Coping profiles among Teachers: Implications for Emotions, job Satisfaction, Burnout, and quitting intentions

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A R T I C L E   I N F O

A B S T R A C T

Research indicates that teachers use coping strategies regularly to manage stress and negative emotions. However, previous studies have primarily adopted a variable-centered approach that examines the effects of specific coping strategies and does not address how teachers use different combinations of coping strategies. The present study used a person-centered, latent profile analytical approach to explore varied coping strategies among Canadian practicing teachers ($N = 947$) in relation to positive and negative emotions, job satisfaction, burnout, and quitting intentions. Results demonstrated three main coping profiles characterized by different combinations of problem-focused and emotion-focused coping strategies. Whereas *adaptive copers* (high problem-solving and seeking social support, low disengagement) represented the most adaptive profile, *problem-avoidant copers* (low problem-solving and support seeking, high problem avoidance) and *social-withdrawal copers* (high disengagement and social withdrawal) demonstrated poorer outcomes.

1. Introduction

Teaching is arguably a stressful occupation that poses numerous challenges to instructors on a daily basis including the effective use of varied pedagogical techniques, promoting student engagement, and managing difficult classroom behaviors (Borg & Riding, 1991; Kokkinos, 2007). Teachers also inevitably experience stressful events and negative emotions during class, such as anxiety or anger (Frenzel, 2014), requiring the use of coping strategies to maintain their personal well-being and teaching quality (Chang, 2009; Spilt et al., 2011). Whereas adaptive coping strategies consistently lead to more positive emotions, better psychological well-being, and lower attrition intentions (Chang, 2013; Wang & Hall, 2021), maladaptive coping tends to give rise to negative emotions, greater stress, and greater mental health challenges (MacIntyre et al., 2020).

Most prior studies on teachers' coping strategies have used variable-centered approaches that focus on how a given type or category of coping strategies correspond with emotional, motivational, and behavioral adjustment outcomes (e.g., Chang, 2013). However, these studies do not account for teachers' simultaneous use of multiple coping strategies nor the possibility of subpopulations of teachers who use distinct combinations of coping strategies and, hence, exhibit different patterns of occupational well-being outcomes. More recently, researchers have started to adopt a person-centered approach to study how teachers use various coping strategies simultaneously. Such studies are important as they provide essential knowledge to researchers and school practitioners to better understand how different combinations of coping strategies among teachers correspond with critical professional outcomes (e.g., psychological well-being, teacher turnover). Informed by Lazarus' (1991) and Tobin et al.'s (1989) frameworks and classifications of coping strategies, the current study explored the structure and outcomes of teachers' coping strategies by adopting a person-centered approach (Marsh et al., 2009) and investigating potential differences between teachers' coping profiles in their positive and negative emotions, job satisfaction, emotional exhaustion, and quitting intentions.

2. Coping in Teachers: An Appraisal Perspective

Lazarus' (1991) appraisal-theoretical perspective is largely considered one of the most widespread conceptual frameworks for understanding human emotions (e.g., Frenzel, 2014; Frenzel et al., 2009; Pekrun, 2006) and corresponding coping strategies (e.g., Chang, 2009,

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2013). This framework differentiates specifically between two types of appraisals, namely primary and secondary appraisals. Primary appraisals include individuals' interpretations of specific events and situations that influence their subsequent emotional experiences. In the teaching context, teachers are constantly evaluating whether students' classroom behaviors are consistent with their teaching goals (goal congruence/relevance; Lazarus, 1991). Accordingly, if students' behaviors are appraised as inconsistent with teachers' personal instructional goals, negative emotions will be experienced, whereas behaviors appraised as consistent with teaching goals should elicit positive emotions (Frenzel, 2014; Frenzel et al., 2009).

In contrast, the secondary appraisal process involves individuals evaluating their personal potential to cope effectively with stressful encounters and negative emotions, with this perceived coping potential additionally determining the intensity of subsequent emotions and personal well-being. Considerable research has been conducted on the impact of coping strategies on teaching and learning outcomes (e.g., Chang, 2003; Parker et al., 2012; Shen, 2009; Wang & Hall, 2021). Findings generally suggest that although negative emotions are inevitable, adaptive coping strategies can lead to reduced emotional intensity thereby mitigating the harmful impact of negative emotions on well-being outcomes (Wang & Hall, 2021). According to Lazarus and Folkman (1984), coping is consequently defined as "constantly changing cognitive and behavioral efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141).

Based on this framework, Lazarus (1991) further differentiated two sub-types of coping strategies, namely problem-focused coping and emotion-focused coping. *Problem-focused coping* focuses on modifying the problems or situational causes and is adopted when individuals view a situation as controllable or able to be improved by direct influence (Lazarus, 1991; Lazarus & Folkman, 1984). Conversely, *emotion-focused coping* aims to reduce the intensity of unpleasant emotions and is assumed to most often occur when individuals appraise the situation as uncontrollable, forcing them to accept unpleasant emotions to minimize psychological harm. For example, whereas teachers using problem-focused coping may seek advice from colleagues who overcome similar adverse experiences, teachers who adopt emotion-focused coping are more likely to seek emotional support and express their feelings with peers (Chang, 2013).

2.1. Measuring and Classifying Teachers' Coping Strategies

Prior research has primarily measured how teachers cope with stressful classroom experiences using self-report measures typically consisting of extended lists of potentially relevant coping strategies. For example, research by Antoniou et al. (2009) investigated a total of 11 coping strategies in mainstream and special education teachers (e.g., focusing on teaching priorities, talking to understanding friends). Measuring teachers' coping with such comprehensive lists is useful for providing detailed information on the relative endorsement and effects of individual strategies and allows for the assessment of varied strategies specific to a given teaching context (e.g., mainstream schools, special schools; Antoniou et al., 2009). However, this type of measurement lends itself to analyzing each strategy separately (i.e., as a comprehensive list to identify statistically significant individual strategies) and is consequently referred to as a "variable-centered" approach (Muthén & Muthén, 2000).

Research on teachers' coping strategies has also analyzed composite measures that combine specific strategies based on theoretical classifications. For example, studies have examined scales that sum together specific strategies assumed to share underlying dimensions, such as whether they are engaging versus disengaging (e.g., Montgomery & Rupp, 2005; Zhang et al., 2019), emotion- versus behavior-focused (e.g., Chang, 2013; Shen, 2009), or cognition- versus behavior-oriented (e.g., Montgomery & Rupp, 2005; Skinner et al., 2003). Results generally

show behavior-focused coping and engagement-oriented (i.e., goal oriented) strategies to be adaptive, with strategies reflecting disengagement proving more detrimental. Whereas analyses that use composite measures based on coping classifications tend to produce generalizable and consistent results, they are limited in imposing a priori groupings of strategies that may not accurately reflect actual relations between specific strategies in a given dataset (e.g., combining strategies with weak correlations). For instance, although addressing the cause of a stressful situation directly and cognitively reappraising the stressful situation are both consistently categorized as problem-focused strategies (e.g., Tobin et al., 1989), collapsing across these strategies can prevent useful distinctions between behavioral as compared to cognitive approaches to coping.

Based on Lazarus' (1991) work that dichotomized coping into emotion-focused versus problem-focused strategies, Tobin (1995) additionally incorporated intentionally engaging or disengaging from a difficult situation by proposing a 2 × 2 framework contrasting problem- versus emotion-focused engagement with problem- versus emotion-focused disengagement. In addition, Tobin (1995) suggested a hierarchical structure with each type of coping strategy including two sub-strategies. More specifically, *problem-focused engagement* pertains to the strategies used to directly improve the stressful situation by eliminating the source of stress (problem solving) or cognitively altering the meaning of the stressful encounter (cognitive reconstructing). In contrast, *problem-focused disengagement* strategies aim to avoid the situation by avoiding thinking/acting about the stressful event (problem avoidance) or hoping for it to somehow resolve itself (wishful thinking). *Emotion-focused engagement* strategies are used to improve one's own emotional reactions so as to potentially resume goal pursuit by seeking emotional support from others (social support) or attempting to behaviourally release one's emotions (emotion expression). Finally, *emotion-focused disengagement* pertains to strategies that focus on withdrawing from the stressful situation by criticizing/blaming oneself (self-criticism) or spending time alone (social withdrawal). Tobin's framework hence provides a more nuanced perspective on classifications of coping strategies than work that otherwise employs unclassified lists of strategy or only a dichotomous classification framework.

