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The relationship between preschool teachers' sense of teaching efficacy and turnover intention during the COVID-19 pandemic: a mediation model

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ABSTRACT

During the COVID-19 pandemic period, preschool teachers experienced a hard time in which they were required to implement relevant epidemic prevention policies to ensure the health of young children, increasing their work engagement, work stress, and turnover intention. This study examined the relationship between Chinese preschool teachers' sense of teaching efficacy and turnover intention based on the JD-R model, with work engagement and work stress serving as the mediators during the COVID-19 pandemic. Altogether 388 Chinese preschool teachers were recruited and surveyed online. The results indicated that (1) preschool teachers' teaching efficacy was not associated with turnover intention directly; (2) preschool teachers' teaching efficacy was associated with turnover intention indirectly through work engagement and work stress. These findings implied that preschool principals should take measures to improve preschool teachers' teaching efficacy and work engagement, provide support to help them better cope with work stress, leading to decreased turnover intention, and getting through difficult times.

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Preschool teachers; teaching efficacy; work engagement; work stress; turnover intention

Introduction

Preschool teachers are leaving their jobs at a high rate all over the world (Holochwost et al. 2009; Hong 2010; Ingersoll, Merrill, and Stuckey 2014; Jovanovic 2013; Porter 2012; Wells 2015). In mainland China, due to the rapid growth of early childhood education, the number of teachers being recruited cannot keep up with the rate at which they are leaving their jobs. In 2017, one-third of preschool teachers in Beijing quit their jobs (Feng et al. 2017). High turnover rates of preschool teachers threaten the stability of teaching staff, impede children's early development, and influence the quality of preschool education (Banerjee et al. 2017; Conley and You 2009; Wells 2015). However, it is challenging to measure actual turnover behaviour because it can be influenced by multiple nonrelevant

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or uncontrollable factors (e.g. change of marital status or other job opportunities). Turnover intention is the most direct antecedent variable, as well as the best predictor of turnover behaviour (Griffeth et al. 2000; Pomaki et al. 2010). Research has found that high turnover intention could result in preschools spending additional costs in recruiting and training new teachers, affecting preschools' normal operations, increasing their workload on in-service teachers, and decreasing their work efficiency (Drake and Yadama 1996; Totenhagen et al. 2016). Teaching efficacy is an important factor in teachers' individual differences, which contributes to the cause of turnover intention (Afzal et al. 2019; Muhangi 2017; L. J. Wang 2017; Zheng, Sharan, and Tao 2010). However, scholars held different views about the association between teaching efficacy and teachers' turnover intention, with some suggesting that teaching efficacy directly related to teachers' turnover intention (Cheng 2017; Muhangi 2017; Van Eycken, Amitai, and Van Houtte 2022; Yin 2014), some figuring that teaching efficacy was not associated with turnover intention directly and influenced it through other variables (Zhao & Chai 2011). Based on the Job Demands-Resources (JD-R model), teaching efficacy might influence turnover intention through work engagement and work stress (Bakker & Demerouti 2007; Bakker and Demerouti 2014). However, there is no research has investigated this relationship in the group of preschool teachers. It can be seen that the impact mechanism of teaching efficacy on teachers' turnover intention is not clear. Especially during the COVID-19 pandemic period, preschool teachers were required to implement relevant epidemic prevention policies to ensure the health of young children, which increased their work engagement, work stress and turnover intention (Liu, Zhang, and Yu 2021; Wei et al. 2021). Therefore, we conducted a cross-sectional survey with a sample of Chinese preschool teachers to examine the direct relationship between teaching efficacy and preschool teachers' turnover intention, as well as possible indirect relationships between them through the mediating effect of work engagement and work stress during the COVID-19 pandemic period.

