JR	Engagement coping	Hedonic wellbeing	7	5,989	.30	.13	.12	.38	.17	.15	[.22, .54]	[.16, .60]	81
		Eudaimonic wellbeing	3	1,065	.37	.15	.14	.43	.17	.16	[.00, .86]	[.12, .74]	89
		General wellbeing	5	1,664	.21	.11	.10	.24	.13	.11	[.08, .40]	[.07, .41]	77
		Occupational wellbeing	3	2,076	.28	.22	.21	.36	.29	.27	[-.35, 1.00]	[-.16, .88]	91
		Overall wellbeing	11	7,724	.30	.12	.11	.36	.15	.14	[.26, .47]	[.17, .56]	83
PF/JR	Disengagement coping	Hedonic wellbeing	5	2,641	-.33	.14	.11	-.45	.18	.15	[-.68, -.22]	[-.67, -.23]	63
		General wellbeing	3	1,207	-.39	.07	.05	-.46	.08	.06	[-.67, -.26]	[-.58, -.35]	55
		Occupational wellbeing	3	2,076	-.34	.16	.13	-.48	.22	.18	[-1.00, .08]	[-.81, -.14]	63
		Overall wellbeing	8	4,016	-.35	.13	.10	-.45	.16	.13	[-.59, -.32]	[-.64, -.27]	66

Table 1 (continued)

JD-R	Antecedents	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>t</sub></i>	<i>SD<sub>res</sub></i>	$\rho$	<i>SD<sub>rc</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>t</i> <sup>2</sup>
<i>Self-beliefs</i>													
PF/IR	General self-efficacy	Hedonic wellbeing (=Occupational wellbeing)	4	1,856	.34	.11	.10	.42	.13	.12	[.20, .63]	[.21, .62]	85
		General wellbeing	4	1,727	.28	.13	.12	.36	.16	.15	[.10, .62]	[.11, .61]	87
		Overall wellbeing	7	2,597	.28	.28	.27	.33	.33	.33	[.02, .64]	[−.14, .80]	97
PF/IR	Teacher self-efficacy	Hedonic wellbeing	28	16,639	.35	.14	.14	.41	.17	.16	[.35, .48]	[.20, .63]	92
		Eudaimonic wellbeing	11	6,055	.41	.20	.20	.48	.24	.23	[.32, .64]	[.16, .79]	96
		General wellbeing	9	2,288	.35	.10	.08	.39	.11	.09	[.31, .48]	[.26, .52]	68
		Occupational wellbeing	23	12,723	.34	.16	.15	.40	.19	.18	[.32, .48]	[.16, .64]	92
		Overall wellbeing	39	19,602	.37	.14	.13	.44	.16	.16	[.38, .49]	[.23, .64]	90
PF/IR	Self-esteem	Hedonic wellbeing (=Occupational wellbeing)	4	558	.40	.15	.13	.48	.18	.16	[.19, .78]	[.22, .75]	76
		General wellbeing	5	1,004	.37	.26	.26	.44	.31	.30	[.05, .83]	[−.02, .91]	94
		Overall wellbeing	10	1,899	.46	.24	.23	.54	.28	.27	[.34, .74]	[.16, .92]	93
PF/IR	External locus of control	Hedonic wellbeing	3	961	−.19	.26	.26	−.25	.35	.34	[−1.00, .62]	[−.89, .39]	96
		Overall wellbeing	3	952	−.26	.19	.18	−.35	.26	.25	[−.99, .30]	[−.81, .12]	92
PF/IR	Growth mindset	Hedonic wellbeing (=Occupational wellbeing)	3	759	.26	.03	.00	.31	.03	.00	[.23, .39]	[.31, .31]	0
		Overall wellbeing	4	1,230	.39	.19	.18	.45	.22	.21	[.11, .80]	[.11, .79]	93
<i>Emotion and emotional management</i>													
PF/IR	Emotional intelligence	Hedonic wellbeing	4	1,240	.26	.10	.08	.31	.11	.10	[.12, .49]	[.15, .46]	70
		Eudaimonic wellbeing	3	475	.45	.20	.19	.54	.24	.23	[−.06, 1.00]	[.11, .97]	88
		Overall wellbeing	8	1,941	.32	.14	.13	.38	.17	.15	[.24, .52]	[.16, .59]	82
PF/IR	Emotional regulation	Hedonic wellbeing	5	3,027	.31	.20	.20	.38	.25	.24	[.07, .69]	[.01, .75]	95
		Eudaimonic wellbeing	5	1,617	.41	.15	.14	.46	.17	.16	[.25, .67]	[.21, .71]	88

