Short-term Dynamic Changes in Teachers' Occupational Mental Health: Evidence from Daily Experience Sampling

Authors: Li Xiying, Qin Xiaoyi, Cao Wanru, Guo Qiuyi, Zhao Qihui, Pi Zhongling, Zhongling Pi

Date: 2024-05-02T00:00:00+00:00

Abstract

Teaching is a highly stressful profession, rendering teachers particularly vulnerable to mental health issues. Previous research on teachers' occupational mental health has failed to account for the profession-specific characteristics of teaching and the Dual Factor Model of Mental Health, while research methodologies have not captured the dynamic nature of teacher-student interactions. The present study employs a domain-specific dual-factor framework to assess teachers' occupational mental health. Latent Profile Analysis (LPA) revealed that 19.8% of teachers exhibited low levels of occupational mental health, 55.9% exhibited moderate levels, and 24.3% exhibited high levels. Compared to teachers with moderate occupational mental health, those with low levels demonstrated a more negative internal working model of self and a less positive internal working model of self. Teachers possessing a negative internal working model of self perceived more negative student behaviors in the classroom, which subsequently decreased teachers' positive emotions and increased their negative emotions. Cross-day Lagged Analysis indicated that for teachers with low-to-moderate occupational mental health, more intense negative emotional experiences on a given day predicted more negative internal working models of self and others on the following day; for teachers with high occupational mental health, more intense positive emotional experiences on a given day predicted less negative internal working models of self on the subsequent day. These findings hold theoretical and practical significance for improving teachers' occupational mental health.

Full Text

Preamble: Self-Check Report for *Acta Psychologica Sinica*

Please complete the following items and paste them on the first page of your manuscript.

1. List up to three innovative contributions of this study in the form of "Research Highlights," totaling no more than 200 words.

Acta Psychologica Sinica aims to publish cutting-edge psychological research that is "both scientifically excellent and of particularly broad interest and significance." Studies with only minor incremental contributions, without attempting to open new areas of inquiry or propose unique and innovative perspectives—especially those that purely investigate algorithms or techniques without clear psychological questions—have low acceptance probability and should be submitted elsewhere.

Response: First, this study adopts a dual-factor model of teacher occupational specificity and mental health to construct teacher occupational mental health. Second, it develops a dynamic change model of teacher occupational mental health based on classroom teaching activities. Third, it employs experience sampling methodology with high ecological validity capable of capturing dynamic changes.

2. Have you published or submitted any articles using the same data as this study? If yes, please attach them for review.

(We do not encourage publishing multiple articles with the same variables from one dataset, nor splitting a series of related studies into multiple publications.)

Response: No.

3. For non-experimental, non-intervention studies in management, clinical, personality, and social psychology that rely solely on self-report (questionnaire) methods, you must check for common method bias. What methods did you use to control for or demonstrate that such bias does not affect the validity of your conclusions? (See: http://journal.psych.ac.cn/xlkxjz/CN/abstract/abstract894.shtml) Studies based on cross-sectional data with only self-reports and convenient sampling are easy to conduct but typically lack innovative value and have low acceptance probability.

Response: Experience sampling methodology was used to collect data.

4. Did you report and analyze effect sizes (e.g., Cohen' s d for t-tests, ^{2} for ANOVA)? (Many studies mechanically report effect sizes without necessary analysis or explanation, such as whether the effect size is small, medium, or large, or its theoretical/applied significance.) (Search "effect size calculator" on Google for convenient apps. For explanations in Chinese: http://journal.psych.ac.cn/xlkxjz/CN/abstract/abstract1150.shtml; in English: http://www.uccs.edu/lbecker/effect-size.html) Did you report 95% CIs? (For differences, correlations/regression coefficients, etc.) See https://thenewstatistics.com/itns/esci/ for calculations and graphing.

Response: Multilevel modeling was used for analysis; effect sizes are not applicable.

5. Please state your planned and actual sample sizes. If they differ, explain why. Previous psychological research has suffered from low statistical power due to insufficient sample sizes. We recommend explaining your sample size calculation rationale in the Methods section, determining sample size based on justified effect sizes and desired power, and reporting the software/program used. See https://osf.io/5awp4/ for guidance.

Response: Currently, there is no appropriate statistical method to calculate planned sample sizes for experience sampling methodology. However, most existing studies using this method have several dozen samples, with over 100 considered large. Therefore, this study' s sample size is appropriate.

6. The journal requires reporting exact p-values (except for $p < .001$, which should be reported as such). Does your paper meet this requirement? For Bayes factors, have you reported sensitivity to prior distribution assumptions?

Response: Yes, p-values are reported as required.

7. To ensure complete data reporting, if you excluded any data in statistical analysis, did you report this in the text? Why? How would results change if included? How were missing data handled? Did you delete any individual items from scales? Why? How would results change if included? Are there any unreported measures or variables? Why? Please indicate where in the paper.

Response: No data were excluded; no items were deleted from scales.

8. Are unpublished experimental materials, scales, or questionnaires attached at the end of the file for review? If not, explain why. If published, are you willing to share these materials with other researchers?

Response: Attached as appendices. Some scales were developed by other researchers; I lack authority to share them.

9. This journal requires authors to provide raw data. Please choose one option:

a) Submit data to editorial office email after submission (√)

b) Data available at the following link

c) Raw data and programs shared on Psychology Science Data Bank (https://psych.scidb.cn/)

d) If unavailable, explain reason or provide proof.