The relationship between teaching efficacy and turnover intention

Turnover intention is the inclination and deliberate willingness for employees to quit their job (Tett & Meyer 1993). The turnover model summarized by many scholars could well explain the relationship between teaching efficacy and turnover intention (Zheng, Sharan, and Tao 2010). Individual differences were dynamic variables, which had an impact on turnover intention, for example, teaching efficacy was an important factor in teachers' differences. Preschool teachers' sense of teaching efficacy is the teacher's belief in her/his ability to prepare, design, organize and execute the teaching activities while cooperating with children's parents to promote children's development. Previous scholars found that teaching efficacy was significantly negatively related with turnover intention (Afzal et al. 2019; Kim, Choi, and Seong 2012; Muhangi 2017). Van Eycken Amitai, and Van Houtte (2022) suggested that teaching efficacy was an important predictor of teachers' turnover intention by investigating Flemish school teachers. In the group of Chinese primary and secondary school teachers, teaching efficacy can predict turnover intention directly (Wang 2017). Cheng (2017) and Yin (2014) found the similar result in the group of Chinese special education teachers and Chinese preschool teachers. However, Mattingly (2007) found that teachers' teaching efficacy was associated with turnover intention

indirectly through job satisfaction in Kentucky. In the group of Chinese primary and secondary school teachers, teaching efficacy was not associated with turnover intention directly but indirectly influenced turnover intention through organizational commitment and job satisfaction (Zhao and Chai, 2011).

It can be seen that the impact mechanism of teaching efficacy on turnover intention is not clear. In particular, there are few relevant studies on preschool teachers, and only one study explored the relationship between Chinese preschool teachers' teaching efficacy and turnover intention (Yin, 2014). This required us to further explore the impact mechanism of preschool teachers' teaching efficacy on turnover intention.

The mediating role of work engagement

Work engagement is the working state in which preschool teachers are willing to devote their time and energy to their work and enjoy immersing themselves in it (Schaufeli et al. 2002). Previous studies have indicated that teaching efficacy was positively related to work engagement (; Bakker & Demerouti, 2008; Guo et al. 2016; He 2021). Focusing on early childhood teachers, Lipscomb et al. (2022) found that American early childhood teachers' teaching efficacy positively predicted their work engagement. In China, preschool teachers' teaching efficacy was positively correlated with work engagement, and it could directly predict work engagement (Liu 2020; Wu et al. 2020). Moreover, the existing studies have reached a consistent conclusion that work engagement is negatively associated with turnover intention in different groups and cultural backgrounds (Fu et al. 2022; Gupta and Shaheen 2017; Kamau, Muathe, and Wainaina 2020; Li and Gong 2022; Mérida-López, Extremera, and Sánchez-Álvarez 2020; Park and Johnson 2019), but there is no research on exploring this relationship in the group of preschool teachers.

In addition, qualitative study explored the lived experiences of 11 preschool teachers in Ohio and found a positive relationship between teaching efficacy, work engagement and turnover intention (Guerrant 2016). Zhang indicated that self-efficacy affected turnover intention through work engagement in a group of Chinese enterprise employees. Simone Planta, and Cicotto (2018) drew a consistent conclusion among nurses in southern Italy. This was consistent with the JD-R model, which described the relationships between job characteristics, work outcomes (i.e. health, well-being and performance) and personal characteristics (Bakker and Demerouti 2014). Based on the JD-R model, work engagement played a mediating role in the relationship between job resources (e.g. teaching efficacy) and turnover intention (Schaufeli & Bakker 2004). The similar mechanism in which teaching efficacy influenced turnover intention through work engagement may exist in the group of Chinese preschool teachers.