**Table 1** (continued)

JD-R	Antecedents	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>t</sub></i>	<i>SD<sub>res</sub></i>	<i>ρ</i>	<i>SD<sub>re</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>f</i> <sup>2</sup>
PF/IR	Deep acting	Occupational wellbeing	6	2,936	.32	.23	.22	.38	.27	.27	[.09, .66]	[−.02, .77]	.96
		Overall wellbeing	9	4,069	.32	.19	.18	.39	.23	.22	[.21, .56]	[.08, .69]	.94
		Hedonic wellbeing (= Overall wellbeing)	4	3,963	.22	.04	.02	.25	.04	.02	[.19, .32]	[.22, .29]	.29
PF/IR	Surface acting	Occupational wellbeing	3	3,524	.22	.04	.03	.25	.05	.03	[.14, .37]	[.19, .31]	.50
		Hedonic wellbeing	4	3,963	−.25	.03	.01	−.30	.04	.01	[−.36, −.23]	[−.32, −.28]	.8
		Occupational wellbeing	4	3,814	−.26	.08	.07	−.31	.09	.08	[−.46, −.17]	[−.45, −.18]	.81
PF/IR	Gratitude	Overall wellbeing	5	4,253	−.26	.07	.06	−.31	.08	.07	[−.41, −.21]	[−.42, −.20]	.74
		Hedonic wellbeing	3	317	.38	.02	.00	.49	.02	.00	[.43, .54]	[.49, .49]	.0
		Overall wellbeing	4	776	.41	.03	.00	.49	.04	.00	[.44, .55]	[.49, .49]	.0
PF/IR	Meaning in life	Hedonic wellbeing	4	596	.44	.11	.08	.54	.13	.10	[.33, .75]	[.38, .70]	.57
		Overall wellbeing	5	1,204	.55	.14	.13	.67	.18	.16	[.45, .89]	[.42, .92]	.88
		Eudaimonic wellbeing	3	1,555	.62	.15	.15	.75	.18	.18	[.30, 1.00]	[.42, 1.00]	.93
PF/IR	Hope	Overall wellbeing	3	1,555	.63	.14	.13	.76	.17	.16	[.35, 1.00]	[.46, 1.00]	.92
		Hedonic wellbeing	4	667	.49	.08	.06	.63	.11	.07	[.47, .80]	[.52, .75]	.46
		General wellbeing	6	1,081	.47	.09	.06	.59	.12	.07	[.47, .71]	[.48, .69]	.37
PF/IR	Optimism	Overall wellbeing	8	1,690	.51	.06	.02	.62	.08	.02	[.55, .68]	[.59, .65]	.7
		Eudaimonic wellbeing	4	1,950	.61	.09	.09	.68	.10	.10	[.51, .84]	[.52, .84]	.89
		Occupational wellbeing	6	2,131	.62	.12	.12	.66	.13	.13	[.52, .80]	[.48, .85]	.90
PF/IR	Psychological capital	Overall wellbeing	5	2,990	.65	.08	.07	.71	.09	.08	[.61, .82]	[.59, .84]	.86
		Hedonic wellbeing	7	4,822	.39	.09	.08	.46	.10	.10	[.37, .56]	[.33, .60]	.85
		Eudaimonic wellbeing	6	1,876	.45	.22	.21	.51	.25	.24	[.25, .78]	[.15, .87]	.94
PF/IR	Resilience	General wellbeing	4	1,263	.37	.28	.28	.42	.33	.32	[−.10, .94]	[−.11, .95]	.97
		Occupational wellbeing	6	1,983	.40	.16	.15	.48	.19	.18	[.28, .67]	[.21, .74]	.91

Table 1 (continued)

JD-R	Antecedents	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>t</sub></i>	<i>SD<sub>res</sub></i>	$\rho$	<i>SD<sub>re</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>r</i> <sup>2</sup>
JR	Interpersonal predictors Social relationships	Overall wellbeing	13	6,559	.41	.17	.17	.48	.20	.20	[.36, .61]	[.22, .75]	.94
		Hedonic wellbeing	10	2,475	.36	.12	.10	.42	.14	.11	[.32, .52]	[.26, .58]	.69
		Eudaimonic wellbeing	3	1,606	.65	.25	.25	.75	.29	.29	[.03, 1.00]	[.21, 1.00]	.99
		General wellbeing	8	3,184	.34	.11	.10	.37	.12	.11	[.27, .47]	[.22, .53]	.83
		Occupational wellbeing	7	2,580	.51	.27	.26	.59	.32	.31	[.30, .89]	[.15, 1.00]	.95
JR	Teacher-student relationships	Overall wellbeing	20	7,168	.41	.19	.18	.47	.22	.21	[.37, .57]	[.19, .75]	.93
		Hedonic wellbeing	5	1,408	.47	.14	.13	.55	.17	.16	[.35, .76]	[.31, .79]	.89
		General wellbeing	4	913	.30	.18	.16	.35	.20	.19	[.03, .67]	[.04, .67]	.88
		Occupational wellbeing	5	1,512	.51	.18	.18	.60	.21	.21	[.33, .86]	[.28, .91]	.94
		Overall wellbeing	8	2,091	.44	.17	.17	.51	.20	.19	[.34, .68]	[.24, .78]	.91
JD	Student disruptive behavior	Hedonic wellbeing	6	867	-.37	.24	.23	-.42	.28	.26	[-.71, -.13]	[-.81, -.04]	.91
		General wellbeing	3	781	-.16	.11	.10	-.18	.13	.11	[-.51, .14]	[-.39, .02]	.71
		Occupational wellbeing	6	1,164	-.29	.25	.25	-.33	.30	.29	[-.64, -.02]	[-.75, .09]	.93
		Overall wellbeing	8	1,418	-.28	.23	.22	-.32	.26	.25	[-.54, -.11]	[-.67, .03]	.90
		Hedonic wellbeing	5	3,948	.42	.21	.20	.48	.24	.23	[.19, .77]	[.13, .84]	.98
JR	Trust	Occupational wellbeing	4	3,885	.44	.22	.22	.50	.25	.25	[.10, .90]	[.10, .90]	.98
		Overall wellbeing	6	3,986	.44	.20	.20	.50	.23	.23	[.25, .74]	[.16, .84]	.97
JD	Work-related predictors Job demands	Hedonic wellbeing	6	4,812	-.24	.10	.09	-.30	.12	.12	[-.43, -.17]	[-.47, -.13]	.87