3. Teachers' Coping Strategies: Variable-centered Research

Empirical work on the correlates and consequences of teachers' coping strategies have primarily used a variable-centered approach that typically examines one specific type or a general category of coping strategies (e.g., controlling for other strategies) in relation to various teacher outcomes. For instance, Shen's (2009) study with Chinese teachers found that problem-focused engagement strategies were associated with lower stress and greater self-efficacy, whereas teachers who adopted problem-focused disengagement strategies reported lower social support, lower self-efficacy, and higher stress. Moreover, teachers who reported using emotion-focused engagement reported receiving greater social support, but also lower self-efficacy. Although a subsequent study with U.S. teachers by Chang (2013) did not find emotion-focused engagement to be related to teacher burnout, these results did show problem-focused engagement to be associated with lower burnout and emotion-focused disengagement to correspond with greater burnout.

Research by Lewis et al. (2011) with Australian teachers similarly found that disengagement coping (e.g., wishful thinking, self-blaming) led to higher teacher aggression in the classroom, whereas engagement strategies (e.g., problem solving, seeking for emotional support) corresponded with more appropriate disciplinary strategies (e.g., greater discussion, more rewards). Another study with Australian teachers by Parker et al. (2012) similarly found greater emotion-focused disengagement (e.g., procrastinating to avoid negative emotions) to correspond with lower commitment and higher burnout, with problem-focused engagement (e.g., planning, persistence) instead predicting

lower burnout. Finally, a recent study with Canadian teachers showed those who adopted emotion-focused disengagement to be more likely to quit the teaching profession, with both problem- and emotion-focused disengagement being associated with greater anxiety levels (Wang & Hall, 2021). In sum, existing findings suggest that whereas problem-focused engagement is most adaptive for teachers, emotion-focused engagement has mixed effects (e.g., greater support, poorer teaching outcomes), and disengagement strategies consistently give rise to maladaptive outcomes.

4. Teachers' Coping Strategies: Person-centered Research

The uses of variable-centered and person-centered approaches are based on different assumptions in data analysis (Laursen & Hoff, 2006). More specifically, the variable-centered approach assumes that the population is homogeneous, in terms of the relationships between the predictors and the outcomes (Laursen & Hoff, 2006). As a result, the variable-centered approach adopts correlations, regressions, and/or structural equation models to investigate the relative importance of predictors in explaining the variances in the outcomes. In contrast, the person-centered approach assumes that the population is heterogeneous concerning the relations between the predictors and the outcomes. Therefore, the focus of this approach is on using profile, class, and/or cluster analyses to identify sub-groups of individuals who share similar attributes or function in similar ways, and investigate how individuals in one sub-group differ from those in other sub-groups concerning the outcome variables (Laursen & Hoff, 2006).

Notably limited studies have been conducted to explore teachers' coping strategies using a person-centered approach. Two exceptions were from Herman et al.'s (2018, 2020) recent studies that investigated U.S. teachers' stress and coping using latent profiles. In their first study, Herman et al. (2018) explored the number and characteristics of teachers' psychological profiles based on their perceived stress, overall coping efficacy (i.e., "how well are you coping with stress of your job right now?"), self-efficacy, and burnout. Findings showed teaching quality to vary significantly as a function of teacher profiles, with the profile consisting of low stress, high coping potential, high self-efficacy, and low burnout corresponding with the best student outcomes (e.g., greater concentration and prosocial behaviors, fewer disruptive behaviors).

In their second study, Herman et al. (2020) found three profiles based on teachers' perceived levels of stress and general coping efficacy, namely high stress/high coping, high stress/low coping, and low stress/high coping. The most adaptive profile was the low stress/high coping profile that corresponded with the best levels of teacher self-efficacy, burnout, effective instructional techniques (e.g., low reprimands), student outcomes (fewer disruptive behaviors, better prosocial skills), and parental involvement. These studies thus demonstrate the potential utility of a person-oriented, latent profile analytical perspective for understanding the well-being and classroom implications of teachers' coping strategies. However, as this research used single-item generalized measures that assessed teachers' coping efficacy (teachers' beliefs in their ability to cope), studies are needed to specifically examine the profiles across specific coping strategies informed by the aforementioned theoretical coping frameworks.

4.1. Teachers' Coping Profiles in Relation to Occupational Well-being and Persistence

The strategies that teachers use to cope with their occupational stress are strongly associated with their occupational well-being (i.e., positive emotions in teaching, job satisfaction, emotional exhaustion; Chang, 2013; Klusmann et al., 2008) that, in turn, can significantly impact their intentions to leave the school or the profession (Madigan & Kim, 2021b; Wang & Hall, 2021). Teachers experience various emotions in the classroom (Frenzel, 2014) with studies on teacher emotions identifying enjoyment, anger, and anxiety as the three most commonly reported emotions by teachers in classroom settings (e.g., Frenzel et al., 2009; Keller et al., 2014; Sutton, 2007). It is further suggested that teachers who regularly use engagement strategies (emotion-focused and problem-focused) are more likely to experience enjoyment in teaching (Chang, 2013), whereas those who use disengagement strategies tend to report stronger feelings of anxiety or anger (Lee et al., 2016).

Job satisfaction has also been long argued to be one of the most relevant aspects of occupational well-being (Moé et al., 2010) and is commonly defined as "a positive evaluative judgement" individuals make about their jobs and work environment (Weiss, 2002, p.175). Teachers' job satisfaction is strongly associated with burnout, teaching-related emotions, and instructional behaviors that can further influence students' motivation and learning (Klusmann et al., 2008), with individuals who use adaptive, engagement strategies are generally found to be more satisfied with their jobs (Chaaban & Du, 2017).

Conversely, teachers' emotional exhaustion represents a core element of teacher burnout caused by long-term occupational stress (Maslach et al., 1996; Skaalvik & Skaalvik, 2017) that is characterized by "a loss of energy, debilitation, chronic fatigue, and the feeling of being worn out" (Skaalvik & Skaalvik, 2017, p. 777). High levels of burnout are devastating for teachers as they not only lead to psychological ill-being, but also low instructional quality that can demotivate students and negatively influence student achievement (Madigan & Kim 2021a). Teachers who adopt more adaptive, engagement strategies are less likely to feel emotionally exhausted than teachers who use more maladaptive, disengagement coping strategies (Herman et al., 2020).

With respect to the impact of these psychological variables on teachers' occupational commitment, findings suggest that in addition to low motivation (Wang et al., 2015) and perceived lack of fit with one's school predicting stronger quitting intentions (Wang & Hall, 2019), recent *meta*-analytic results show low job satisfaction and high burnout to explain a substantial portion of variance in teachers' quitting intentions (Madigan & Kim, 2021b). However, teachers who adopt engagement coping strategies are also found to deal with stressful encounters better, be less likely to burnout, and report greater satisfaction with their jobs leading to lower quitting intentions (Wang & Hall, 2021).

5. The Present Research

In real-life teaching practices, teachers rarely use only one particular coping strategy to deal with stressful events but instead often combine varied coping strategies to help maintain their well-being and teaching effectiveness (Schutz & Davis, 2000). More specifically, although disengagement strategies are maladaptive in nature, they might nonetheless produce adaptive teacher outcomes if these strategies are used along with other engagement strategies. For example, in face of a stressful classroom situation, teachers might wish to take a short break from teaching (problem-focused disengagement) and simply be alone for a while (emotion-focused disengagement), after which they might seek out social support (emotion-focused engagement) and attempt to find a solution to the problem (problem-focused disengagement). In this sense, it is not the use of one single coping strategy but instead the combination of multiple strategies that should be considered as contributors to teacher well-being and persistence. Therefore, our study expands upon prior research on teachers' coping strategies in focusing beyond relative effects of individual strategies (variable-centered approach) to explore how different profiles of teachers' coping strategies can account for differences in teacher development (person-centered approach).

Accordingly, the current study adopted an underutilized person-centered approach to examining teachers' coping strategies by exploring the composition of teachers' coping profiles and how they correspond with teachers' emotions (i.e., enjoyment, anxiety, and anger), job satisfaction, burnout, and quitting intentions. The present study findings were thus expected to contribute to a more

comprehensive understanding of how teachers use different combinations of coping strategies and the effects of these combinations on teachers' teaching-related emotions, well-being, and quitting intentions. Due to the exploratory nature of the current study, we did not examine specific hypotheses suggesting the directional relationships between study variables as would be informed by prior research, but instead explored the following research questions:

Research Question 1: Using a person-centered approach, how many types of coping profiles can be identified among teachers?
Research Question 2: What are the characteristics of each coping profile in teachers?
Research Question 3: How does each coping profile differ from each other in terms of teachers' demographics, teaching-related emotions (enjoyment, anxiety, and anger), job satisfaction, burnout, and quitting intentions?