The mediating role of work stress

Work stress as the state that job demands exceed job resources, depleting teachers' time and energy, and leading to physical and emotional distress (Blase 1982). Previous studies have indicated that teaching efficacy was negatively associated with work stress in different teacher groups and cultural backgrounds (Ansley et al. 2021; Cascio et al. 2014; Kim and Chung 2014; Klassen and Durksen 2014; Lee et al. 2016; Schwarzer & Hallum 2008; Vaezi and Fallah 2011). Teachers with high teaching efficacy were related

with less stress experience and could better cope with the work stressors (Nathaniel et al. 2016; Shambaugh 2008). During 12 months of the COVID-19 pandemic in a sample of German preschool teachers in a longitudinal design, teachers with less teaching efficacy indicated higher work stress experiences on the inter- and intraindividual level (Steigleder et al. 2023). Moreover, in the group of Korean early childhood teachers, their teaching efficacy was correlated with work stress significantly, and it is considered to be a good protective factor to reduce teachers' work stress and related psychological problems (Kim and Chung 2014). We have reached the consistent conclusion in a Chinese preschool teacher group (Hu et al. 2019).

Previous studies have found that work stress was positively associated with turnover intention (Kim et al. 2020, Podsakoff et al. 2007; Liu et al. 2019; Novitasari 2020; Shahid et al. 2022; Tetteh et al. 2020) and was also an important mediating variable of turnover intention (Elci et al. 2012; Lee and Lim 2018; Tetteh et al. 2020). Moreover, the meta-analysis studies indicated that work stress was positively related to teachers' turnover intention and this relationship was stable regardless of the demographic information (e.g. teachers' gender, age, cultural background, and grade level) (Li and Yao 2022; Podsakoff et al., 2007). In the longitudinal studies among Korean preschool teachers, work stress could positively predict teachers' turnover intention after one school year (Jang and Kim 2019; Kim et al. 2020; Lim and Kim 2014). In the group of Chinese preschool teachers, work stress had a positively significant effect on turnover intention (Hu 2020; Yang et al. 2018; Wang et al. 2022). There is no research that investigated the mediating role of work stress in the relationship between teaching efficacy and turnover intention.

In addition, based on the JD-R model, job resources (e.g. teaching efficacy) stimulate a fulfilling, positive work-related state of mind (i.e. work engagement, perceived less work stress), which is closely related to a person's feelings, behaviours and intentions (Saks 2006). Meanwhile, job resources (e.g. teaching efficacy) could be a key factor in decreasing job demands and the associated psychological costs (e.g. work stress), leading to positive outcomes (e.g. low turnover intention and high performance). Work stress may play a mediating role in the relationship between teaching efficacy and turnover intention.

The COVID-19 pandemic in China and the situation in Chinese preschools

A large-scale Coronavirus outbreak began in 2020, threatening not only people's health but also the field of early childhood education (ECE) (Luo, Berson, and Berson 2023; Pattnaik and Jalongo 2021). During the pandemic period, COVID-19 prevention and control was an ongoing priority, increasing the workload of preschool teachers (Hong and Liu 2022). Preschool teachers, for instance, were required to conduct frequent surveys and report on children's health, enhancing the environment and toys' disinfection to prevent and control COVID-19. According to the Technical Plan for COVID-19 Prevention and Control in Early Education Institutions, preschool teachers were required to monitor health statistics, contact parents and ensure personal protection. These measures could increase preschool teachers' work burden, require more work engagement and leading to heavy work stress (Wei et al. 2021). Moreover, it is widely recognized that preschool teaching plays a pivotal role in young children's development and achievement (Early et al. 2007). During the COVID-19 pandemic period, preschools were often closed to

prevent the spread of the coronavirus, and preschool teachers were paid less wages, resulting in an increased turnover rate of Chinese preschool teachers (Liu, Zhang, and Yu 2021).

In addition, preschool education plays a significant role in the lives of children aged 3 to 6. It is common for Chinese children to attend full-time preschool programs, starting at the age of 3. Typically, Chinese preschoolers spend around 8 hours per day in preschool. Chinese preschool teachers face substantial workloads, primarily due to the high teacher–child ratio (Hu et al. 2021). Apart from caring for and educating the young children, these teachers also engage in various additional responsibilities. These responsibilities include organizing and implementing teaching activities, caring and guiding young children, creating environment, making teaching materials, participating in teaching competition and research activities, developing preschool-based courses and some clerical works. These additional duties contribute to the significant workload and stress experienced by Chinese preschool teachers. However, the relationship among preschool teachers' teaching efficacy, work engagement, work stress and turnover intention during the COVID-19 pandemic has not been thoroughly explored.