10. Is your study a clinical intervention or laboratory experiment? Yes ( ) / No (√)

If yes, provide pre-registration number. If no, explain why.
Note: Clinical interventions or lab experiments should be pre-registered before data collection. Other experimental studies are also encouraged to pre-register. Pre-registration requires stating all hypotheses with supporting rationale and detailed procedures. Our pre-registration sites: https://os.psych.ac.cn/preregister (instructions in website' s "Download Center"), https://osf.io/, or https://aspredicted.org/. Pre-registration significantly increases acceptance probability. See https://osf.io/5awp4/ for importance.

11. If human or animal subjects were used, was approval obtained from your institution's ethics committee? If yes, please email scanned copy. If no, explain.

Response: No; our institution does not conduct this work. Can be supplemented if required.

12. Did you write a 400-500 word English abstract following the "English Abstract Writing Guidelines" on the editorial website? Has the English title and abstract been reviewed by an English-proficient professional or edited by a professional SCI/SSCI editing service?

Response: English title and abstract were reviewed and polished by an associate professor from the English department.

13. If the first author is a student, the advisor must email the editorial office (xuebao@psych.ac.cn) separately to confirm they have read and reviewed the manuscript. Has the advisor been reminded to email?

Response: First author is not a student.

14. Please download and complete the "Manuscript Non-Confidentiality Certificate" from the "Download Center" on the editorial website homepage, stamp it with your corresponding author' s institutional confidentiality office seal, and email scanned copy to xuebao@psych.ac.cn. If no confidentiality office seal is available, use the institutional seal. Have you emailed it?

Response: No confidentiality office seal available; institutional seal has been applied and emailed.

Short-term Dynamic Changes in Teacher Occupational Mental Health: Evidence from Experience Sampling Methods

Abstract

Teaching is a highly stressful profession, making teachers more vulnerable to mental health problems. Previous research on teacher occupational mental health has failed to incorporate both the occupational specificity of teaching and the Dual Factor Model of Mental Health, and methodological approaches have not captured the dynamic nature of teacher-student interactions. This study measured teacher occupational mental health using domain-specific dual factors. Latent Profile Analysis (LPA) revealed that 19.8% of teachers exhibited low occupational mental health, 55.9% exhibited medium levels, and 24.3% exhibited high levels. Compared to teachers with medium occupational mental health, those with low levels showed higher negative self-internal working models and lower positive self-internal working models. Teachers with negative self-internal working models perceived more negative student classroom behaviors, which decreased teachers' positive emotions and increased negative emotions. Cross-day lagged analysis demonstrated that for teachers with low and medium occupational mental health, stronger negative emotional experiences on a given day predicted more negative self and other working models the following day. For teachers with high occupational mental health, stronger positive emotional experiences on a given day predicted less negative self-internal working models the next day. These findings have theoretical and practical implications for improving teacher occupational mental health.

Keywords: Teacher Occupational Mental Health, Experience Sampling Method, Student Classroom Behavior, Teacher Emotion, Teacher Internal Working Model

Introduction

In early 2018, the Central Committee of the Communist Party of China and the State Council issued the "Opinions on Comprehensively Deepening the Reform of Teacher Team Building in the New Era," which states in Article 5: "Safeguard teachers' professional dignity and legitimate rights and interests, care for teachers' physical and mental health, overcome occupational burnout, and stimulate work enthusiasm." Teacher occupational mental health has received high-level national attention, as it not only affects teachers' professional development (Farber, 2000) but also influences students' learning environments and development, thereby impacting the achievement of national educational goals. Teacher occupational mental health has become a critical factor constraining healthy teacher and student development and teaching quality, emerging as a hot topic in educational psychology research (Lehr et al., 2009).

Teaching is a stressful professional activity (Benmansour, 1998; Watts & Robertson, 2011; Steiner et al., 2022; Jotkoff, 2022; Guglielmi et al., 2015; Viac & Fraser, 2020). Compared to other occupations, teachers are more prone to mental health problems (Stansfeld, 2002). However, existing research has largely treated teachers as a general population, ignoring the occupational specificity of teaching (Wang, Li, & Zhang, 2010). For instance, teachers' primary mental health issues manifest as emotional exhaustion, fatigue, headaches, tension, depression, insomnia, attention disorders, inner restlessness, and irritability (Aliakbari, 2015; Seibt, Galle, & Dutschke, 2007), commonly measured using indicators such as somatization, anxiety, depression, interpersonal sensitivity, and hostility (Aliakbari, 2015; Feng, 2006; Tyson, Roberts, & Kane, 2009). However, a meta-analysis by Fox, Walter, & Ball (2023) of 97 empirical studies found that less than one-quarter used domain-specific teacher well-being scales. Consequently, these measures lack occupational specificity and rarely address what it means to be a teacher (Collie et al., 2015; Fox, Walter, & Ball, 2023). Teaching is a unique profession; general mental health measures cannot capture the key components of teacher occupational mental health or accurately assess it within school contexts.