**Table 1** (continued)

JD-R	Antecedents	Wellbeing dimension	k	N	r	SD <sub>r</sub>	SD <sub>res</sub>	$\rho$	SD <sub>re</sub>	SD <sub>p</sub>	95% CI	80% CR	f <sup>2</sup>
JR	Job competencies	Occupational wellbeing	4	4,304	-.23	.11	.10	-.29	.14	.13	[-.51, -.08]	[-.50, -.08]	.91
		Overall wellbeing	7	5,213	-.24	.10	.09	-.31	.13	.12	[-.43, -.19]	[-.48, -.14]	.86
		Overall wellbeing	5	3,655	.60	.18	.17	.71	.21	.21	[.45, .97]	[.39, 1.00]	.94
		Eudaimonic wellbeing	3	1,267	.51	.18	.18	.60	.21	.21	[.07, 1.00]	[.20, .99]	.96
JR	Professional identity	Occupational wellbeing	3	1,310	.45	.16	.15	.54	.19	.18	[.06, 1.00]	[.19, .88]	.91
		Overall wellbeing	5	1,969	.45	.17	.16	.54	.20	.19	[.29, .78]	[.24, .83]	.92
		Overall wellbeing	3	432	.36	.11	.07	.42	.12	.09	[.11, .72]	[.25, .58]	.49
		Hedonic wellbeing	4	1,417	.37	.13	.12	.42	.14	.13	[.20, .64]	[.21, .63]	.86
JD	Workload	General wellbeing	4	2,956	.56	.09	.09	.64	.10	.10	[.47, .80]	[.48, .79]	.87
		Overall wellbeing	9	4,751	.47	.18	.18	.53	.20	.20	[.37, .68]	[.25, .80]	.96
		Hedonic wellbeing	6	3,006	-.12	.08	.07	-.12	.09	.07	[-.22, -.03]	[-.23, -.02]	.70
		General wellbeing	4	1,933	-.20	.20	.20	-.22	.23	.22	[-.58, .14]	[-.58, .14]	.95
JR	Workplace climate	Overall wellbeing	7	3,232	-.17	.16	.15	-.18	.17	.16	[-.34, -.03]	[-.41, .04]	.91
		Hedonic wellbeing	8	2,577	.32	.11	.10	.40	.14	.13	[.28, .52]	[.23, .58]	.78
		Eudaimonic wellbeing	6	2,095	.23	.12	.11	.28	.15	.14	[.13, .44]	[.08, .49]	.82
		General wellbeing	4	3,312	.41	.06	.05	.47	.07	.06	[.36, .58]	[.38, .56]	.69
		Occupational wellbeing	4	865	.35	.10	.08	.39	.11	.09	[.22, .56]	[.25, .53]	.63
		Overall wellbeing	16	6,858	.35	.11	.10	.41	.13	.12	[.34, .49]	[.25, .58]	.84

Note. JD = job demand. JR = job resource. PF = personal factor.

**Table 2** Summary of meta-analytic results: Consequences of teacher wellbeing

Consequences	Wellbeing dimension	k	N	r	SD <sub>r</sub>	SD <sub>res</sub>	$\rho$	SD <sub>re</sub>	SD <sub>p</sub>	95% CI	80% CR	I <sup>2</sup>
<b>Work-related outcomes</b>												
Job satisfaction	Hedonic wellbeing	28	15,783	.50	.13	.13	.58	.15	.15	[.52, .64]	[.39, .77]	91
	Eudaimonic wellbeing	8	3,070	.74	.20	.20	.85	.23	.23	[.66, 1.00]	[.53, 1.00]	97
	General wellbeing	6	1,763	.53	.09	.07	.62	.10	.08	[.51, .72]	[.50, .73]	60
	Occupational wellbeing	17	8,663	.55	.22	.22	.64	.26	.26	[.51, .78]	[.30, .98]	97
	Overall wellbeing	39	19,306	.54	.17	.16	.63	.19	.19	[.56, .69]	[.38, .87]	95
Organizational commitment	Hedonic wellbeing	4	982	.38	.10	.09	.46	.13	.11	[.26, .67]	[.29, .64]	71
	Eudaimonic wellbeing	7	3,462	.50	.12	.12	.61	.15	.14	[.47, .75]	[.40, .81]	88
	Overall wellbeing	11	4,444	.47	.12	.12	.58	.15	.14	[.47, .68]	[.38, .77]	87
	Eudaimonic wellbeing	3	1,991	.62	.18	.17	.74	.21	.21	[.22, 1.00]	[.35, 1.00]	98
Occupational commitment	Overall wellbeing	5	2,726	.55	.19	.18	.66	.22	.22	[.38, .93]	[.32, .99]	97
	Hedonic wellbeing	5	2,176	-.32	.19	.18	-.38	.22	.21	[-.65, -.10]	[-.70, -.05]	94
Turnover intentions <sup>a</sup>	Eudaimonic wellbeing	7	2,922	-.44	.14	.13	-.51	.16	.15	[-.65, -.37]	[-.72, -.30]	91
	Occupational wellbeing	9	4,470	-.44	.10	.09	-.51	.12	.11	[-.60, -.42]	[-.66, -.35]	86
	Overall wellbeing	13	5,423	-.39	.16	.15	-.46	.19	.18	[-.57, -.34]	[-.70, -.21]	93

Note. <sup>a</sup>Turnover intentions includes composites that consist of intentions to leave the occupation/school, and reverse coding of intentions to stay in the organization/occupation, and general intentions to stay across studies.

**Table 3** Summary of meta-analytic results: Correlates of teacher wellbeing

Correlates	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>i</sub></i>	<i>SD<sub>res</sub></i>	<i>p</i>	<i>SD<sub>re</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>I<sup>2</sup></i>
<b>Demographic correlates</b>												
Age	Hedonic wellbeing	19	10,412	.01	.07	.05	.01	.07	.05	[−.02, .05]	[−.06, .09]	58
	Eudaimonic wellbeing	6	2,522	−.02	.10	.08	−.02	.10	.09	[−.13, .09]	[−.15, .11]	75
	General wellbeing	11	4,093	−.03	.13	.12	−.03	.14	.13	[−.12, .07]	[−.21, .15]	84
	Occupational wellbeing	10	6,294	.03	.06	.05	.04	.07	.06	[−.01, .09]	[−.04, .12]	62
	Overall wellbeing	28	14,369	.01	.13	.13	.01	.14	.13	[−.05, .06]	[−.17, .18]	89
Gender <sup>a</sup>	Hedonic wellbeing	7	7,002	−.08	.02	.00	−.08	.02	.00	[−.11, −.06]	[−.08, −.08]	0
	Occupational wellbeing	6	5,294	−.08	.05	.04	−.09	.05	.04	[−.14, −.03]	[−.15, −.02]	56
	Overall wellbeing	9	7,935	−.08	.04	.03	−.08	.05	.03	[−.12, −.05]	[−.12, −.04]	39
	Occupational wellbeing	3	2,376	−.04	.02	.00	−.04	.03	.00	[−.11, .02]	[−.04, −.04]	0
	Overall wellbeing	3	2,376	−.04	.03	.00	−.04	.03	.00	[−.11, .02]	[−.04, −.04]	0
Teaching experience	Hedonic wellbeing	20	10,698	.04	.09	.07	.04	.09	.08	[.00, .09]	[−.06, .15]	74
	Eudaimonic wellbeing	6	1,845	.13	.10	.08	.14	.11	.09	[.03, .25]	[.01, .27]	67
	General wellbeing	7	1,255	.02	.14	.12	.02	.15	.13	[−.12, .16]	[−.16, .20]	70
	Occupational wellbeing	14	8,121	.08	.08	.06	.08	.08	.07	[.04, .13]	[−.01, .18]	70
	Overall wellbeing	26	12,226	.05	.09	.08	.05	.10	.08	[.01, .09]	[−.06, .16]	73
<b>Individual differences and personal characteristics</b>												
Burnout <sup>c</sup>	Hedonic wellbeing	28	14,098	−.55	.16	.16	−.65	.19	.19	[−.73, −.58]	[−.90, −.41]	94
	Eudaimonic wellbeing	8	2,719	−.46	.09	.07	−.55	.11	.09	[−.64, −.46]	[−.67, −.43]	67
	General wellbeing	12	5,979	−.57	.22	.21	−.66	.25	.25	[−.82, −.50]	[−1.00, −.32]	95
	Occupational wellbeing	20	10,259	−.60	.13	.12	−.71	.15	.14	[−.78, −.64]	[−.89, −.52]	90
	Overall wellbeing	44	21,628	−.55	.17	.16	−.65	.19	.19	[−.71, −.59]	[−.89, −.41]	94