The present study

According to the previous studies, teaching efficacy was associated with turnover intention in different groups and cultural backgrounds (Afzal et al. 2019; Kim, Choi, and Seong 2012; Muhangi 2017; Van Eycken, Amitai, and Van Houtte 2022). Simultaneously, teaching efficacy was positively associated with work engagement (Guo et al. 2016; He 2021; Lipscomb et al. 2022) and negatively associated with work stress (Ansley et al. 2021; Cascio et al. 2014; Kim and Chung 2014; Lee et al. 2016), and both work engagement and work stress were related to turnover intention significantly (Fu et al. 2022; Gupta and Shaheen 2017; Kim et al. 2020; Mérida-López, Extremera, and Sánchez-Álvarez 2020; Novitasari 2020; Shahid et al. 2022). However, limited studies have focused on the Chinese preschool teacher group. According to the JD-R model, work engagement and work stress may play a mediating role in the relationship between teaching efficacy and turnover intention. Moreover, preschool teachers increased their work engagement, contributed their own strength to the fight against the epidemic, and experienced greater work stress during the COVID-19 epidemic. The present study investigated the work experiences of preschool teachers during the post-COVID-19 era in China, and aimed to clarify the relationship among teaching efficacy, work engagement, work stress and turnover intention. The research questions are as follows: (1) Is preschool teachers' teaching efficacy associated with turnover intention directly? (2) What are the mediating roles of work engagement and work stress in the relationship between preschool teachers' teaching efficacy and turnover intention? Based on the previous studies and the JD-R model, we proposed the following hypotheses: (1) Preschool teachers' teaching efficacy has direct effect on turnover intention; (2) Work engagement and work stress play a mediating role in the relationship between preschool teachers' teaching efficacy and turnover intention, respectively.

Table 1. The basic information of participants.

		The study ($N = 388$)	
Demographic variables	Category	*N*	Percentage (%)
Gender	Male	9	2.3%
	Female	379	97.7%
Age	younger than 25 years	103	26.5%
	26 to 30 years old	124	32.0%
	older than 31 years	161	41.5%
Teaching experience	less than 5 years	175	45.1%
	5 to 10 years	103	26.5%
	more than 10 years	110	28.4%
Educational background	Associate degree or below	144	37.1%
	Bachelor degree or above	244	62.9%
Annual income	Below 50,000 RMB	139	35.8%
	50,000–100,000 RMB	214	55.2%
	Above 100,000 RMB	35	9.0%

Method

Participants

A convenience sample of 388 preschool teachers from the city of Shenzhen and Zhongshan in mainland China was agreed to participate in the study. The basic information of participants is shown in Table 1. Among the sample, 97.7% preschool teachers were female. These participating teachers were diverse in age (26.5% were younger than 25 years old, 32.0% were 26–30 years old, and 41.5% were older than 31 years old), education level (37.1% had associate degree or below and 62.9% had bachelor degree or above), years of teaching experience (45.1% were less than 5 years, 26.5% were 5–10 years, 28.4% were more than 10 years), and in annual income (35.8% was below 50,000 RMB, 55.2% reported 50,000–100,000 RMB, and 9.0% reported above 100,000 RMB).

Measures

Preschool teachers' sense of teaching efficacy

The Preschool Teachers' Sense of Teaching Efficacy Scale (PTSTES) was developed to measure a preschool teacher's belief in her/his ability to design, organize and execute the teaching activities to promote children's development (Guo et al., upcoming). The scale consists of 22 items, divides into five dimensions: teaching preparation efficacy, teaching strategy efficacy, teaching evaluation efficacy, classroom management efficacy and preschool-family cooperation efficacy. Each item is rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The mean of each dimension was calculated. A higher score indicates a higher level of teaching efficacy. This scale was developed in Chinese and has been demonstrated to have good reliability and validity (Guo et al., upcoming). In this study, the Cronbach's alpha of the total scale and five subscales were .984, .933, .937, .912, .912 and .924, respectively.