Previous research has examined psychologically relevant variables specific to teaching, including occupational burnout, occupational stress, effort-reward imbalance, work engagement, job satisfaction, and occupational commitment (Bogler & R., 2016; Demir, 2015; Eldor & Shoshani, 2016; Granziera et al., 2021). However, positive psychology posits that mental health is a multidimensional construct encompassing both negative and positive aspects (Keyes, 2002; Beltman et al., 2011). The Dual Factor Model of Mental Health further suggests that individuals may simultaneously experience low mental health and high well-being (Keyes, 2002; Tuckwiller & Dardick, 2018). Yet previous definitions and measurements of teacher occupational mental health have used either negative or positive indicators exclusively. For example, Fox et al.' s

(2023) meta-analysis found that among 97 included articles, 48 used negative indicators (37 of which used burnout scales). Fox et al. (2023) argue that while positive psychological traits are important constructs, they cannot serve as the sole indicator of teacher occupational mental health. Many studies contend that well-being must be measured through stress or burnout levels (Skaalvik & Skaalvik, 2018). As Hascher et al. (2021) explain, these findings apply only to the investigated subdimensions (e.g., burnout) rather than broader teacher occupational mental health. While reducing teacher burnout through stressor elimination helps, cultivating positive aspects of teaching and school life—such as enhanced collaboration and support—also promotes occupational health. Work engagement was originally proposed as the opposite of burnout, representing two extremes of work states (Li & Ling, 2007; Li & Zhang, 2007). However, Schaufeli and Bakker (2003) argue that absence of burnout does not imply high engagement, nor does low engagement necessarily indicate high burnout.

Given the widespread use of burnout measures (Fox, Walter, & Ball, 2023) and the alignment between integrating burnout and work engagement with the Dual Factor Model (Keyes, 2002; Tuckwiller & Dardick, 2018), this study proposes to measure teacher occupational mental health using both teacher occupational burnout and teacher work engagement as occupation-specific indicators.

Teaching has unique characteristics, such as dynamic teacher-student interaction and emotion-laden work (Pi et al., 2022). Do student behaviors in the classroom influence teachers' occupational mental health? Research indicates that student behaviors, particularly problem behaviors, significantly affect teacher occupational mental health (Player et al., 2017; Souto-Manning & Melvin, 2022; Steiner et al., 2022; Fox, Walter, & Ball, 2023). For example, Mccormick and Barnett (2011) found that teachers' perception of student problem behaviors leads to burnout, particularly emotional exhaustion. Chang (2009) demonstrated that managing student problem behaviors generates frustration, anxiety, and anger, resulting in emotional fatigue. Fernet et al. (2012) noted that noticing student problem behaviors reduces teachers' autonomous motivation and self-efficacy, causing emotional exhaustion and more negative emotions. Some researchers even include teachers' perceptions of student motivation, behavior, and relationships as a dimension of teacher well-being—student interaction well-being (Collie et al., 2015). Thus, student behaviors may influence teacher emotions and occupational mental health. But how does teacher occupational mental health develop and change?

Previous research has found close relationships between teacher burnout and teacher self-concept (Isaac et al., 1992; Mingjing et al., 2018; Prasojo et al., 2020). Isaac et al. (1992) noted that how teachers view themselves correlates more strongly with burnout than how they think others view them. Internal working models are metacognitive structures that help individuals organize and interpret information through cognitive processing (Vermigli & Toni, 2004), with different models showing distinct information processing patterns (Biro et al.,

2016). Dykas and Cassidy (2011) suggest that individuals who negatively evaluate themselves and others tend to notice negative environmental cues, while those with positive views process more positive information. Moreover, internal self-other models change with actual situations (You & Guo, 2008). Cassidy et al. (2000) explained internal working model development at the daily interaction level: early models influence individuals' cognitive processing and emotional experiences, which affect the environment and are subsequently influenced by it, continuously adjusting existing models through assimilation and accommodation in a cyclical, ascending process.

Research has demonstrated that internal working models directly influence emotional responses (Collins, 2004; Pietromonaco & Barrett, 2000). Fraley and Shaver (2000) found that individuals with negative self-representations produce stronger emotional reactions. Cassidy et al. (2000) showed that preoccupied individuals report higher negative emotions (e.g., anxiety and loneliness) and more emotional fluctuations, while dismissive-avoidant individuals exhibit more emotional suppression and lower emotional experiences. Therefore, we propose a model (Figure 1 [Figure 1: see original paper]) to explain the daily dynamic changes in teacher occupational mental health.

Given teaching' s unique attribute of dynamic teacher-student interaction, static research methods may fail to capture these instantaneous changes. This study employs experience sampling methodology to examine the daily dynamic changes and intra-individual associations among student classroom behaviors, teacher classroom emotions, teacher internal working models, and teacher occupational mental health.

Method

2.1 Participants Using convenience sampling, 134 junior middle school teachers (12 male, 122 female) were recruited from multiple schools in a major urban district. Among them, 22 were aged 18-25, 40 were 26-30, 50 were 31-40, and 22 were 41-50. In terms of professional rank, 28 were level-3 teachers, 63 were level-2, 42 were level-1, and 1 was senior-level. Average teaching experience was 9.04 years, with 36.1% teaching graduating classes.

2.2 Experience Sampling Procedure Participating teachers first received online training about the study' s purpose, content, and procedures, and signed informed consent forms. Questionnaires were distributed via an online survey platform (Questionnaire Star) to collect demographic information (gender, age, etc.) and measures of teacher occupational burnout and work engagement. Teachers then installed the experience sampling APP and were instructed to complete surveys after each class session for two weeks (10 working days).

An event-contingent design was used, requiring teachers to complete APP entries after each class. All items were mandatory. Research assistants reminded teach-

ers daily and answered questions. Two practice days preceded formal sampling; these data were not included in the 10-day formal sampling period. Teachers with operational errors during practice days received additional instruction.

2.3 Measures Measures included two parts: (1) questionnaire surveys collecting demographic information, teacher occupational burnout, and teacher work engagement; and (2) experience sampling tools assessing student problem behaviors, teacher classroom emotions, and teacher internal working models.