**Table 3** (continued)

Correlates	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>i</sub></i>	<i>SD<sub>res</sub></i>	$\rho$	<i>SD<sub>re</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>I</i> <sup>2</sup>
Distress <sup>d</sup>	Hedonic wellbeing	22	13,246	-.48	.14	.14	-.55	.16	.16	[-.62, -.48]	[-.76, -.34]	93
	Eudaimonic wellbeing	9	5,250	-.48	.08	.07	-.55	.09	.08	[-.62, -.47]	[-.66, -.43]	78
	General wellbeing	12	6,244	-.36	.20	.20	-.42	.24	.23	[-.57, -.27]	[-.74, -.11]	95
	Occupational wellbeing	6	3,987	-.41	.07	.06	-.46	.08	.07	[-.54, -.38]	[-.56, -.36]	72
	Overall wellbeing	25	14,672	-.47	.14	.14	-.53	.16	.15	[-.60, -.47]	[-.74, -.33]	93
Psychosomatic symptoms	Hedonic wellbeing	7	6,701	-.34	.20	.20	-.40	.23	.23	[-.62, -.18]	[-.73, -.07]	97
	General wellbeing	4	1,252	-.26	.20	.19	-.32	.24	.23	[-.69, .06]	[-.69, .06]	92
	Occupational wellbeing	3	3,950	-.44	.15	.15	-.52	.18	.18	[-.97, -.07]	[-.85, -.18]	98
	Overall wellbeing	9	7,417	-.33	.19	.19	-.39	.23	.22	[-.57, -.22]	[-.71, -.08]	97
		7	4,599	.32	.10	.09	.40	.13	.11	[.29, .52]	[.25, .56]	78
General/Physical health	General wellbeing	3	812	.51	.05	.02	.60	.06	.02	[.45, .75]	[.56, .65]	15
	Occupational wellbeing	3	733	.38	.24	.23	.48	.30	.29	[-.26, 1.00]	[-.06, 1.00]	93
	Overall wellbeing	9	5,129	.34	.12	.11	.43	.15	.13	[.32, .54]	[.25, .62]	82
Work-related correlates	Hedonic wellbeing	11	4,191	-.39	.25	.25	-.48	.31	.31	[-.69, -.27]	[-.90, -.06]	95
	Eudaimonic wellbeing	9	4,032	-.31	.34	.33	-.39	.43	.43	[-.73, -.06]	[-.99, .20]	98
	General wellbeing	6	2,676	-.28	.19	.19	-.35	.25	.24	[-.62, -.09]	[-.71, .00]	94
	Occupational wellbeing	11	3,018	-.52	.20	.20	-.59	.23	.22	[-.75, -.44]	[-.90, -.29]	94
	Overall wellbeing	21	7,199	-.38	.31	.31	-.46	.38	.37	[-.63, -.29]	[-.95, .03]	97

**Table 3** (continued)

Correlates	Wellbeing dimension	<i>k</i>	<i>N</i>	<i>r</i>	<i>SD<sub>r</sub></i>	<i>SD<sub>res</sub></i>	$\rho$	<i>SD<sub>re</sub></i>	<i>SD<sub>p</sub></i>	95% CI	80% CR	<i>t</i> <sup>2</sup>
Work engagement	Hedonic wellbeing	14	11,029	.55	.19	.19	.65	.23	.22	[.52, .78]	[.35, .95]	97
	Eudaimonic wellbeing	7	3,522	.44	.12	.11	.53	.15	.14	[.39, .66]	[.33, .72]	86
	Occupational wellbeing	8	3,503	.49	.11	.11	.57	.13	.12	[.46, .68]	[.40, .75]	87
	Overall wellbeing	20	12,827	.54	.19	.19	.64	.23	.22	[.53, .74]	[.34, .93]	20

*Note.* <sup>a</sup>Gender was coded as 0= male and 1 = female. <sup>b</sup> Education level was coded from low to higher degrees. <sup>c</sup>Burnout includes composites that consist of general burnout and all other burnout facets across studies. <sup>d</sup>Distress includes composites that consist of psychological and physical anxiety, psychological distress, depression, and mental illness.