6. Method

6.1. Participants

The initial sample consisted of practicing teachers in Canada ($N =$ 1,086; female: 81.3%) recruited from six provinces and one territory (i. e., Quebec, Ontario, British Columbia, New Brunswick, Manitoba, Newfoundland and Labrador, Yukon). However, due to the reason that 139 of these teachers had missing data on all the coping variables, we had to exclude these teachers from our analyses, resulting in a final study sample of 947 teachers (see *Preliminary Analyses* section below). The final sample (82.3% female; 94.6% Caucasian) taught at primary schools (i.e., Grades 1–6; 44.8%), secondary schools (i.e., Grades 7–12; 45.3%), or across multiple education levels (e.g., primary and secondary; 9.9%). The sample also reported a mean age of 42.29 years ($SD =$ 9.15) and an average of 15.16 years of teaching experience ($SD = 7.88$), with most holding a bachelor's degree (61.5%) or master's degree (28.7%). No significant difference was observed between teaching grade levels (i.e., primary vs. secondary) concerning all study variables (coping strategies and teaching outcomes; $|t|s < 1.90$). However, concerning gender differences, male teachers were found to report significantly lower levels of emotion-focused engagement [$t(929) = 4.95, p <$ .001], enjoyment [$t(928) = 2.26, p = .024$], and higher turnover intentions from both the current school and the teaching profession [t (932) = -3.07, $p = .002$ and $t(930) = -2.08, p = .037$, respectively].

6.2. Study Measures

6.2.1. Teachers' Coping Strategies

Short versions of four, two-item subscales from Tobin's (1995) Coping Strategies Inventory were administered to measure teachers' coping strategies. Teachers were first requested to write a few sentences briefly describing an "emotional encounter in class that has been stressful" over the past few months that was either ongoing or had already occurred. Teachers were subsequently asked to rate how they coped with that stressful situation on a five-point scale (1 = *Not at all*, 5 = *Very much*). The subscales assessed strategies reflecting (1) *problem-focused engagement*, including problem solving ($r = .47$; e.g., "I worked on solving the problems in the situation") and cognitive restructuring ($r = .46$; e.g., "I convinced myself that things weren't quite as bad as they seemed"); (2) *emotion-focused engagement*, including social support ($r = .63$; e.g., "I found somebody who was a good listener"), and expressing emotions ($r = .40$; e.g., "I got in touch with my feelings and just let them go"); (3) *problem-focused disengagement*, including problem avoidance ($r = .37$; e.g., "I went along as if nothing were happening") and wishful thinking ($r = .44$; e.g., "I hoped a miracle would happen"); and (4) *emotion-focused disengagement*, including social withdrawal ($r = .71$; e.g., "I spent more time alone") and self-criticism ($r = .76$; e.g., "I blamed myself"). These subscales have been validated in previous research on

coping in various domains (e.g., educational, clinical, occupational; see Connor-Smith & Flachsbart, 2007; Nes & Segerstrom, 2006 for *meta*-analytic reviews). The CFA analysis for the eight-factor coping model showed excellent fit; CFI = .974, TLI = .959, RMSEA = .035, SRMR = .032.[1]

6.2.2. Teaching-related Emotions

Teaching-related emotions were assessed using Frenzel et al.'s (2016) Teaching Emotion Scale that included three, four-item subscales measuring enjoyment (α = .77; e.g., "I generally have so much fun teaching that I gladly prepare and teach my lessons"), anxiety (α = .79; e.g., "I am often worried that my teaching isn't going well"), and anger (α = .80; e.g., "I often have reasons to be angry while I teach"). All items were measured using a 4-point Likert scale (1 = *Strongly disagree*, 4 = *Strongly agree*).

6.2.3. Psychological Well-being

Teachers' psychological well-being was further assessed by measuring their *job satisfaction* using Moè et al.'s (2010) five-item, 7-point scale (1 = *Strongly disagree*; 7 = *Strongly agree*; α = .88; e.g., "In most ways my job is close to my ideal") and their *emotional exhaustion* using a nine-item, 7-point Likert subscale of Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996; 1 = *Never*, 7 = *Every day*; α = .94; e.g., "Working with people all day is really a strain for me").

6.2.4. Quitting Intentions

Two measures of *quitting intentions* were also administered that assessed teachers' intentions to (a) leave their current school (McInerney et al., 2015; α = .85; e.g., "It is likely that I will actively look for a new school in the next year") and (b) leave the teaching profession entirely (Hackett et al., 2001; α = .84; e.g., "I intend to move into another profession/occupation"; each using three-item, 5-point Likert scales; 1 = *Very unlikely*, 5 = *Certain*).

6.2.5. Social Desirability

Social desirability was measured using Stöber's (2001) Social Desirability Scale (SDS), which consists of 16 items. Sample items included: "I always admit my mistakes openly and face the potential negative consequences"; "I always accept others' opinions, even when they don't agree with my own" (α = .72; 0 = *False*, 1 = *True*). The higher the score on this construct, the more likely that teachers were to answer questions in a socially desired way.

6.3. Procedures

Participants were recruited via emails and newsletter announcements disseminated by teacher associations to their members that included a study description and link to the online survey. Upon review of the initial consent page informing teachers of the study's purpose and associated risks, benefits, and confidentiality, teachers completed the online questionnaire that consisted of demographic items and the self-report measures outlined above. The data collection was initiated at the beginning of the Winter semester and lasted six weeks (e.g., late January to early March). The treatment of participants was in accordance with the ethical standards of APA and ethics approval was obtained from the Research Ethics Board of the researchers' university.

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[1] Goodness-of-fit indices included the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). RMSEA and SRMR values below 0.06 and 0.08, and CFI/TLI values >0.95 and 0.90 respectively indicate excellent and acceptable fit to the data (e.g., Hu & Bentler, 1999; Kline, 2000). Moreover, we also report χ^2 and degree of freedom in the reports.

6.4. Statistical Analyses

The statistical analyses of the current study involve three steps. First, preliminary analyses were conducted including missing data analyses, descriptive statistics calculation, and correlation analyses. Second, latent profile analysis was conducted to determine the number of teachers' coping profiles and investigate the characteristics of each profile. Finally, extracted profiles were compared with each other in terms of teachers' demographics, teaching-related emotions, psychological well-being, and quitting intentions.

The latent profile analysis (LPA) was conducted with M*Plus* software (Muthén & Muthén, 1998-2017) to identify an optimal number of teachers' underlying coping profiles (Collins & Lanza, 2013; Masyn, 2013; Nylund et al., 2007). The most appropriate pattern of profiles was determined by multiple criteria including fit indices, the size of each identified profile's classification probabilities (i.e., > 5% of the total study participants), and theoretical interpretability (Lubke & Muthén, 2005; Nylund et al., 2007). Multiple fit indices were considered including Akaike information criterion (AIC; Akaike, 1973), Bayesian information criterion (BIC, Schwartz, 1978), the sample-adjusted Bayesian information criteria (SABIC; Sclove, 1987), the Lo-Mendall-Rubin (LRT; Lo et al., 2001), the bootstrapped likelihood ratio tests (BLRT; McLachlan, 1987), and entropy levels (Ramaswamy et al., 1993). As a general rule, lower AIC/BIC/SABIC levels and higher entropy levels indicate better profile solutions (Nylund et al., 2007). LRT and BLRT indices assess whether the fit of the *N*-class model is significantly better than that of the *N*-1 model by providing a *p*-value. When fit indices suggested multiple potential profile solutions, the optimal solution was selected by on theoretical interpretability.

In the current study, the LPA analysis was conducted to reflect the four higher-order categories of coping strategies, each comprising two sub-factors (i.e., eight individual strategies). We estimated different models by specifying class-specific and class-invariant means, variances, and covariances. The profile solution with class-specific means and class-invariant variances were selected based on stability and less occurrence of local maxima for the best log likelihoods. After an optimal profile pattern was determined, multiple covariates (e.g., age, gender, teaching grade level, teaching years, social desirability) were examined using the M*plus* automated three-step procedures (R3STEP command; Asparouhov & Muthén, 2014a). Finally, relations between the resulting profiles and the continuous distal outcomes, including job satisfaction, teaching emotions (enjoyment, anxiety, and anger), emotional exhaustion, and quitting intentions were assessed using the automatic BCH approach in M*plus* (Asparouhov & Muthén, 2014b).