Teacher Occupational Burnout. Measured using the Teacher Burnout Scale developed by Wang et al. (2003), comprising three dimensions: emotional exhaustion, depersonalization, and personal accomplishment (22 items total). Items used a 7-point Likert scale (1 = never, 7 = always). In this study, Cronbach' s α was .709 for the total scale, and .900, .880, and .714 for emotional exhaustion, personal accomplishment, and depersonalization dimensions, respectively.

Teacher Work Engagement. Measured using the Work Engagement Scale revised by Li et al. (2010), comprising 17 items with a 7-point Likert scale (1 = never, 7 = always). Cronbach' s α was .948 for the total scale, and .842, .860, and .885 for vigor, dedication, and absorption dimensions, respectively.

Student Classroom Behavior. Based on literature review, 20 items describing student problem and positive behaviors were compiled (Huang, 2016; Wei, 2013) and rated by 123 teachers using average composite scores for ranking. The calculation method was: average composite score = (Σ frequency $\times$ weight) / number of respondents, where weight was determined by item ranking position. Based on scores, five behaviors were selected: (1) students whispering or fidgeting, (2) students being distracted or zoning out, (3) students following teacher' s thinking, (4) students actively participating in learning activities (e.g., group discussions), and (5) students raising hands to speak. After each class, teachers reported which behavior was most representative in the APP.

Teacher Classroom Emotional Experience. Based on Chen's (2021) compilation of eight common teacher emotions (joy, pride, passion, anger, frustration, anxiety, boredom, shame), teachers rated their emotional intensity after each class using a 5-point Likert scale (1 = not at all, 5 = very strongly).

Teacher Internal Working Model. Based on operational definitions of self and other models (Yang, 2005; Wang, Miao, & Xu, 2016), four items with authentic classroom contexts suitable for experience sampling were developed using a 5-point Likert scale. The four dimensions were: positive self, negative self, positive others, and negative others. Positive self indicated positive self-evaluation; negative self indicated negative self-evaluation; positive others indicated positive evaluations of students; negative others indicated negative evaluations of students. Each dimension had one item (1 = strongly disagree, 5 = strongly agree). Items were integrated with the top-ranked behavior "students whispering or doing small movements," for example: "I believe students

whispering or doing small movements in this class were discussing class content and would not disrupt my teaching." Teachers completed these items in the APP after each class.

2.4 Analytical Strategy Data were organized using SPSS 22.0 and analyzed using Mplus 7.0. First, Latent Profile Analysis (Luthén & Luthén, 2007) was conducted based on teacher burnout and work engagement to classify teachers. Experience sampling data were then analyzed after screening: (1) practice day data were excluded; (2) data from teachers with completion rates below 80% of their total classes were considered invalid, yielding 2,030 valid data points.

Given the repeated-measures nature of experience sampling data, multilevel modeling was used to examine differences in internal working models among teachers with different burnout-engagement profiles. Multilevel logistic analysis tested how internal working models influenced perception of student classroom behaviors, and multilevel modeling examined how perceived student behaviors affected teacher emotional experiences. In addition to within-day analysis, cross-day lagged analysis was used to test how daily classroom emotions predicted next-day internal working models.

Results

3.1 Latent Profile Analysis Results Using scores on six dimensions—three burnout dimensions (emotional exhaustion, depersonalization, personal accomplishment) and three engagement dimensions (vigor, dedication, absorption)—teachers were classified into 1, 2, 3, and 4 latent profiles. Table 1 presents the model fit indices. Results showed that 2 classes were clearly better than 1 (lower AIC, BIC, and aBIC). Comparing 2 and 3 classes, although entropy was higher for 2 classes, AIC, BIC, and aBIC were lower for 3 classes, suggesting 3 classes were superior. While 4 classes had lower AIC, BIC, and aBIC than 3 classes, entropy was lower and the crucial LMR index was non-significant. As LMR is the most important and sensitive indicator in latent classification (Nylund, Asparouhov, & Muthén, 2007), 3 classes were deemed most appropriate.

Table 1 Latent Profile Analysis Fit Results

Note: Information indices: AIC, BIC, aBIC; Average information: Entropy; Likelihood ratio tests: LMR, BLRT; $p < .05$, ** $p < .01$, *** $p < .001$, same below.*

The three latent classes' response probabilities across six dimensions are shown in Figure 2 [Figure 2: see original paper]. Class 1 teachers scored higher on emotional exhaustion and depersonalization, lower on personal accomplishment, and lower on vigor, dedication, and absorption than other teachers, named "High Burnout-Low Engagement" (19.8%). Class 2 teachers scored between the other two classes on all six dimensions, named "Medium Burnout-Medium

Engagement" (55.9%). Class 3 teachers scored lower on emotional exhaustion and depersonalization, higher on personal accomplishment, and higher on vigor, dedication, and absorption than other teachers, named "Low Burnout-High Engagement" (24.3%).

Figure 2 Response Probabilities of Three Teacher Classes Across Six Dimensions

3.2 Differences in Internal Working Models Among Teachers with Different Burnout-Engagement Profiles Multilevel modeling compared internal working models across the three classes, using medium burnout-medium engagement teachers as the reference group. As shown in Table 2 , high burnout-low engagement teachers had significantly higher negative self-internal working models and lower positive self-internal working models compared to the reference group.