**Table 4** Correlations between four wellbeing types

Correlates	1	2	3	4
1. Hedonic wellbeing		11,857	6,181	3,579
2. Eudaimonic wellbeing	.68 (22)		3,756	2,068
3. General wellbeing	.56 (16)	.62 (10)		2,075
4. Occupational wellbeing	.60 (7)	.71 (4)	.42 (5)	

*Note.* In the lower diagonal within each cell is  $\rho$  ( $k$ ). In the upper diagonal within each cell is  $N$  for each meta-analytic association.

moderation evidence for overall wellbeing across categorical moderators due to the overlap of CIs for all sub-groups. As the categorical subgrouping of studies has been criticized for being overly conservative (Afshartous & Preston, 2010; Austin & Hux, 2002; Belia et al., 2005; Cumming, 2009; Schenker & Gentleman, 2001), we also examined these subgroup moderators using psychmeta's pairwise test function. This means that if 95% CI around the difference between subgroups encompasses 0, moderation is not significant (De Jong et al., 2016). For the sample type moderator, we observed moderating effects for job satisfaction, teaching experience, and burnout, with the in-service teacher group showing a lower effect than the mixed group (job satisfaction:  $k=35$  vs  $k=3$ ,  $\rho_1-\rho_2 = -.30$ ,  $CI = [-.51, -.09]$ ; teaching experience:  $k=20$  vs  $k=6$ ,  $\rho_1-\rho_2 = -.10$ ,  $CI = [-.17, -.02]$ ; burnout:  $k=37$  vs  $k=3$ ,  $\rho_1-\rho_2 = .19$ ,  $CI = [.08, .31]$ ). For the educational setting moderator, we observed a moderating effect for distress, with the teachers in K-12 schools showing a lower effect than teachers in the mixed setting ( $k=19$  vs  $k=7$ ,  $\rho_1-\rho_2 = .18$ ,  $CI = [.10, .25]$ ).

Consistent with best practices, we only examined continuous moderators when at least  $k=10$  cases were available for an association (Higgins et al., 2022), and included analyses to determine if effects changed as a function of: (a) sample age, (b) teaching experience, and (c) percentage of the sample who were female. To run these analyses, we used the "metafor" package (Viechtbauer, 2010) of R. No results reached significance for any analyses. For space reasons, we do not report all of these analyses here, but full details can be found in the SM Tables 5 and 6.

## Comprehensive Sensitivity Analysis

We based our sensitivity analyses on the results of Meta-Sen and the decision rules for determining publication bias and outliers (Field et al., 2021). The baseline range estimate (BRE) was used to examine the non-robustness due to outliers by computing the absolute difference between the original estimate and any results or the estimate after outlier removal, that differs most from the original estimate (Field et al., 2021). The results showed that self-esteem and age (12%, 2/17) were deemed to contribute to the moderate ( $20\% < |\Delta| \leq 40\%$ ) and large ( $|\Delta| > 40\%$ ) non-robustness of the meta-analytic estimate. In addition to the BRE, Field et al. (2021) also proposed to consider the one-sample removed (osr) rule to examine the outlier bias by calculating the absolute difference between the original estimate and any of the three osr results before the outlier removal. Similarly, the results of executing this rule showed that teaching experience and age were deemed to contribute to the moderate

and large non-robustness of the meta-analytic estimate, respectively. Thus, 82% (14/17) of the distributions were negligibly affected by outliers (i.e.,  $|\Delta| \leq 20\%$ ).

To detect the publication bias effect on the robustness of an estimate, the maximum range estimate (MRE) was assessed by computing the absolute difference between the highest and lowest values from any estimate before and after the outlier removal (Field et al., 2021). According to the same classification method as outliers, the sensitivity analyses suggest that a negligible degree of publication bias was observed in 35% (6/17) of distributions and a moderate to large degree of publication bias was observed in 65% (11/17) of the distributions. When determining the overall robustness, we decided to use a more conservative method and only reported non-robustness when both outliers and publication bias co-occurred (Field et al., 2021). Thus, we concluded that outliers and publication bias were the source of non-robustness of age and self-esteem. We suggest that this association needs to be interpreted with caution. The results of the remaining 15 variables were robust with negligible differences due to the outliers and/or publication bias effect(s).

## Discussion

The objective of the present study was to meta-analytically examine the associations between teacher wellbeing and its corresponding antecedents, consequences, and correlates. In doing so, our review drew correlations from 173 independent studies. Below, we report a summary and interpretation of our key results, as well as discuss the central implications to emerge from our review. We conclude with commentary on limitations of our approach and directions for future research.

## Summary and Interpretation of Findings

Our results showed that most antecedent variables we examined exhibited moderate to strong associations with the five types of teacher wellbeing. Across all 39 antecedents, autonomous motivation was the strongest positive predictor of both hedonic and overall wellbeing. Hope and social relationships were the most potent positive predictors of eudaimonic wellbeing. Work-life balance and competence satisfaction exhibited the most pronounced positive predictors of general wellbeing and occupational wellbeing, respectively. By contrast, neuroticism emerged as the strongest negative predictor of all wellbeing types, except for general wellbeing, where it was replaced by disengagement coping. Regarding the four consequences of teacher wellbeing that we examined, of particular significance, job satisfaction was the strongest positive consequence among the remaining four types of wellbeing, while occupational commitment was the strongest positive consequence of overall wellbeing. Turnover intentions were the strongest negative outcome of all five wellbeing types. Among the 10 correlates, the strongest positive correlate of hedonic, eudaimonic, occupational, and overall wellbeing was work engagement, and of general wellbeing was general/physical health. Burnout was the strongest negative correlate of all five types of wellbeing. Distress was also related at a similar magnitude with

eudaimonic wellbeing. Overall, these results had some consistency with existing literature (e.g., Bianchi & Caso, 2021; Collie et al., 2016; Hohensee & Weber, 2022; Kun & Gadanecz, 2022; MacIntyre et al., 2019; McInerney et al., 2018; Meyer et al., 2019; Schad & Johnsson, 2019), and the associations of each wellbeing type and factors were related to their positive or negative attributes.

Another observation raised in this study is high heterogeneity, especially in factors related to hedonic and eudaimonic wellbeing. We expect that the high heterogeneity observed is attributable to a range of factors that encompass teachers' social values, characteristics, and working conditions in different contexts, as well as diverse measures and other methodological artifacts (Higgins et al., 2022). As high levels of heterogeneity suggest the existence of possible moderators, our moderation analyses revealed stronger correlations between overall wellbeing and three factors: teaching experience, job satisfaction, and burnout in the mixed group compared to the in-service teacher group. This could be attributed to the increasing years of teaching experience of in-service teachers, signifying a positive emotional connection and functioning in their profession. Yet, it is likely that these experienced teachers may be inclined to take on more responsibilities and administration tasks alongside their teaching duties, while perceiving a decline in the social value and satisfaction of the profession, as well as accumulating high levels of stress and burnout (OECD, 2020). This offers a possible explanation for why teachers in the mixed group exhibit stronger correlations with overall wellbeing than teachers in K-12 settings. Another possibility is that responses given by teachers who do not undertake extra administrative roles may display less variance on wellbeing, thereby restricting the strength of correlations with certain outcomes or correlates. Whereas, this restriction might not fully apply to the mixed group, given they also comprise non-teaching staff, which serves as a possible explanation for the observed attenuated correlations within the teacher group. Regarding the extremely high correlation (.94) between job satisfaction and overall wellbeing in the mixed group, it is noteworthy that the number of studies contributing to this result is small ( $k=3$ ), which may be significantly influenced by the high correlations (ranging from .60 to .86) reported in a large-sample study (i.e., McInerney et al., 2018). However, the job satisfaction scale used in this study, lacks accessibility and a psychometric property test. Therefore, careful consideration is needed regarding the potential impact of these strong associations found in this study with high statistical power on the overall correlation.