7. Results

7.1. Preliminary Analyses

Missing data analyses showed that data were missing completely at random [Little's MCAR test; χ^2 (2,743) = 2,685, p = .781]. Chi-square analyses and *t*-tests were further conducted to compare between teachers with and without missing data concerning demographics (e.g., gender, teaching grade, age) and outcome variables (emotions, job satisfaction, burnout, turnover intentions). No significant differences were observed on teaching grade levels and teachers' age as a function of missing data [e.g., teaching grade: χ^2(3) = 0.81, p = .846; age: t (1,057) = 0.71, p = .481], but marginal difference was observed on gender [χ^2(1) = 4.61, p = .032, φ = 0.065]. Moreover, although no significant differences due to missing data was observed concerning emotions (enjoyment, anxiety, anger), job satisfaction, and intentions to leave one's current school, significant group differences were found for burnout [$t(956)$ = 3.56, p < .001] and intentions to quit the teaching profession [$t(956)$ = 2.49, p = .013]. Teachers without missing data reported higher quitting intentions (M = 1.85, SD = 1.01) and emotional exhaustion (M = 3.97, SD = 1.42) in comparison to teachers with

missing data (quitting intentions: M = 1.20, SD = 0.33; emotional exhaustion: M = 2.65, SD = 1.33).

Descriptive statistics and correlations for the study measures are shown in Table 1. Moderate correlations were found between the two strategies for each coping type (e.g., r's = 0.33–0.38 between social support and expressing emotions, problem avoidance and wishful thinking, and self-criticism and social withdrawal). However, the correlation between problem solving and cognitive restructuring (problem-focused engagement strategies) was not significant (r = .030). Teachers who reported greater problem-focused engagement reported better outcomes such as more positive emotions, fewer negative emotions, better job satisfaction, lower burnout, and weaker quitting intentions, with emotion-focused engagement similarly corresponding with greater job satisfaction and enjoyment. Conversely, teachers who reported higher disengagement strategies (emotion-focused or problem-focused) tended to report poorer outcomes. A comprehensive CFA with all study variables (i.e., coping strategies, job satisfaction, burnout, enjoyment, anxiety, anger, and quitting intentions from school and the profession) showed acceptable model fit; χ^2 = 2,084.724, df = 972 (χ^2/df = 2.14), CFI = .931, TLI = .920, RMSEA = .040, SRMR = .042.

7.2. LPA Results: Profile Composition

The main LPA results are presented in Table 2 for models with one through five profiles. Results showed the three-profile solution to be optimal (Table 2, Model 3), demonstrating satisfactory results for teachers' coping strategy memberships (76%-94% for the three identified profiles; >70% is suggested by Nylund et al., 2007 as satisfactory threshold). Although the three-profile model did not show the lowest BIC, AIC, or entropy levels compared to four- or five-profile models, it nonetheless showed the best LRT and log likelihood results suggesting that the four- or five-profile models were not superior (Table 2, Models 4 and 5). The four-profile model also showed two of the profiles (16% and 20% of participants, respectively) to have notably similar patterns (i.e., moderate levels of engagement and disengagement strategies) that were not significantly distinct from each other (i.e., overlapping confidence intervals). Results concerning the profile means, standard errors, and 95% confidence intervals are provided in Table 3 (see superscripts for information on profile overlap). Standardized estimates (e.g., *z*-score) are displayed in Fig. 1.

The first profile, consisting of 19% of participants (n = 181), was labelled *problem-avoidant copers* due to relatively low levels of problem-solving (problem-focused engagement subscale) combined with the highest levels of problem avoidance (problem-focused disengagement subscale). This profile additionally reported moderate levels of emotion-focused engagement and disengagement, and the highest level of cognitive restructuring (M = 2.38; not statistically significant). The second profile included the majority of teachers (61%, n = 573) and was labelled *adaptive copers* due to having the highest levels of problem solving and social support (both problem- and emotion-focused coping). Teachers in this profile also reported the lowest levels of disengagement (i.e., problem avoidance, wishful thinking, social withdrawal, and self-criticism) thus demonstrating the most adaptive coping profile (higher engagement, low disengagement). Finally, the third profile was labelled *social-withdrawal copers* (20% of sample, n = 193) due to having the highest levels of emotional-focused disengagement, especially social withdrawal. This profile was also characterized by relatively higher levels of problem-focused disengagement (i.e., problem avoidance, wishful thinking) and lower levels of engagement strategies. Teachers in this profile thus tended to simply disengage, avoid dealing with the problem, and withdraw from others as their preferred methods of coping with stress.

7.3. LPA Results: Covariates for the Latent Profiles

We examined whether demographic variables of gender, grade level

Table 1
Descriptive and Correlation for the Study Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Problem-focused engagement															
1. Problem solving	–														
2. Cognitive restructuring	0.03	–													
Emotion-focused engagement															
3. Social support	0.33**	0.00	–												
4. Expressing emotions	0.14**	0.16**	0.34**	–											
Problem-focused disengagement															
5. Problem avoidance	-0.34**	0.17**	-0.19**	-0.11**	–										
6. Wishful thinking	-0.09*	0.03	0.33**	0.02	0.33**	–									
Emotion-focused disengagement															
7. Self-criticism	-0.08*	0.08**	0.03	-0.00	0.18**	0.26**	–								
8. Social withdrawal	-0.12**	0.02	-0.00	0.04	0.30**	0.37**	0.38**	–							
Outcomes															
9. Job satisfaction	0.14**	0.13**	0.03	0.07*	-0.11**	-0.23**	-0.12**	-0.30**	–						
10. Enjoyment	0.23**	0.16**	0.08**	0.15**	-0.14**	-0.17**	-0.14**	-0.20**	0.56**	–					
11. Anxiety	-0.14**	-0.07*	-0.04	-0.11**	0.18**	0.25**	0.34**	0.30**	-0.43**	-0.47**	–				
12. Anger	-0.12**	-0.13**	-0.00	-0.00	0.13**	0.29**	0.22**	0.29**	-0.51**	-0.57**	0.56**	–			
13. Quitting the profession	-0.10**	-0.08*	-0.03	-0.01	0.14**	0.20**	0.17**	0.35**	-0.53**	-0.42**	0.35**	0.42**	–		
14. Quitting from school	-0.12**	-0.02	-0.05	-0.06*	0.16**	0.18**	0.10**	0.29**	-0.53**	-0.29**	0.28**	0.31**	0.49**	–	
15. Emotional exhaustion	-0.13**	-0.13**	-0.04	-0.05	0.20**	0.33**	0.21**	0.39**	-0.61**	-0.45**	0.50**	0.51**	0.52**	0.44**	–
M	3.73	3.46	1.77	2.63	1.83	2.02	2.21	2.54	4.77	3.37	1.79	1.64	1.84	2.13	3.95
SD	0.94	1.14	0.97	1.24	1.10	1.4	0.97	1.01	1.35	0.50	0.68	0.63	1.01	1.18	1.43
N	946	946	944	943	944	944	944	945	997	993	993	993	958	958	958

Note. *p* < .05, **p* < .01.

Table 2
Model Fit Indices for the Latent Profile Analysis.

Number of profiles	Parameter estimates	BIC	Delta BIC	AIC	SABIC	Entropy	Profile proportions	Log likelihood	LRT	BLRT
1	16	22217.073		22139.42	22166.258		100			
2	25	21605.480	-0.611.593	21484.148	21526.082	0.89	22, 78	673.272**	662.531**	673.272**
3	**34**	**21430.569**	**−174.911**	**21265.557**	**21322.587**	**0.78**	**19, 20, 61**	**232.591***	**232.816***	**236.591***
4	43	21252.328	−178.241	21043.636	21115.762	0.83	8 ,16, 20, 57	193.872 (ns)	180.938 (ns)	183.872 (ns)
5	52	21175.88	−76.448	20923.508	21010.730	0.87	5, 6, 17, 17, 55	23.234 (ns)	22.864 (ns)	23.234 (ns)

Notes. Class-specific parameters = Mean (class-specific), Variance (class-invariant); BIC = Bayesian information criterion; LRT (Lo-Mendelll-Rubin adjusted likelihood) test and parametric bootstrapped likelihood ratio test (BLRT) compares the n-1 versus n classes model, demonstrating the significance level as N class model as the better solution in comparison to N-1 class solution. *p* < .05, **p* < .01, ns = non-significant.

of instruction, and years of teaching experience served as predictors of the three identified profiles using the three-step approach (R3STEP function) in M*plus* (Asparouhov & Muthén, 2014a). Moreover, to examine the extent that teachers reported their coping strategies in a socially desired manner (e.g., intentionally reporting higher problem-focused coping and lower disengagement coping), we also included social desirability as a predictor. No classification differences were observed across profiles in the demographic variables or social desirability (see Table 4).