Work engagement

The Utrecht work engagement scale was developed by Schaufeli and Bakker (2003) to measure an employee's positive, fulfilling work-related state. Zhang and Gan (2005) revised

this scale and applied it to Chinese teachers' group. It has been demonstrated that the Chinese version of this scale has good psychometric properties (Fu et al. 2022; Zhang and Gan, 2005). This scale includes 17 items and is divided into three dimensions: vigour, dedication and absorption. Each item is rated on a 5-point Likert scale, ranging from 1 (scarcely) to 5 (always). The mean of each dimension is used to represent the level of each factor. A higher score indicates a higher level of work engagement. In this study, the Cronbach's alpha of the total scale and three dimensions were .966, .912, .842 and .933, respectively.

Work stress

Teacher Stress Inventory was developed by Fimian and Fastenau (1990) to measure how intensely teachers experience stress. This scale includes 16 stressors in the teaching context and participants rate their level of stress for each stressor from 1 (not stressful) to 5 (highly stressful). This scale is divided into three dimensions: work-related stressors, professional investment and discipline and motivation. The mean of each dimension was calculated. A higher score indicates more intense work stress. This scale has been widely used among teachers at different school levels (including Chinese preschool teachers) and demonstrating good psychometric properties (Hu et al. 2019; Li, Guo, and Zhou 2021; Liu and Yan 2020; Tsai, Fung, and Chow 2006). In the study, the Cronbach's alpha of the total scale and three dimensions were .962, .900, .899 and .924, respectively.

Turnover intention

The turnover intention scale was developed by Weisberg and Sagie (1999) to measure a teacher's intention to quit their jobs. The scale is applicable for teachers at all career stages and contains three items that are intended to measure teachers' willingness to leave the schools they work in rather than leave the profession (e.g. 'I think I will no longer teach at this school in the near future'). Each item is rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Previous studies have indicated that the Chinese version of this scale has good psychometric properties (Li, Guo, and Zhou 2021; Zhou, Li, and Gao 2020). The average item scores of this scale were calculated. A higher score means a higher level of turnover intention. In this study, the Cronbach's alpha of the scale was .737.

Data analysis

The structural equation model was used to examine the relationship among preschool teachers' teaching efficacy, work engagement, work stress and turnover intention after controlling for teachers' demographics (gender, teaching experience and annual income). The conceptual model including both direct path and indirect path from preschool teacher's teaching efficacy to turnover intention. The model is presented in Figure 1. The Bootstrapping (Bootstrapping $N = 5000$) method was utilized to test whether teachers' work engagement and work stress played the mediating role in the relationship between preschool teachers' teaching efficacy and turnover intention. The 95% confidence intervals (CIs) were used to test the significance of indirect effects. The 95% CI does not include zero indicating the mediating effect is considered significant (Mallinckrodt et al. 2006). SPSS 22.0 and Mplus 7.4 were used to analyze the data.