Table 2 Multilevel Model Analysis of Internal Working Models Across Three Teacher Classes

3.3 Influence of Teacher Internal Working Models on Perception of Student Classroom Behaviors Multilevel logistic regression was conducted with perceived positive student behavior as the reference category. Results in Table 3 show that a one-unit increase in negative self increased the odds of perceiving student problem behaviors by 1.254 times (OR = 1.254, 95% CI: 1.150-1.366). As negative self increased, the probability of noticing negative student behaviors rose. A one-unit increase in negative others increased the odds of perceiving problem behaviors by 1.879 times (OR = 1.879, 95% CI: 1.730-2.042). Conversely, a one-unit increase in positive self decreased the odds of perceiving problem behaviors to 0.519 times (OR = 0.519, 95% CI: 0.476-0.566). As positive others increased, the probability of noticing problem behaviors decreased (OR = 0.751, 95% CI: 0.694-0.811).

Table 3 Multilevel Logistic Regression Results of Teacher Internal Working Models on Observed Student Classroom Behaviors

3.4 Influence of Perceived Student Classroom Behaviors on Teacher Emotions Multilevel modeling examined how observed student behaviors affected teachers' positive and negative emotions. As shown in Table 4 , compared to observing positive behaviors, observing student problem behaviors decreased positive affect by 8.057 points (β = -8.057, t = -74.803, p = .000) and increased negative affect by 7.713 points (β = 7.713, t = 46.784, p = .000).

Table 4 Multilevel Model Analysis of Student Classroom Behaviors' Influence on Teacher Emotions

3.5 Influence of Teacher Emotions on Internal Working Models Cross-day lagged analysis examined how classroom emotions predicted next-day inter-

nal working models, using t-1 day emotions to predict t-day models.

Table 5 Cross-Day Lagged Effects of Low Burnout-High Engagement Teachers' Daily Emotions on Next-Day Working Models

Results showed that for low burnout-high engagement teachers, neither daily negative nor positive emotions significantly predicted next-day negative self, negative others, positive self, or positive others.

Table 6 Cross-Day Lagged Effects of Medium Burnout-Medium Engagement Teachers' Daily Emotions on Next-Day Working Models

Table 7 Cross-Day Lagged Effects of High Burnout-Low Engagement Teachers' Daily Emotions on Next-Day Working Models

Results in Tables 6 and 7 showed that for medium burnout-medium engagement and high burnout-low engagement teachers, daily negative emotions positively predicted next-day negative self (β = 0.060, t = 4.847, p = .000; β = 0.038, t = 3.155, p = .002) and negative others (β = 0.069, t = 4.004, p = .000; β = 0.038, t = 2.728, p = .006). For high burnout-low engagement teachers, daily positive emotions negatively predicted next-day negative self (β = -0.082, t = -3.116, p = .002).

This study measured teacher occupational mental health using domain-specific negative and positive indicators. Latent profile analysis identified three teacher types: high burnout-low engagement (19.8%), medium burnout-medium engagement (55.9%), and low burnout-high engagement (24.3%). Compared to medium-level teachers, high burnout-low engagement teachers showed higher negative self-internal working models and lower positive self-internal working models. Teachers with negative self-internal working models perceived more negative student classroom behaviors, which decreased positive emotions and increased negative emotions. Cross-day lagged analysis revealed that for medium and high burnout teachers, stronger daily negative emotions predicted more negative self and other models the next day, while for high burnout-low engagement teachers, stronger daily positive emotions predicted less negative self models the following day.

Discussion

4.1 Three Levels and Detection Rates of Teacher Occupational Mental Health Based on the six-dimensional construct, high burnout-low engagement teachers are characterized by high emotional exhaustion and depersonalization but low personal accomplishment, vigor, dedication, and absorption—typical of low occupational mental health. Low burnout-high engagement teachers show the opposite pattern, representing high occupational mental health. The Maslach Burnout Inventory manual (Schaufeli, 1996) classifies populations using mean cutoffs (emotional exhaustion: <3.4, 3.4–5, >5; depersonalization: <1.4,

1.4–2.1, >2.1; low accomplishment: <2.4, 2.4–3.2, >3.2). Li & Li (2006) used these criteria to identify zero, mild, moderate, and severe burnout categories. Our three teacher types had mean scores of 2.5, 3.3, and 3.8 for emotional exhaustion, and 1.5, 2.0, and 2.7 for depersonalization, showing consistency with these standards. International studies find that 30% of teachers show clear burnout symptoms (Boyle, Borg, & Baglioni, 1995), 5–20% are in burnout states (Travers, 2001), 23.3% show burnout signs in Europe (Brenninkmeijer & VanYperen, 2003), and 11–16% exhibit high burnout (Talbot, 2000). Our latent profile results (19.8% low, 55.9% medium, 24.3% high mental health) align with these findings, suggesting burnout and engagement can serve as indicators of teacher occupational mental health. Differences from previous research may stem from: (1) integrating negative and positive indicators, (2) incorporating occupational specificity, and (3) acknowledging the dynamic nature of occupational mental health (Chen, Yu, & Yu, 2024).