7.4. LPA Results: Well-being and Quitting Intentions

Automatic BCH analyses were further conducted in M*plus* (Asparouhov & Muthén, 2014b) to examine relations between the three identified profiles and teachers' emotions (enjoyment, anxiety, anger), job satisfaction, emotional exhaustion, and quitting intentions (from the current school and the teaching profession). Means and standard errors for the well-being and quitting intention outcomes for each of the three

profiles are outlined in Table 5. Chi-squared statistics were significant for each outcome [e.g., enjoyment: $\chi^2(2) = 60.44$, $p < .001$; anxiety: $\chi^2(2) = 82.97$, $p < .001$; anger: $\chi^2(2) = 67.46$, $p < .001$; job satisfaction: $\chi^2(2) = 60.02$, $p < .001$; quitting school: $\chi^2(2) = 57.90$, $p < .001$; quitting profession: $\chi^2(2) = 65.98$, $p < .001$; emotional exhaustion: $\chi^2(2) = 130.31$, $p < .001$].

Firstly, the *adaptive copers* reported the most optimal pattern of results including the highest levels of enjoyment and job satisfaction, and the lowest levels of anxiety, anger, burnout, and quitting intentions. In contrast, *social-withdrawal copers* showed the most maladaptive results, reporting the lowest levels of job satisfaction and the highest levels of anger, anxiety, burnout, and quitting intentions among the three profiles. Finally, *problem-avoidant copers* showed a more moderate pattern of results that was more adaptive than *social-withdrawal copers* but more maladaptive than *adaptive copers*. Although this third profile was found to report the lowest level of enjoyment among all three profiles, the difference between this profile and the *social-withdrawal* profile on enjoyment was not statistically significant (Fig. 2).

Table 3

Latent Profile Analysis of Teacher's Coping Strategies.

	Problem-avoidant copers ($n = 181$)	Adaptive copers ($n = 573$)	Social-withdrawal copers ($n = 193$)
Problem-focused engagement			
Problem solving	2.88$_c$ (0.16)	4.06$_a$ (0.09)	3.62$_b$ (0.09)
Cognitive restructuring	2.38$_a$ (0.13)	2.15$_a$ (0.05)	2.20$_a$ (0.08)
Emotion-focused engagement			
Social support	2.81$_b$ (0.22)	3.65$_a$ (0.10)	3.56$_a$ (0.09)
Expressing emotions	2.19$_b$ (0.08)	2.16$_b$ (0.05)	2.66$_a$ (0.09)
Problem-focused disengagement			
Problem avoidance	2.55$_a$ (0.24)	1.37$_b$ (0.04)	2.17$_a$ (0.10)
Wishful thinking	2.91$_a$ (0.24)	2.23$_b$ (0.07)	3.52$_a$ (0.10)
Emotion-focused disengagement			
Social withdrawal	1.63$_b$ (0.12)	1.28$_c$ (0.03)	3.65$_a$ (0.10)
Self-criticism	2.10$_b$ (0.12)	1.71$_c$ (0.05)	2.85$_a$ (0.12)

Notes. Standard errors are provided in brackets. The same superscripts denote no significant difference between profiles within a 95% confidence interval. Different superscripts indicate a significant difference between profiles, with higher letters (i.e., b vs. a) reflecting higher levels of coping strategies.

8. Discussion

Results from the current study suggests that teachers do indeed exhibit distinct patterns of coping strategies. The results further suggest that three main profiles (addressing Research Question 1) of teachers' coping strategies can be differentiated, with each differing from the other in their magnitude of both engagement coping (problem-focused and emotion-focused) and disengagement coping (problem-focused and emotion-focused; addressing Research Question 2). Moreover, the present findings indicate that these profiles correspond to significant differences on critical indicators of not only teaching-related emotions, but also psychological well-being and quitting intentions (addressing Research Question 3).

Among the three coping profiles identified, *adaptive copers* reported the highest levels of problem-solving and social support coping strategies as well as the lowest levels of disengagement coping (all four types). Teachers in this profile were thus more inclined to attempt to resolve a stressful teaching situation directly, rather than disengage cognitively or behaviorally from the situation. *Social-withdrawal copers* were instead characterized by higher levels of disengagement coping, especially social withdrawal. Teachers in this profile tended to withdraw from social interactions, criticize themselves, and indulge in wishful thinking in order to avoid dealing with the stressful situation.
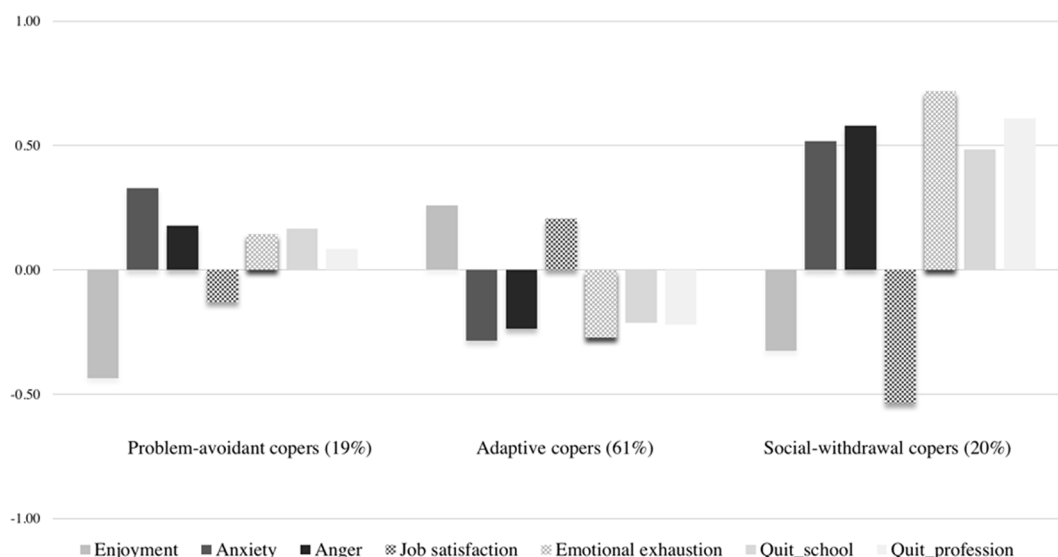
In contrast, *problem-avoidant copers* reported notably low levels of problem-solving and seeking social support, and the highest levels of problem avoidance. Accordingly, teachers in this profile strongly preferred to not only minimize their engagement with stressful situations but to also actively avoid problems at work. Additionally, whereas *social-withdrawal copers* were more comfortable using coping strategies that required experiencing negative emotions (e.g., shame due to self-criticism), *problem-avoidant copers* did not endorse these strategies and instead preferred to avoid dealing with their negative emotions (e.g., by avoiding social support, inhibiting emotion expression).

Concerning the relationships between demographic variables, social desirability, and teachers' coping profiles, no significant results were observed. These results suggest that teachers were equally likely to be *adaptive copers*, *problem-avoidant copers*, or *social-withdrawal copers* regardless of their gender, if they were novice or experienced, or if they taught at primary or secondary schools. Moreover, these findings provide greater confidence that the study results concerning the composition and effects of teachers' coping profiles were not significantly confounded by social desirability tendencies.

Table 4

Predictors of Teachers' Coping Profiles.

Predictors	PAC vs AC	PAC vs SWC	AC vs SWC
Age	0.04	−0.02	0.02
Gender	−0.54	0.34	−0.21
Teaching experience	−0.04	0.02	−0.02
Teaching grade level	0.47	−0.40	0.07
Social desirability	0.68	−0.58	0.09

Notes. For teaching grade level, only the primary and secondary levels were compared due to the small *n* in other categories (e.g., both primary and secondary and post-secondary); PAC = Problem-avoidant Copers; AC = Adaptive Copers; SWC = Social-withdrawal Copers. None of the above values reached statistical significance.

Fig. 1. Standardized Mean Estimates of Teachers' Coping Profiles.

Legend: ■ Enjoyment ■ Anxiety ■ Anger ⊠ Job satisfaction ▒ Emotional exhaustion ▬ Quit_school ▬ Quit_profession

Profiles: Problem-avoidant copers (19%), Adaptive copers (61%), Social-withdrawal copers (20%)

Table 5
Well-being and Quitting Intentions by Coping Profile.