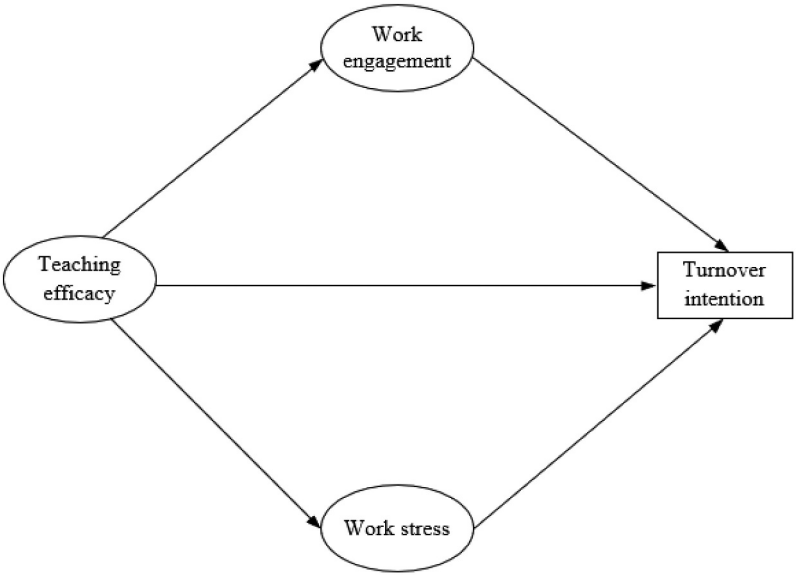

Figure 1. The conceptual model.

Results

Testing for common method bias

In this study, all the data were collected by preschool teachers' self-report scales, there might be common method bias (Podsakoff et al., 2003). Harman's single-factor method was used to test the common method bias effect. The results indicated that five factors had an Eigenvalue of larger than 1 and the variance explanation rate of the first factor was 38.69%, lower than the critical value of 40%. Therefore, no significant common method bias was observed in this study.

Correlation analysis

Table 2 shows correlations of the main variables in this study. As illustrated, most variables were significantly correlated with the others except for gender. Teaching experience, teaching efficacy and work engagement were negatively associated with work stress and turnover intention. Work stress was positively associated with turnover intention. However, annual income was not significantly associated with work engagement and work stress.

Structural models for testing mediated effects

In this study, the mediation model in which preschool teachers' sense of teaching efficacy was associated with turnover intention through work engagement and work stress was estimated. Figure 2 summarizes the results for the mediation model. The path coefficients were standardized values, and the dashed lines represent paths that were not statistically significant. The model provided an adequate fit to the data ($\chi^2/df = 3.346$, RMSEA = .078,

Table 2. Correlations of the main variables in this study.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	–													
2. Teaching experience	.01	–												
3. Annual income	−.09	.24***	–											
4. Teaching preparation efficacy	.05	.29***	.16**	–										
5. Teaching strategy efficacy	.00	.31***	.17**	.95***	–									
6. Teaching evaluation efficacy	.05	.25***	.13**	.92***	.93***	–								
7. Classroom management efficacy	.07	.32***	.13*	.94***	.93***	.91***	–							
8. Preschool-family cooperation efficacy	.03	.33***	.12*	.90***	.90***	.89***	.90***	–						
9. Vigor	−.02	.15**	.08	.52***	.52***	.51***	.51***	.54***	–					
10. Dedication	.01	.15**	.05	.50***	.50***	.49***	.48***	.53***	.92***	–				
11. Absorption	−.03	.16**	.09	.50***	.51***	.50***	.50***	.53***	.94***	.88***	–			
12. Work-related stressors	.01	−.11*	.09	−.20***	−.20***	−.21***	−.21***	−.20***	−.25***	−.25***	−.21***	–		
13. Professional investment	.03	−.13*	−.08	−.23***	−.26***	−.24***	−.24***	−.24***	−.23***	−.19***	−.24***	.84***	–	
14. Discipline and motivation	−.01	−.13**	−.04	−.26***	−.28***	−.28***	−.29***	−.26***	−.24***	−.21***	−.24***	.84***	.91***	–
15. Turnover intention	.01	−.13**	−.14**	−.28***	−.29***	−.27***	−.26***	−.28***	−.42***	−.38***	−.42***	.52***	.59***	.53***