4.2 Daily Dynamic Changes in Teacher Occupational Mental Health

Compared to medium-level teachers, low-level teachers differed only in internal self-representations, showing higher negative self-models and lower positive self-models. Rosenberg & Pace (2010) noted that burnout includes negative self-evaluations rather than evaluations of others. When teachers experience burnout, their internal working models change: positive self-evaluations decrease while negative self-evaluations increase (Han, 2011). Internal working models predict social information processing (Lynn, 2008). Individuals with positive self and other models attend more to positive social cues, while those with negative models process more negative cues (Dykas & Cassidy, 2011). Teachers' internal working models predict classroom information processing: more positive models correlate with perceiving more positive and fewer negative student behaviors, while more negative models correlate with perceiving more problem behaviors. Internal working models serve as frameworks for interpreting, evaluating, and attributing meaning to others' behaviors (You & Guo, 2008). Li et al. (2015) proposed that individuals with different internal working models have unique attribution styles. Social information processing involves encoding, interpreting, and responding to social stimuli (Crick & Dodge, 1994), with interpretation involving attribution of external stimuli (Pi & Mo, 2013). Thus, different internal working models lead to different attribution styles, which produce different interpretations of social stimuli. Consequently, teachers' internal working models influence their perception of student classroom behaviors. Teachers perceiving more problem behaviors experience lower positive emotions and higher negative emotions, likely because perception of student problem behaviors constitutes cognitive processing, which is the root of emotional generation (Meng, 1981). Moreover, perceiving more problem behaviors means more classroom management, occupying instructional time. For student development, teachers must engage in necessary and effective behavior management (Reinke et al., 2014), which increases burden and negative emotional experiences (Deng, 2017).

Cross-day lagged analysis showed that for low and medium mental health teachers, daily classroom emotions predicted next-day internal working models: higher negative emotions predicted more negative self and other models. Research shows that perceived student problem behaviors exacerbate burnout (Brouwers & Tomic, 2000; Chang, 2013; Evers et al., 2004), possibly because they reduce positive emotions and increase negative emotions, which are important causes of burnout (Beers, 2012). Our findings suggest that teachers' negative classroom emotions affect occupational mental health through internal working models. Internal working models are not fixed representational systems; they change with actual situations (You & Guo, 2008). Collins et al. (2004) view internal working models as long-term memory organizations that, once activated, influence information processing and emotional arousal, while also being influenced by situations. Cassidy et al. (2000) propose that early models affect cognitive processing and emotional experiences, which influence the environment and are subsequently influenced by it, continuously adjusting through assimilation and accommodation. Granqvist (2016) notes that emotions and internal working models are closely related and mutually influential: models affect emotional experiences, and situationally changing emotions promote model development (Collins, 2004; Pietromonaco & Barrett, 2000). Fraley and Shaver (2000) found that individuals with negative self-representations produce stronger emotional reactions, while Cassidy et al. (2000) found preoccupied individuals report higher negative emotions and more fluctuations, and dismissive-avoidant individuals show more suppression and lower emotional experiences.

In summary, teacher occupational mental health alters internal working models (Peter et al., 2006; Li, Li, & Hou, 2011), negative internal working models create information processing biases (Biro et al., 2016), affecting cognition and evaluation of student behaviors, which are important factors influencing teacher mental health (Wu & Zhang, 2008). Student problem behaviors generate negative emotional experiences (Maslach et al., 2001), further changing internal working models.

4.3 Limitations While this study used high-ecological-validity experience sampling methodology to examine daily dynamic changes in teacher occupational mental health with theoretical and practical value, several limitations exist. First, the study focused only on classroom activities, not considering other occupational stressors such as school culture, colleagues, and leadership. Second, due to time, human, and material constraints, the sample was drawn from several schools in one urban district with unbalanced gender ratios. Therefore, generalization of findings requires caution.

References

Aliakbari, A. (2015). The impact of job satisfaction on teachers' mental health: A case study of the teachers of Iranian Mazandaran province. *World Scientific News, 12*,

Beers, J. C. (2012). *Teacher Stress and Coping: Does the Process Differ According to Years of Teaching Experience?* (Unpublished master' s thesis). Portland State University.

Beltman, S., Mansfield, C., & Price, A. (2011). Thriving not just surviving: A review of research on teacher resilience. *Educational research review, 6*(3),

Benmansour, N. (1998). Job Satisfaction, stress and coping strategies among moroccan high school teachers. *Mediterranean Journal of Educational Studies, 3*(1), 13-33.

Biro, S., Alink, L. R. A., Huffmeijer, R., Bakermans-Kranenburg, M. J., & Ijzendoorn, M. H. V. (2016). Attachment and maternal sensitivity are related to infants' monitoring of animated social interactions. *Brain & Behavior, 5*(12),

Bogler, R. (2016). The influence of leadership style on teacher job satisfaction. *Educational Administration Quarterly, 37*(5), 662-683.

Boyle, G. J., Borg, M. G., Falzon, J. M., & Baglioni Jr, A. J. (1995). A structural model of the dimensions of teacher stress. *British Journal of Educational Psychology, 65*(1), 49-67.

Brenninkmeijer, V., & VanYperen, N. (2003). How to conduct research on burnout: advantages and disadvantages of a unidimensional approach in burnout research. *Occupational and environmental medicine, 60*(suppl. 1), i16-i20.

Brouwers, A., & Tomic, W. (2000). A longitudinal study of teacher burnout and perceived self-efficacy in classroom management. *Teaching and Teacher education, 16*(2), 239-253.

Cassidy, J. (2000). Adult romantic attachments: A developmental perspective on individual differences. *Review of General Psychology, 4*(2), 111-131.

Chang, M. L. (2009). An appraisal perspective of teacher burnout: examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193-218.

Chang, M. L. (2013). Toward a theoretical model to understand teacher emotions and teacher burnout in the context of student misbehavior: Appraisal, regulation and coping. *Motivation & Emotion, 37*(4), 799-817.

Chen, Xuhai. (2020). *Making friends with emotions: Teacher emotion management and growth*. East China Normal University Press.

Chen, Ziwei, Yu, Xiaoqi, & Yu, Guoliang. (2024). Features, influencing factors and development trends of mental health problems among secondary school

teachers. *Renmin University of China Education Journal, 23-42.*

Collie, R. J., Shapka, J. D., Perry, N. E., & Martin, A. J. (2015). Teacher well-being: Exploring its components and a practice-oriented scale. *Journal of Psychoeducational Assessment, 33*(8), 744–756.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children' s social adjustment. *Psychological bulletin, 115*(1), 74.