Outcomes	Problem-avoidant copers ($n = 181$)	Adaptive copers ($n = 573$)	Social-withdrawal copers ($n = 193$)
Emotions			
Enjoyment	3.15[a] (0.05)	3.50 (0.02)	3.21[a] (0.05)
Anxiety	2.01[a] (0.06)	1.60 (0.03)	2.14[a] (0.06)
Anger	1.75 (0.06)	1.49 (0.03)	2.00 (0.06)
Psychological well-being			
Job satisfaction	4.59 (0.12)	5.05 (0.06)	4.04 (0.12)
Emotional exhaustion	4.15 (0.13)	3.56 (0.06)	4.97 (0.11)
Quitting intentions			
Quitting the profession	1.92 (0.09)	1.62 (0.04)	2.45 (0.10)
Quitting from school	2.32 (0.11)	1.88 (0.05)	2.70 (0.10)

Notes. Overall chi-squared statistics were statistically significant ($p < .001$). The same superscripts indicate a non-significant difference between profiles.

With respect to observed relations with well-being and quitting intentions, *adaptive copers* showed the most optimal pattern of results, including the highest levels of enjoyment in teaching and job satisfaction, the lowest levels of negative emotions in teaching (anxiety, anger), and the lowest levels of burnout (emotional exhaustion) and quitting intentions. Teachers who adopted this pattern of coping strategies thus demonstrated the best psychological well-being and were particularly unlikely to quit their job. However, the pattern of results for *social-withdrawal copers* was substantially worse, with teachers belonging to this profile reporting the most maladaptive levels of anxiety, anger, job satisfaction, and burnout, as well as the strongest intentions to leave not only their current position but the teaching profession entirely. Finally, whereas *problem-avoidant copers* typically reported less serious well-being and persistence consequences than *social-withdrawal copers*, they nevertheless did experience the lowest levels of enjoyment in the classroom suggesting their avoidance of negative emotions may also prevent them from experiencing positive emotions while teaching.

Finally, our results suggested that teachers without missing data reported higher quitting intentions and emotional exhaustion in comparison to teachers with missing data. In other words, teachers who were more emotionally exhausted or had a stronger intention to leave their teaching position were more willing to communicate with us regarding their coping strategies and occupational well-being. As emotional exhaustion and quitting intentions are related to maladaptive coping, it is therefore possible that *problem-avoidant* and *social-withdrawal copers* are over-represented in this study by teachers who are already emotionally exhausted and already thinking about quitting. Conversely, it is also possible that *adaptive copers* may be under-represented, with these teachers perhaps being more reluctant to share their coping strategies.

8.1. Study Limitations

Despite our findings demonstrating the informative nature of a person-centered approach to assessing the prevalence and effects of teachers' coping strategies, multiple limitations of the present study should be considered. First, the study is limited due to its cross-sectional nature in that although associations were found between coping profiles and psychological outcomes, causal interferences cannot be made based on the study findings. Although it is generally hypothesized that how teachers' cope with stress should subsequently influence their well-being and instruction (e.g., Chang, 2013; Wang & Hall, 2021), the reverse could also occur. For example, teachers who experience more positive emotions in class (e.g., higher enjoyment, lower anxiety) may have more energy to engage in more demanding, adaptive coping strategies (e.g., problem solving, cognitive reappraisal) than teachers with more negative emotional experiences (i.e., positive psychology; Fredrickson, 2001; Fredrickson & Joiner, 2002). Similarly, it is possible that teachers who have already decided to quit their job may subsequently report greater disengagement at work. Therefore, future longitudinal studies should be conducted to explore causal relations between coping and teaching outcomes and to investigate how these profiles change over time (e.g., latent transition analysis; Muthén & Muthén, 2000).

In addition, the data collected in the study was exclusively self-report in nature (i.e., questionnaire items) and did not assess more objective measures of teachers' coping, well-being, or persistence. Although teachers' self-reported data (e.g., coping strategies) have indeed been found to have strong links to their subjective well-being (Wang & Hall,
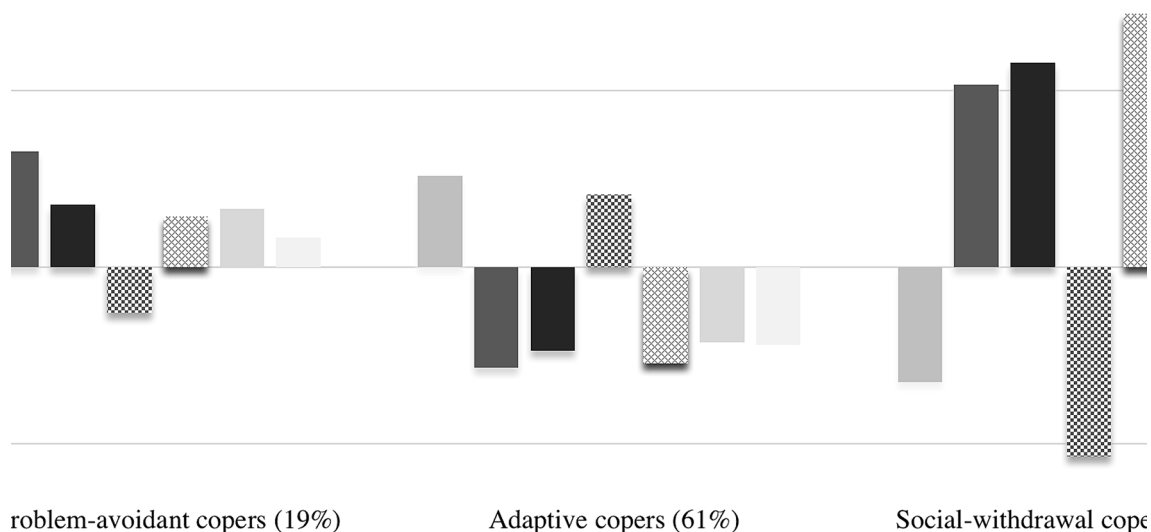

roblem-avoidant copers (19%)   Adaptive copers (61%)   Social-withdrawal cope

Fig. 2. *Mean Differences between Coping Profiles in Well-being and Quitting Intentions, Notes.* Quit_school = Quitting intentions from school; Quit_profession = Quitting intentions from profession. Standardized scores are presented.

2021), relying only on teachers' self-reports is nevertheless susceptible to response bias (e.g., hindsight) and may result in inflated relations due to common method bias. Thus, future studies incorporating other sources of data (e.g., physiological data on teacher stress, actual quitting rates, student/colleague observations of coping strategies) should provide a more comprehensive set of study findings with which to evaluate the replicability of the present results. Similarly, the current study is limited in specifically investigating teachers' well-being outcomes and quitting intentions to the exclusion of quality of instruction and student outcomes (e.g., engagement, achievement). Future studies that survey both teachers and their students, and objectively assess teaching practices (e.g., through independent observation), are critical to exploring how teachers' coping profiles impact their students' learning and well-being.

Furthermore, the study is limited in not having investigated teachers' coping strategies and profiles in relation to broader social-environmental factors both within and outside of schools that could have potentially influenced the study findings. For example, teachers from remote areas or low-SES schools may lack resources (e.g., principal support, infrastructure, financial) that could discourage specific coping strategies (e.g., seeking out assistance or social support) and lead to an overreliance on other strategies (e.g., avoid dealing with the problem). In contrast, teachers from more affluent communities with better resourced schools, or who are endowed with greater autonomy in teaching, may find it easier to seek out logistical or emotional support and may thus be more likely to be classified as *adaptive copers*. Future studies are therefore encouraged to take into consideration the broader school and social contexts in which teachers are employed when investigating the prevalence and efficacy of their coping strategies.

Finally, given that the current study was conducted only among Canadian teachers, our results might not generalize to teachers from other countries or economies. As teachers from different cultures experience different types of stressors (e.g., Szabo & Marian, 2017), future research exploring how the structure and effects of teachers' coping profiles vary as a function of cultural context are important to establishing the generalizability of the present study findings.

8.2. Implications of Study Findings

With respect to the research implications of the study findings, our results confirm that teachers do indeed use a combination of strategies to cope with stressful classroom encounters. Whereas the variable-centered approach has typically been used in prior studies, this prior research was limited in ignoring the complexities of teachers' coping repertoire and the combined use of multiple coping strategies. In contrast, the present person-centered approach showed specific types of coping strategies to consistently covary, including those sharing the same classificatory dimension (e.g., emotion-focused disengagement: self-criticism + social withdrawal; see *social-withdrawal copers*), as well as strategies across classifications (e.g., low problem-solving + high problem avoidance; see *problem-avoidant copers*). Nevertheless, our findings are consistent with prior studies in showing problem-focused coping to be primarily adaptive (more positive emotions, fewer negative emotions, better well-being, lower quitting intentions) with disengagement coping, regardless of it being problem- or emotion-focused in nature, corresponding with maladaptive outcomes.