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

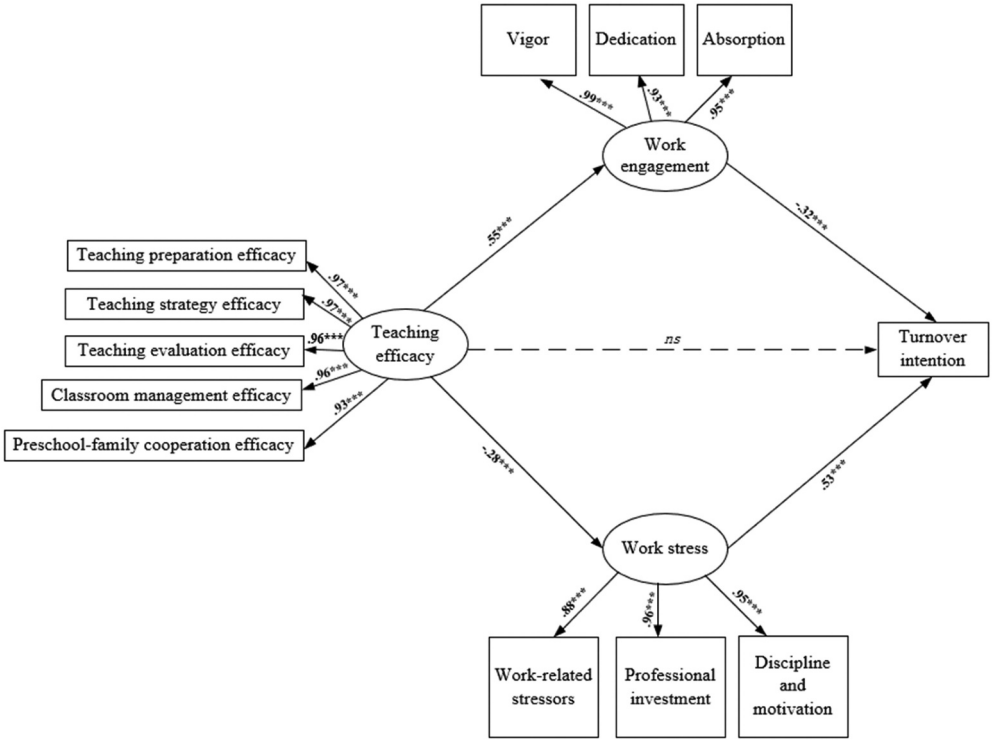

Figure 2. The mediation model. *Note*: ***$p < .001$. Dashed lines indicated non-significant values.

Table 3. Standardized estimates, standardized errors and confidence intervals for indirect effects.

			95% CI	
Indirect Effects	β	*SE*	lower	upper
PTSTES→ work engagement→ turnover intention	−.175	.032	−.231	−.125
PTSTES→ work stress→ turnover intention	−.146	.027	−.194	−.104

Note: CI = confidence interval.

CFI = .971, TLI = .964, SRMR = .078). After controlling for teachers' gender, teaching experience and annual income, preschool teachers' teaching efficacy was significantly positively linked to work engagement ($\beta = .55$, $p < .001$) and negatively associated with work stress ($\beta = -.28$, $p < .001$). Work engagement was significantly negatively linked to turnover intention ($\beta = -.32$, $p < .001$), and work stress was significantly positively linked to turnover intention ($\beta = .53$, $p < .001$). Preschool teachers' teaching efficacy was not significantly associated with turnover intention directly.

Bootstrap procedure for the significance of indirect effects

As Table 3 shows, the CIs for the two indirect effects excluded 0. This indicated that the indirect effects we examined were significant. The results shown in Table 3 support our hypothesis that preschool teachers' teaching efficacy was associated with turnover intention through work engagement and work stress, respectively.

Discussion

This study explored the relationship among preschool teachers' teaching efficacy, work engagement, work stress and turnover intention among 388 Chinese preschool teachers during the COVID-19 pandemic. The study found that preschool teachers' teaching efficacy was not directly related to turnover intention, and indirectly associated with turnover intention through work engagement and work stress, respectively. In this study, turnover intention refers to the willingness of preschool teachers to leave the preschool they work for, rather than leaving the profession.