Regarding differences between educational settings, we only observed a stronger negative correlation between distress and overall wellbeing for teachers in the mixed setting compared to those in K-12 settings. This discrepancy may arise because teachers employed in vocational schools face heightened demands and stress. In this setting, teachers not only undertake roles and responsibilities similar to those of schoolteachers, but also possess holistic industry knowledge and competencies, with the objective of facilitating students' schools-to-work transition (Barnová et al., 2023; Grollmann, 2008). This is a process that has become increasingly demanding and challenging within the contemporary competitive labor market. In some cases, vocational schools are more likely to admit students with diminished learning motivation and low academic performance, which may contribute to excessive distress



among vocational teachers (Dankade et al., 2016). From a statistical perspective, small sample sizes may result in second-order sampling errors and more variance of the correlation in the mixed group compared to the K-12 which contains 19 independent studies (Schmidt & Oh, 2013). Other than these four affected variables, we found no evidence indicating moderating effects of the selected categorical variables on other associations with overall wellbeing, which is inconsistent with the findings of existing studies (e.g., Vorkapić & Pelloza, 2017; Yu et al., 2010).

Our analyses did not yield evidence of moderation effects for the three continuous moderators we examined: age, teaching experience, and percentage of participants who were female, on any associations. This contrasts with some prior studies that have indicated small moderating effects for these three variables on wellbeing and its correlates (e.g., Collie et al., 2016; Nazari & Oghyanous, 2021). It is worth noting that for many associations, there were insufficient studies to run continuous moderator analyses, and for those that do have enough studies, the results are not significant, implying that we lack sufficient power to detect subtle moderating effects. Thus, as the body of literature and as research continues to develop, understanding the importance of moderators and investigating the extent of their influence on associations with teacher wellbeing variables emerges as a vital future direction.

Notably, there are some very strong correlations ( $>.70$ ) in our results. Some cases involve excessively high correlations with the upper bound of the 95% CI reaching 1.00, indicating that these variables may not necessarily be distinguishable from teacher wellbeing based on the results from original independent studies. For instance, the correlations between hedonic wellbeing, overall wellbeing, and autonomous motivation ( $\rho=.83$ ,  $\rho=.73$ , respectively), may be attributed to the intrinsic nature of autonomous motivation, primarily driven by interest, enjoyment, and personal values placed on the behavior, suggesting a shared commonality with positive affect within hedonic wellbeing and autonomy within eudaimonic wellbeing (Ryan & Deci, 2017). The correlations between eudaimonic wellbeing, hope ( $\rho=.75$ ), social relationships ( $\rho=.75$ ), job satisfaction ( $\rho=.85$ ), and occupational commitment ( $\rho=.74$ ) were all in a range that indicates a lack of discriminant validity. The first two correlations could be explained by the fact that hope and social relationships were characterized by competence in overcoming challenges, social support and connections, as well as goal pursuits. These characteristics exhibit a certain level of overlap with facets within eudaimonic wellbeing, such as autonomy, purpose in life, and positive relations with others (Asıcı, 2021; Ryff, 1989). In addition, teachers who perceive positive appraisal, autonomy, purpose, fulfillment, meaning, and personal growth in their profession, experience a higher level of eudaimonic wellbeing, thus manifesting high occupational commitment and job satisfaction (Collie et al., 2016; Meyer et al., 2019). In addition to the strong correlations between job satisfaction and eudaimonic wellbeing shown in McInerney et al. (2018) as explained above, a perfect positive correlation was presented in a medium-sample study (i.e., Thakur et al., 2022). The overall correlation reduced from .85 to .82 after removing this perfect correlation, and further declined to .69 upon excluding all correlations found in McInerney et al. (2018). This suggests that the inclusion of these two studies may be inflating the correlation between job satisfaction and overall wellbeing. Overall, our results indicate that these variables may conceptually

overlap with wellbeing, or alternatively, ways to better discriminate them in the measures needs to be established. To account for the limited information on measure reliabilities in our included studies and the likelihood of encountering second-order sampling error, we employed an artifact distribution method with unbiased sample variance estimators for all meta-analytic associations (Schmidt & Oh, 2013). However, this method is applied to all effect sizes, rather than addressing errors in each study, thereby hindering the detection and correction of methodological quality and selection biases among the included studies (Wiernik & Dahlke, 2020). Thus, the interpretation of such kind of relationships needs to be cautious.

## Practical Implications

Our results offer guidance to teachers, school leaders, and policy makers interested in teacher wellbeing. First, our review points to a range of factors that can be broadly classified using the JD-R theory as important antecedents to teacher wellbeing, which provides some direction as to priority areas to consider when helping teachers optimize their job demands and resources. At an individual level, a few variables stood out as the strongest predictors which are also known to be malleable to change. This includes motivational processes such as basic psychological need satisfaction and, similarly, autonomous motivation, which is also consistent with SDT (Ryan & Deci, 2000). Thus, helping teachers identify ways to satisfy their needs for autonomy, competence, and relatedness as well as optimize their motivation for their work would likely aid their wellbeing (Slemp et al., 2020). SDT provides direction about how individuals can satisfy their basic psychological needs. At an individual-level, interventions based on job crafting (de Bloom et al., 2020) or more directly, need crafting have shown promise in enhancing psychological needs and wellbeing. Motivational processes can also be targeted through interpersonal processes (Slemp et al., 2024), such as by school leaders taking action to support the autonomy, competence, and relatedness of teachers (e.g., Collie & Martin, 2017). Lending further support to this claim is our finding that social relationships are another important interpersonal antecedent of wellbeing, as is workplace climate. Both emerged as important positive predictors of teacher wellbeing, with correlations in the moderate to strong range.