Consistent with existing research, ambiguous results were also observed concerning emotion-focused engagement. More specifically, whereas seeking out social support was associated with more enjoyment, this strategy was not related to well-being (e.g., job satisfaction, lower burnout) or quitting intentions. Although it is possible that these additional psychological benefits were not observed for teachers due to being cancelled out by the psychological threat of realizing they are not capable of coping effectively (thus requiring social intervention), this interpretation is speculative and ideally addressed in future research exploring coping potential as a mediating or moderating variable.

Our results also expand on prior studies that have primarily classified teachers' coping strategies as engagement versus disengagement, problem- versus emotion-focused, or cognitive- versus behavioral-oriented. The present findings suggest that these categorizations may over-simplify the conceptual structure of teachers' coping strategies, namely due to these categories being assumed to consist of multiple sub-factors that can contrast significantly from one another. For example, although problem solving and cognitive restructuring are both commonly classified as problem-focused engagement strategies, their correlation was minimal in the current study ($r = .030$) and did not contribute to differentiating between the three coping profiles (i.e., there was no profile that consistently did or did not use these two strategies). Similarly, although cognitive restructuring and seeking social support represent two commonly adopted engagement strategies, they were also not intercorrelated ($r < 0.001$). Although informed by a four-factor coping framework, this study examined the resulting eight specific coping strategies independently thus providing a more accurate and reliable analysis of how teachers' coping strategies intersect to predict well-being and persistence.

Finally, our findings are encouraging in suggesting that the majority of Canadian practicing teachers regularly adopt an adaptive set of coping strategies when dealing with stressful situations in class, and further report optimal levels of teaching-related enjoyment, job satisfaction, and quitting intentions. However, our results also showed a substantial proportion of teachers to also prefer using maladaptive coping strategies (*social-withdrawal copers* and to a lesser extent *problem-avoidant copers*) in response to instructional challenges, with these profiles corresponding to feeling unhappier, angrier, and more anxious in class, as well as less professionally satisfied, more burnt out, and more likely to quit their position or the profession entirely. Given prior studies showing 20–40% of Canadian teachers to leave the teaching profession within the first five years of their career (e.g., Houlfort & Sauvé, 2010), these findings suggest that specific patterns of coping strategies endorsed by teachers may be contributing to these alarming attrition rates. Accordingly, teacher professional development programs that promote adaptive coping strategies may be helpful for struggling teachers in better equipping them to deal with daily instructional challenges and be more resilient in the profession. Programs that directly address teacher stress, such as mindfulness interventions (Beshai et al., 2016; Jennings, 2015; Taylor et al., 2016), or those focus on teacher emotions, such as the emotion regulation interventions (e.g., cognitive reappraisal; Gross, 1998) might be effective ways to address novice teachers' instructional challenges and improve their coping styles.

9. Conclusion

The current study adopted a person-centered approach and investigated the types and characteristics of teachers' coping profiles, as well as how each profile differs from each other concerning teachers' demographics, teaching-related emotions, job satisfaction, burnout, and quitting intentions. Study findings suggest three distinct teacher coping profiles: *adaptive copers* (high problem-solving and seeking social support, low disengagement) represented the most adaptive profile, whereas *problem-avoidant copers* (low problem-solving and support seeking, high problem avoidance) and *social-withdrawal copers* (high disengagement and social withdrawal) demonstrated poorer outcomes. Future studies and teacher professional development initiatives should focus on teachers' coping styles and their implications on teachers' psychological, motivational, and emotional outcomes, as well as quitting intentions.

Ethics approval

Ethics approval has been received from REB office, McGill University (Ref. 333–0117).

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Akaike, H. (1973). Information theory and an extension of the maximum likelihood principle. In B, N. Petrov & F, Csaki, (Eds.), *Information Theory: Proceedings of the 2nd international symposium* (pp. 267-281). Akadémiai Kiadó.

Antoniou, A. S., Polychroni, F., & Kotroni, C. (2009). Working with students with special educational needs in Greece: Teachers' stressors and coping strategies. *International Journal of Special Education, 24*, 100–111.

Asparouhov, T., & Muthén, B. (2014a). Auxiliary variables in mixture modeling: Three-step approaches using Mplus. *Structural Equation Modeling: A Multidisciplinary Journal, 21*(3), 329–341. https://doi.org/10.1080/10705511.2014.915181

Asparouhov, T., & Muthén, B. O. (2014b). *Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and an arbitrary secondary model* (*Mplus* Web Note #21). *Retrieved from.* https://www.statmodel.com/download/asparouhov_muthen_2014.pdf.

Beshai, S., McAlpine, L., Weare, K., & Kuyken, W. (2016). A non-randomised feasibility trial assessing the efficacy of a mindfulness-based intervention for teachers to reduce stress and improve well-being. *Mindfulness, 7*(1), 198–208. https://doi.org/10.1007/s12671-015-0436-1

Borg, M. G., & Riding, R. J. (1991). Occupational stress and satisfaction in teaching. *British Educational Research Journal, 17*(3), 263–281. https://doi.org/10.1080/0141192910170306

Chaaban, Y., & Du, X. (2017). Novice teachers' job satisfaction and coping strategies: Overcoming contextual challenges at Qatari government schools. *Teaching and Teacher Education, 67*, 340–350. https://doi.org/10.1016/j.tate.2017.07.002

Chang, M.-L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193–218. https://doi.org/10.1007/s10648-009-9106-y

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 and Emotion, 37*(4), 799–817. https://doi.org/10.1007/s11031-012-9335-0

Collins, L. M., & Lanza, S. T. (2013). *Latent class and latent transition analysis: With applications in the social, behavioral, and health sciences.* John Wiley & Sons.

Connor-Smith, J. K., & Flachsbart, C. (2007). Relations between personality and coping: A meta-analysis. *Journal of Personality and Social Psychology, 93*, 1080–1107. https://doi.org/10.1037/0022-3514.93.6.1080

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218–226. https://doi.org/10.1037/0003-066X.56.3.218

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science, 13*(2), 172–175. https://doi.org/10.1111/1467-9280.00431

Frenzel, A. C. (2014). Teacher emotions. In R. Pekrun, & L. Linnenbrink-Garcia (Eds.), *Educational psychology handbook series. International handbook of emotions in education* (pp. 494–518). Routledge/Taylor & Francis Group.

Frenzel, A. C., Goetz, T., Stephens, E. J., & Jacob, B. (2009). Antecedents and effects of teachers' emotional experiences: An integrated perspective and empirical test. In *Advances in teacher emotion research* (pp. 129-151). Springer.

Frenzel, A. C., Pekrun, R., Goetz, T., Daniels, L. M., Durksen, T. L., Becker-Kurz, B., & Klassen, R. M. (2016). Measuring teachers' enjoyment, anger, and anxiety: The Teacher Emotions Scales (TES). *Contemporary Educational Psychology, 46*, 148–163. https://doi.org/10.1016/j.cedpsych.2016.05.003

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*(3), 271–299. https://doi.org/10.1037/1089-2680.2.3.271

Hackett, R. D., Lapierre, L. M., & Hausdorf, P. A. (2001). Understanding the links between work commitment constructs. *Journal of Vocational Behavior, 58*(3), 392–413. https://doi.org/10.1006/jvbe.2000.1776

Herman, K. C., Hickmon-Rosa, J. E., & Reinke, W. M. (2018). Empirically derived profiles of teacher stress, burnout, self-efficacy, and coping and associated student outcomes. *Journal of Positive Behavior Interventions, 20*, 90–100. https://doi.org/10.1016/j.jsp.2019.11.003

Herman, K. C., Prewett, S. L., Eddy, C. L., Savala, A., & Reinke, W. M. (2020). Profiles of middle school teacher stress and coping: Concurrent and prospective correlates. *Journal of School Psychology, 78*, 54–68. https://doi.org/10.1016/j.jsp.2019.11.003

Houlfort, N., & Sauvé, F. (*2010*). *La santé psychologique des enseignants de la fédération autonome de l'enseignement [psychological health of teachers belonging to the autonomous Federation of Teachers].* Ecole nationale d'administration publique.

Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Jennings, P. A. (2015). *Mindfulness for teachers: Simple skills for peace and productivity in the classroom.* WW Norton & Company.

Keller, M. M., Frenzel, A. C., Goetz, T., Pekrun, R., & Hensley, L. (2014). Exploring teacher emotions: A literature review and an experience sampling study. In P. W. Richardson, S. A. Karabenick, & H. M. G. Watt (Eds.), *Teacher motivation: Theory and practice* (pp. 69–82). Routledge.