Crocker, P.R., Sabiston, C.M., Kowalski, K.C., McDonough, M.H., & Kowalski, N.P. (2006). Longitudinal assessment of relationship between physical self-concept and health-related behavior and emotion in adolescent girls. *Journal of Applied Sport Psychology, 18*(3), 185-200.

Demir, K. (2015). Teachers' organizational citizenship behaviors and organizational identification in public and private preschools. *Procedia - Social and Behavioral Sciences, 174*, 1176-1182.

Deng, Li. (2017). *Teachers' strategies of management on the primary school pupil' s classroom misbehaviors—Take Bashu primary school for example.* (Unpublished master' s thesis). Sichuan Normal University.

Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: theory and evidence. *Psychological Bulletin, 137*(1), 19-46.

Eldor, L., & Shoshani, A. (2016). Caring relationships in school staff: Exploring the link between compassion and teacher work engagement. *Teaching & Teacher Education, 59*, 126-136.

Evers, W. J., Tomic, W., & Brouwers, A. (2004). Burnout among teachers. *School Psychology International, 25*(2), 131-148.

Farber, B. A. (2000). Treatment strategies for different types of teacher burnout. *Journal of Clinical Psychology, 56*(5), 675-89.

Feng, W. D. B. (2006). Mental health of teachers and the relationship between mental health and achievement motivation. *Chinese Journal of Clinical Psychology, 14*(1), 66-67.

Fernet, C., Guay, F., Senécal, C., & Austin, S. (2012). Predicting intraindividual changes in teacher burnout: The role of perceived school environment and motivational factors. *Teaching & Teacher Education, 28*(4), 514-525.

Fox, H. B., Walter, H. L., & Ball, K. B. (2023). Methods used to evaluate teacher well-being: A systematic review. *Psychology in the Schools, 60*, 4177-4198.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*(2), 132-154.

Friedman I.A., & Farber B.A. (1992). Professional self-concept as a predictor of teacher burnout. *Journal of Educational Research, 86*(1), 28-35.

Granqvist, P. (2016). *Attachment, emotion, and religion*. Springer International Publishing.

Granziera, H., Collie, R., & Martin, A. (2021). Understanding teacher wellbeing through job demands-resources theory. *Cultivating Teacher Resilience, 229-244*.

Guglielmi, D., Bruni, I., Simbula, S., Fraccaroli, F., & Depolo, M. (2015). What drives teacher engagement: a study of different age cohorts. *European Journal of Psychology of Education, 31*(3), 1-18.

Han, Yizhong. (2011). On psychological factors of job burnout and countermeasures. *Journal of China Institute of Industrial Relations, 25*(4), 101-104.

Hascher, T., Beltman, S., & Mansfield, C. (2021). Teacher wellbeing and resilience: Towards an integrative model. *Educational Research, 634*, 416–439.

Huang, Yahong. (2016). *Observation analysis and empirical study for students' behavior in junior middle school classroom*. (Unpublished master' s thesis). Central China Normal University.

Jotkoff, E. (2022). NEA survey: Massive staff shortages in schools leading to educator burnout; alarming number of educators indicating they plan to leave the profession. *National Education Association*.

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior, 43*(2), 207–222.

Lehr, D., Hillert, A., & Keller, S. (2009). What can balance the effort? Associations between effort-reward imbalance, overcommitment, and affective disorders in German teachers. *International Journal of Occupational & Environmental Health, 15*(4), 374-384.

Li, Rui, & Ling, Wenquan. (2007). A Review of the Research on Work/Job Engagement. *Advances in Psychological Science, 15*(2), 366-372.

Li, Xiying, Yin, Hongmiao, & Zhang, Li. (2015). The differences on teaching attribution among job burnout-engagement of teachers. *Psychological Exploration, 35*(1), 50-55.

Li, Yongxin, & Li, Yimin. (2006). Developing the diagnostic criterion of job burnout. *Journal of Psychological Science, (01)*, 148-150+153.

Li, Yongxin, & Zhang, Kuo. (2007). New Trends in Job Burnout Research. *Psychological Science, 30*(2): 478-481.

Li, Zunqing, Li, Chuanping, & Hou, Feng. (2011). Assessment and correlation analysis of anxiety and depressed mood and self-concept of methamphetamine smokers. *Chinese Journal of Drug Dependence, 20*(5), 384-387.

Lynn, B. (2008). *Internal working models as predictors of social information processing in maltreated children*. North Carolina State University.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397-422.

Mccormick, J., & Barnett, K. (2011). Teachers' attributions for stress and their relationships with burnout. *International Journal of Educational Management, 25*(2-3), 278-293.

Meng, Z. (1981). The problem on emotion from the viewpoint of information processing. *Journal of Psychological Science, (5)*, 3-8.

Mingjing, Z., Qian, L., Yao, F., Tianan, Y., Xingli, Z., & Jiannong, S. (2018). The relationship between teacher self-concept, teacher efficacy and burnout. *Teachers & Teaching, 24*(7),788-801.

Muthén, L. K., & Muthén, B. (2007). *Multilevel modeling with latent variables using Mplus*. Unpublished manuscript.

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural equation modeling: A multidisciplinary Journal, 14*(4), 535-569.

Pi, Zhongling, & Mo, Shuliang. (2013, November). The social information processing of indirect bullies and victims in Chinese universities. The 16th national academic conference of psychology.