At a workplace level, some variables again stood out as strong predictors of teacher wellbeing. One example is work-life balance, which was among the strongest positive predictors. This observation helps to confirm the view that teachers are likely to experience wellbeing to the extent that they perceive they have adequate time to devote to other areas in life: family, leisure, and friends. Our results highlight a need for teachers to be adequately supported so that they can avoid their work taking over other important life domains and experiences. However, particularly concerning in this regard are recent reports showing downward trends in perceived work-life balance amongst teachers. In Australia, for example, surveys show that as many as 80% of teachers perceive their work-life balance to be less than ideal or non-existent (NEiTA-ACE, 2021). In the UK, 63% of teachers are seeking a better work-life balance, suggesting they may struggle to prioritize life domains and activities outside of their work (Teacher Wellbeing Index, 2022). Thus, it is essential

that schools and policy makers determine ways to help teachers optimize their work-life balance.

In terms of negative workplace predictors, our review showed general job demands as an important antecedent, with correlations in the moderate to strong range. By contrast, workload did not emerge as a strong negative predictor of wellbeing, yet nevertheless exhibited moderate and significant negative associations with hedonic wellbeing and overall wellbeing. This may suggest that there are other factors, beyond workload, that are affecting teacher wellbeing and their perceived work-life balance. It is also possible that the relation between workload and wellbeing is not linear but rather reflects a curvilinear relation, which is not captured well in our data and thus may be biasing this effect downwards. Studies have shown, for example, that the relation between workload and factors related to wellbeing, such as work engagement, follows an inverted U shape (e.g., Montani et al., 2020), whereby the relation increases up to an inflection point but beyond that it diminishes toward zero. Thus, workload is generally good for employees unless it becomes excessive and thereby starts to act as a job demand (Bakker et al., 2023). Thus, we suggest that leaders and policy makers make every effort to ensure that teacher workloads are in an optimal zone, which may also likely impact wellbeing and its associated outcomes indirectly through work-life balance (Holland et al., 2019).

Another important implication of our review is that teacher wellbeing generally associates with a variety of desirable outcome factors. For instance, we observed strong negative associations between teacher wellbeing and turnover intentions, suggesting that efforts to enhance teacher wellbeing may provide possible routes to help alleviate the current teacher shortage caused by excessive attrition. While our results cannot provide strong causal claims, they are nevertheless consistent with a range of intervention-based studies in general workplaces that do allow stronger causal claims, suggesting that improving wellbeing may be an effective strategy to alleviate turnover. At an individual level, for example, Proudfoot et al. (2009) used a randomized-controlled trial of an employee wellbeing intervention and showed those who received the intervention were less likely to turnover after 4.5 months. Other studies show similar benefits (e.g., DeJoy et al., 2010; Strand & Bosco-Ruggerio, 2011), suggesting that interventions to improve wellbeing are likely to be an effective strategy to improve turnover outcomes. Interventions at an organizational level also show similar levels of efficacy in terms of improving turnover. For example, Rickard et al. (2012) evaluated the effects of a wellbeing intervention on nurses that initiated improvements in their job demands: improved workloads, staffing rosters, and increasing personnel to deal with staff shortages. Results showed improvements in wellbeing and turnover over time. Thus, it is possible that through enhancing wellbeing, desired outcomes will emerge in terms of retaining teachers in the profession.

A range of programs and interventions have been designed in this regard that have showed some positive effects on teacher wellbeing, such as the application of BRiTE and Positive Education training applied to adapt both pre- and in-service teachers' resilience, stress management, social relationships, and emotional wellbeing (Mansfield, 2020). CARE for Teachers has been developed as a mindfulness-based professional development program for stress management, emotional

regulation, as well as the strengthening of self-efficacy and teacher-student relationships (Jennings et al., 2017). These outcomes were key antecedents in our meta-analysis in promoting teacher wellbeing, potentially suggesting that strengthening these abilities and personal characteristics can help teachers not just maintain a good sense of wellbeing but better adapt to future high-intensity teaching roles (Hascher et al., 2021). In addition to implementing programs at the teacher level, effective school-level interventions could also provide ways to benefit teachers' wellbeing. For instance, School-Wide Positive Behavior Interventions and Supports (SWBPIS) is a multi-tiered support used to address students' behavioral needs, support staff to adopt evidence-based practices, and develop a positive and supportive school culture (Lewis & Sugai, 1999). This intervention has been demonstrated to enhance teacher wellbeing and its key factors (teacher-student relationships, teacher efficacy, personal accomplishment, work engagement, social relationships), at both individual and group levels (McIntosh et al., 2010; Ross et al., 2012), and thus offers a potential avenue forward in terms of enhancing teacher wellbeing.

Given our review shows teacher wellbeing to be central to positive outcomes in both teachers and also schools, we suggest that wellbeing will become pivotal in the branding of schools to reflect its reputation and may help attract high-quality teachers, which is known to occur in organizations more broadly (Berthon et al., 2005; Dutton et al., 1994). Industry research has demonstrated that investing in employee wellbeing via mental health programs at work not only enhances the organization's attractiveness to both current employees and the external world (Waal, 2018), but also promotes productivity, reduces absenteeism, and contributes a positive return on investment in many industries, including private education and training (PWC, 2014). Thus, we propose that educational leaders should prioritize teacher wellbeing, and consider reporting on teacher wellbeing levels as a key component in showcasing the quality of the school culture and environment, as recommended in a summary report by the independent school sector in Australia (Runions & Cross, 2022). Such an approach may catalyze stakeholders, including teachers, school leaders, educational authorities, teacher unions, and social organizations, to value teachers and re-emphasize the factors related to teacher wellbeing.