Kline, P. (2000). *The handbook of psychological testing.* Routledge: Psychology Press.

Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Teachers' occupational well-being and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology, 100*, 702–715. https://doi.org/10.1037/0022-0663.100.3.702

Kokkinos, C. M. (2007). Job stressors, personality and burnout in primary school teachers. *British Journal of Educational Psychology, 77*, 229–243. https://doi.org/10.1348/000709905X90344

Lee, M., Pekrun, R., Taxer, J. L., Schutz, P. A., Vogl, E., & Xie, X. (2016). Teachers' emotions and emotion management: Integrating emotion regulation theory with emotional labor research. *Social Psychology of Education, 19*(4), 843–863. https://doi.org/10.1007/s11218-016-9359-5

Laursen, B. P., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly, 52*(3), 377–389.

Lazarus, R. S. (1991). Cognition and motivation in emotion. *American Psychologist, 46*, 352–367. https://doi.org/10.1037/0003-066X.46.4.352

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* Springer Publishing.

Lewis, R., Roache, J., & Romi, S. (2011). Coping styles as mediators of teachers' classroom management techniques. *Research in Education, 85*(1), 53–68. https://doi.org/10.7227/RIE.85.5

Lo, Y., Mendall, N., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika, 88*, 767–778.

Lubke, G. H., & Muthén, B. (2005). Investigating population heterogeneity with factor mixture models. *Psychological Methods, 10*(1), 21–39.

MacIntyre, P. D., Gregersen, T., & Mercer, S. (2020). Language teachers' coping strategies during the Covid-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System, 94*, 102352. https://doi.org/10.1016/j.system.2020.102352

Madigan, D. J., & Kim, L. E. (2021a). Does teacher burnout affect students? A systematic review of its association with academic achievement and student-reported outcomes. *International Journal of Educational Research, 105*, 101714. https://doi.org/10.1016/j.ijer.2020.101714

Madigan, D. J., & Kim, L. E. (2021b). Towards an understanding of teacher attrition: A meta-analysis of burnout, job satisfaction, and teachers' intentions to quit. *Teaching and teacher education, 105*, 103425. https://doi.org/10.1016/j.tate.2021.103425

Marsh, H. W., Lüdtke, O., Trautwein, U., & Morin, A. J. S. (2009). Classical latent profile analysis of academic self-concept dimensions: Synergy of person-and variable-centered approaches to theoretical models of self-concept. *Structural Equation Modeling: A Multidisciplinary Journal, 16*(2), 191–225. https://doi.org/10.1080/10705510902751010

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* ((3rd ed.).). CPP Inc.

Masyn, K. E. (2013). Latent class analysis and finite mixture modeling. In T. Little (Ed.), *The Oxford Handbook of Quantitative Methods* (pp. 551–611). Oxford University Press.

McInerney, D. M., Ganotice, F. A., Jr, King, R. B., Marsh, H. W., & Morin, A. J. (2015). Exploring commitment and turnover intentions among teachers: What we can learn from Hong Kong teachers. *Teaching and Teacher Education, 52*, 11–23. https://doi.org/10.1016/j.tate.2015.08.004

McLachlan, G. J. (1987). On bootstrapping the likelihood ratio test statistic for the number of component in a mixture. *Applied Statistics, 36*, 318–324.

Moè, A., Pazzaglia, F., & Ronconi, L. (2010). When being able is not enough. The combined value of positive affect and self-efficacy for job satisfaction in teaching. *Teaching and Teacher Education, 26*(5), 1145–1153. https://doi.org/10.1016/j.tate.2010.02.010

Montgomery, C., & Rupp, A. A. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education/Revue canadienne de l'éducation, 28*(3), 458. https://doi.org/10.2307/4126479

Muthen, B., & Muthen, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research, 24*(6), 882–891. https://doi.org/10.1111/acer.2000.24.issue-610.1111/j.1530-0277.2000.tb02070.x

Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.

Nes, L. S., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A meta-analytic review. *Personality and Social Psychology Review, 10*(3), 235–251. https://doi.org/10.1207/s15327957pspr1003_3

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, 14*(4), 535–569. https://doi.org/10.1080/10705510701575396

Parker, P. D., Martin, A. J., Colmar, S., & Liem, G. A. (2012). Teachers' workplace well-being: Exploring a process model of goal orientation, coping behavior, engagement, and burnout. *Teaching and Teacher Education, 28*(4), 503–513. https://doi.org/10.1016/j.tate.2012.01.001

Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review, 18*, 315–341.

Ramaswamy, V., Desarbo, W. S., Reibstein, D. J., & Robinson, W. T. (1993). An empirical pooling approach for estimating marketing mix elasticities with PIMS data. *Marketing Science, 12*(1), 103–124. https://doi.org/10.1287/mksc.12.1.103

Schutz, P. A., & Davis, H. A. (2000). Emotions and self-regulation during test taking. *Educational Psychologist, 35*(4), 243–256. https://doi.org/10.1207/S15326985EP3504_03

Schwartz, G. (1978). Estimating the dimensions of a model. *The Annals of Statistics, 6*, 461–465.

Sclove, S. L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika, 52*(3), 333–343.

Shen, Y. E. (2009). Relationships between self-efficacy, social support and stress coping strategies in Chinese primary and secondary school teachers. *Stress and Health: Journal of the International Society for the Investigation of Stress, 25*(2), 129–138. https://doi.org/10.1002/smi.v25:210.1002/smi.1229

Skaalvik, E. M., & Skaalvik, S. (2017). Dimensions of teacher burnout: Relations with potential stressors at school. *Social Psychology of Education, 20*(4), 775–790. https://doi.org/10.1007/s11218-017-9391-0

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin, 129*, 216–269. https://doi.org/10.1037/0033-2909.129.2.216

Spilt, J. L., Koomen, H. M. Y., & Thijs, J. T. (2011). Teacher wellbeing: The importance of teacher–student relationships. *Educational Psychology Review, 23*(4), 457–477. https://doi.org/10.1007/s10648-011-9170-y

Sutton, R. E. (2007). Teachers' anger, frustration, and self-regulation. In P. A. Schutz, & R. Pekrun (Eds.), *Emotion in education* (pp. 259–274). Academic Press.

Szabo, Z., & Marian, M. (2017). Stressors and reactions to stress: A cross-cultural case study in two educational programs. *Journal of Evidence-Based Psychotherapies, 17*(1), 89–103.

Taylor, C., Harrison, J., Haimovitz, K., Oberle, E., Thomson, K., Schonert-Reichl, K., & Roeser, R. W. (2016). Examining ways that a mindfulness-based intervention reduces stress in public school teachers: A mixed-methods study. *Mindfulness, 7*(1), 115–129. https://doi.org/10.1007/s12671-015-0425-4

Tobin, D. L. (1995). *Coping Strategies Inventory: Short form*. Unpublished scale. Retrieved from http://www.ohioupsychology.com/files/images/holroyd_lab/CopingStrategiesInventory32 item.pdf.

Tobin, D. L., Holroyd, K. A., Reynolds, R. V., & Wigal, J. K. (1989). The hierarchical factor structure of the Coping Strategies Inventory. *Cognitive therapy and research, 13*, 343–361.

Wang, H., & Hall, N. C. (2019). When "I care" is not enough: An interactional analysis of teacher values, value congruence, and well-being. *Teaching and Teacher Education, 86*, 102906. https://doi.org/10.1016/j.tate.2019.102906

Wang, H., & Hall, N. C. (2021). Exploring relations between teacher emotions, coping strategies, and intentions to quit: A longitudinal analysis. *Journal of School Psychology, 86*, 64–77. https://doi.org/10.1016/j.jsp.2021.03.005

Wang, H., Hall, N. C., & Rahimi, S. (2015). Self-efficacy and causal attributions in teachers: Effects on burnout, job satisfaction, illness, and quitting intentions. *Teaching and Teacher Education, 47*, 120–130. https://doi.org/10.1016/j.tate.2014.12.005

Weiss, H. M. (2002). Deconstructing job satisfaction: Separating evaluations, beliefs and affective experiences. *Human Resource Management Review, 12*(2), 173–194. https://doi.org/10.1016/S1053-4822(02)00045-1

Zhang, Y., Zhang, S., & Hua, W. (2019). The impact of psychological capital and occupational stress on teacher burnout: Mediating role of coping styles. *The Asia-Pacific Education Researcher, 28*(4), 339–349. https://doi.org/10.1007/s40299-019-00446-4