Pi, Z., Yang, H. H., Chen, W., Hu, X., & Li, X. (2022). The role of teachers' emotions in students' outcomes: From the perspective of interpersonal emotions. *Frontiers in Psychology, 13*, 1075110.

Pietromonaco, P. R., & Barrett, L. F. (2000). The internal working models concept: What do we really know about the self in relation to others? *Review of General Psychology, 4*(2), 155-175.

Player, D., Youngs, P., Perrone, F., & Grogan, E. (2017). How principal leadership and person-job fit are associated with teacher mobility and attrition. *Teaching and Teacher Education, 67*, 330–339.

Prasojo, L. D., Habibi, A., Yaakob, M. F. M., Pratama, R., & Hanum, F. (2020). Teachers' burnout: A SEM analysis in an Asian context. *Heliyon, 6*(1), 1-7.

Reinke, W. M., Stormont, M., Herman, K. C., Wang, Z., Newcomer, L., & King, K. (2014, February). Use of coaching and behavior support planning for students with disruptive behavior within a universal classroom management program. *Society for Prevention Research Meeting*.

Rosenberg, T., & Pace, M. (2010). Burnout among mental health professionals: special considerations for the marriage and family therapist. *Journal of Marital & Family Therapy, 32*(1), 87-99.

Schaufeli, W. (1996). *Maslach burnout inventory-general survey (MBI-GS).* Maslach burnout inventory manual.

Seibt, D. P. R., Galle, M., & Dutschke, D. (2007). Psychische Gesundheit Lehrerberuf. *Prvention Und Gesundhtsfrderung, 2*(4), 228-234.

Skaalvik, E. M., & Skaalvik, S. (2018). Job demands and job resources as predictors of teacher motivation and well-being. *Social Psychology of Education, 21*(5),

Souto-Manning, M., & Melvin, S. A. (2022). Early childhood teachers of color in New York city: Heightened stress, lower quality of life, declining health, and compromised sleep amidst COVID-19. *Early Childhood Research Quarterly, 60*, 34–48.

Stansfeld, S. (2002). Work, personality and mental health. *British Journal of Psychiatry the Journal of Mental Science, 181*(4), 96.

Steiner, E. D., Doan, S., Woo, A., Gittens, A., Lawrence, R., Berdie, L., Wolfe, R., Greer, L., & Schwartz, H. (2022). *Restoring teacher and principal well-being is an essential step for rebuilding schools: Findings from the state of the American teacher and state of the American principal surveys* (Report). RAND Corporation.

Talbot, L. A. (2000). Burnout and humor usage among community college nursing faculty members. *Community College Journal of Research & Practice, 24*(5),

Travers, C. J. (2001). Stress in teaching: Past, present and future. In J. Dunham (Ed.), *Stress in the workplace: Past, present and future* (pp. 130–163). Whurr Publishers.

Tuckwiller, B., & Dardick, W. R. (2018). Mindset, grit, optimism, pessimism, and life satisfaction in university students with and without anxiety and/or depression: implications for practice and research. *Journal of Interdisciplinary Studies in Education, 6*(2), 32.

Tyson, O., Roberts, C. M., & Kane, R. (2009). Can implementation of a Resilience Program for Primary School Children Enhance the Mental Health of Teachers? *Australian Journal of Guidance & Counselling, 19*(2), 116-130.

Vermigli, P., & Toni, A. (2004). Attachment and field dependence: individual differences in information processing. *European Psychologist, 9*(1), 43-55.

Viac, C., & Fraser, P. (2020). Teachers' well-being: A framework for data collection and analysis. *OECD Education Working Papers No. 213.* OECD Publishing.

Wang, Fei, Miao, Dongqing, & Xu, Yan. (2016). Development and psychometric property of the internal working model scale of adult attachment. *Chinese Journal of Clinical Psychology, 24*(2), 229-234.

Wang, Guoxiang, Liu, Changjiang, & Wu, Xinchun. (2003). Development of educator burnout inventory. *Psychological Development and Education, V19*(003), 82-86.

Wang, Yanfeng, & Qin, Jinliang. (2009). Integrated Study of Job Burnout and Work Engagement. *Advances in Psychological Science, 17*(4), 802–810.

Wang, Zhi, Li, Xiying, & Zhang, Dajun. (2010). A review of teachers' mental health in the past twenty years in China. *Journal of Psychological Science, (2)*, 4.

Wang, Y., & Qin, J. (2009). Integrated Study of Job Burnout and Work Engagement. *Advances in Psychological Science, 17*(4), 802–810.

Wang, Z., Li, X. & Zhang, D. (2010). A review of teachers' mental health in the past twenty years in China. *Journal of Psychological Science, (2)*, 4.

Watts, J., & Robertson, N. (2011). Burnout in university teaching staff: a systematic literature review. *Educational Research, 53*(1), 33-50.

Wei, Jingjing. (2013). *The research on students' misbehaviors in the classroom of junior middle school.* (Unpublished master' s thesis). East China Normal University.

Wu, Xinchun, & Zhang, Jun. (2008). *Burnout prevention.* China Light Industry Press.

Wu, X. & Zhang, J. (2008). *Burnout prevention.* China Light Industry Press.

Yang, Jie. (2005). *Explorative research on adult attachment and its influence upon depression.* (Unpublished master' s thesis). East China Normal University.

You, Jin, & Guo, Yongyu. (2008). Internal working models for attachment: concept and research. *Journal of Nanjing Normal University (Social Science Edition), (01)*, 98-104.

Note: Figure translations are in progress. See original paper for figures.