## Limitations and Future Research

Notwithstanding the strengths of meta-analysis, there are at least four limitations of the present meta-analysis that need to be mentioned. First, many of the studies included in our review were cross-sectional. Thus, we cannot make strong claims about the directionality of any causal relationships that might exist. In fact, we identified only 5% ( $n=9$ ) time-lagged/longitudinal studies that met our eligibility criteria and mainly focus on hedonic wellbeing (at work) (i.e., Burić & Moè, 2020; Burić et al., 2019a, 2019b; Burns & Machin, 2013; Dreer, 2022; Lindner et al., 2021; Richter et al., 2013; Wang & Hall, 2021; Wu et al., 2020). The remaining studies mainly investigated eudaimonic, general, and other facets of occupational wellbeing were also cross-sectional. More longitudinal studies are needed to provide evidence for directional patterns between measured variables (Cohen et al., 2017; Hamaker et al., 2015). Second, self-reported surveys are widely used to measure wellbeing and factors in the 173 selected studies. Due to

the survey-based nature, responses can be susceptible to biases, such as self-report or social desirability biases, which increases measurement error and ultimately reduces the validity of the results (Cohen et al., 2017). Future studies should consider alternative measures to assess whether different forms of measurement converge to yield more valid conclusions and mitigate potential biases associated with self-reporting.

Third, we observed that hedonic and eudaimonic wellbeing generally yielded larger  $k$  and stronger meta-analytic effect sizes than general and occupational wellbeing. Across all 53 factors outlined in Tables 1, 2 and 3, 43 factors (81%) are correlated with hedonic wellbeing, followed by 37 (70%), 28 (53%), and 22 (42%) factors associated with occupational, eudaimonic, and general wellbeing, respectively. These results imply a more nuanced understanding and focus on hedonic wellbeing than on the latter three wellbeing types, although the empirical literature concerning eudaimonic wellbeing has expanded since the 1990s. Limited research on other wellbeing types may contribute to increased heterogeneity, a higher likelihood of second-order sampling errors and publication bias, affecting the accuracy of meta-analytical results. Our results therefore emphasize the need for further research and measurement investigations into teachers' eudaimonic and general wellbeing, with a focus on associated factors. In addition to these descriptive results, the majority of pre-selected measures have been developed and adopted within Western cultures although we included a few internationally used measures, such as the International Positive and Negative Affect Schedule Short Form and the PANAVA scale (Diener et al., 2010; Schallberger, 2005; Thompson, 2007), in this research. It is possible that our operational framework for teacher wellbeing was more applicable in specific cultural contexts, and participants from different cultural backgrounds may process information and evaluate wellbeing through a different lens and value system (Cummins, 2018). Thus, we encourage the development of more theoretical frameworks and empirical evidence to create culturally appropriate wellbeing measures and to distinguish facets and external factors of wellbeing within these measures.

Another concern is the need to specifically conceptualize general and occupational wellbeing of the teacher population and distinguish their facets and closely related factors. Regarding general wellbeing, some facets within this wellbeing type have been examined as independent from hedonic and eudaimonic wellbeing (e.g., social wellbeing), or can straddle both traditions (e.g., vitality). Thus, the correlations with this wellbeing type still contribute to the understanding of overall teacher wellbeing. Nevertheless, a thorough theoretical foundation is lacking to encompass various facets into a high-order wellbeing dimension. Thus, we encourage future research to establish other wellbeing traditions while considering the facets covered in our conceptual framework. In addition, many external factors widely vary from occupational wellbeing, such as teacher self-efficacy, social relationships, organizational commitment, and burnout, were considered as facets (e.g., Renshaw et al., 2015; van Horn et al., 2004). However, our meta-analytical results indicated that these factors have a degree of discrepancy with teacher wellbeing based on the results from a large independent studies ( $k > 10$ ) (Schmidt & Hunter, 2015), implying a consistent classification of factors based on the JD-R theory. Despite our conceptualization of this wellbeing type being based on the well-established traditions, we still have an inadequate understanding of the nature of occupational wellbeing among the teaching population specifically. We therefore encourage more inductive research on

this wellbeing type to identify its unique facets and develop teacher-specific wellbeing measures (e.g., Dagenais-Desmarais & Savoie, 2012).

Out of the 173 studies, only 14 (8%) focus exclusively on pre-service teachers (e.g., Hohensee & Weber, 2022; Lucas-Mangas et al., 2022). An additional two studies recruited both pre- and in-service teachers as participants (i.e., Chan, 2009; Çifçi & Demir, 2020). Hence, more research is needed to incorporate the wellbeing of pre-service teachers into the discourse on teacher wellbeing and investigate factors associated with pre-service teacher wellbeing. This is particularly important as pre-service teachers are the next generation of in-service teachers who are in the process of establishing themselves in the profession and it is important to identify ways to retain them in the profession (Holzberger et al., 2021). Similarly, research suggests some important differences between in-service and pre-service teachers, including their professional capability, job satisfaction, and teaching self-efficacy (e.g., Menon & Saitis, 2006; Meschede et al., 2017; Segarra & Julià, 2020), and hence, the research on in-service teachers may not necessarily generalize. Yet, despite this, current research on teacher wellbeing predominantly revolves around in-service teachers.

## Conclusion

The present study reports a comprehensive meta-analysis of teacher wellbeing. Drawing upon our conceptualization and operationalization of teacher wellbeing, we classify it into hedonic wellbeing, eudaimonic wellbeing, general wellbeing, and occupational wellbeing, and also include a composite of overall wellbeing. The meta-analytical results underscore the strength of three sub-dimensions of antecedents, four consequences, and 10 correlates contributing to different types of teacher wellbeing. In particular, personal attitudes and motivation, engagement coping, interpersonal relationships, as well as professional abilities and environment presented significant influences in nurturing teacher wellbeing. Teachers with a high level of wellbeing are more inclined to have reduced burnout, distress, and turnover intentions, while presenting high levels of work engagement, job satisfaction, and commitment. Based on our study results, we suggest efforts be directed at designing interventions that work to produce a culture of wellbeing in the school system, as well as efforts to foster wellbeing at the individual and policy levels. Overall, focusing on teacher wellbeing can uncover important insights to attract future teachers to choose teaching as a viable career option that contributes positively to their lives.

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**Data Availability** The full dataset, scripts, and supplementary materials are made available through the Open Science Framework. All files can be found with the following link: <https://osf.io/4r6pf/>.



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