The direct relationship between preschool teachers' sense of teaching efficacy and turnover intention

The results have found that preschool teachers' teaching efficacy was not directly associated with turnover intention, which was consistent with the existing studies (Mattingly 2007; Zhao & Chai, 2011). In the preschool, teachers have to undertake more tasks besides teaching. Compared to caring for and guiding young children, communicating with parents, creating environments and completing some clerical work, teaching is only a very small part of the work. Especially for Chinese preschool teachers, in addition to their daily work, they also need to assist the preschool principal in completing project applications, document writing and other tasks. Moreover, education authorities often come to inspect and supervise the preschool's work, and the preparation work for the inspection also occupies a lot of preschool teachers' work energy. Especially during the COVID-19 epidemic, teachers were required to also be responsible for timely disinfection of classrooms, observation and statistics of children's health (Hong and Liu 2022; Wei et al. 2021). Preventing COVID-19 became the primary task for preschool teachers, their teaching efficacy may not directly affect turnover intention. This study indicated that we needed to further explore the mechanisms and pathways by which preschool teachers' teaching efficacy influence their turnover intention.

Work engagement mediated the relationship between preschool teachers' sense of teaching efficacy and turnover intention

This study has found that preschool teachers' sense of teaching efficacy was indirectly associated with turnover intention through work engagement, which was consistent with the research hypothesis and the previous studies (Simone, Planta, and Cicotto 2018). It is worth mentioning that this is the first time to demonstrate this relationship among preschool teachers. Previous studies have indicated that teaching efficacy was positively associated with work engagement (Bakker & Demerouti, 2008; Guo et al. 2016; He 2021), which was negatively associated with turnover intention (Gupta and Shaheen 2017; Kamau, Muathe, and Wainaina 2020; Li and Gong 2022; Mérida-López, Extremera, and Sánchez-Álvarez 2020). Based on previous findings, this study further explored and demonstrated that work engagement played a completely mediating role in the relationship between teaching efficacy and turnover intention. Preschool teachers with high levels of teaching efficacy would engage more in their work, which could decrease their turnover intention. It is corresponding with the JD-R model (Bakker and Demerouti 2014),

in which, job resources (e.g. teaching efficacy) are the main antecedents of work engagement, which leads to positive outcomes (e.g. lower turnover intention). As well as in the health improvement process of the JD-R model, the intrinsic and extrinsic motivational potential of the job resources contribute to high work engagement, which leads to low turnover intention. Especially during the COVID-19 pandemic, preschool teachers incorporated epidemic prevention measures into the teaching activities, which could improve preschool teachers' sense of teaching efficacy, increase preschool teachers' work engagement, and thus reduce their turnover intention. The huge work engagement made teachers deeply bound to the preschool, reduce their turnover intention, and would not quit easily. If the preschool teacher left this preschool, the previous work engagement and achievements would become sunk costs and cannot play a role in further promotion. Therefore, work engagement played a mediating role in the relationship between preschool teachers' sense of teaching efficacy and turnover intention.

Work stress mediated the relationship between preschool teachers' sense of teaching efficacy and turnover intention

This study has indicated that preschool teachers' sense of teaching efficacy was indirectly associated with turnover intention through work stress. There is no research that has examined this relationship; the present study fills this gap in exploring the influence mechanism among these three variables. Preschool teachers with a high level of teaching efficacy perceive less work stress, which is related to decreased turnover intention. According to the JD-R model (Bakker and Demerouti 2014), job resources (e.g. teaching efficacy) could reduce job demands and the associated physiological and psychological costs, such as perceived work stress. In the process of health impairment, job demands (e.g. work stress) are the most significant predictors of health problems, which, in turn, is related to turnover intentions in the workplace. During the COVID-19 epidemic, the Chinese government strictly controlled the epidemic, especially in densely populated areas, such as preschools. Preschool teachers suffered heavy workloads, such as collecting and reporting the temperature of children and their parents every day, and whether they have been to dangerous areas that may be infected with COVID-19, leading to huge work stress (Liu, Zhang, and Yu 2021; Wei et al. 2021). Teachers with high teaching efficacy could better deal with these job demands and the associated work stress, leading to the decreased intention of leaving the working preschool (Xanthopoulou et al. 2007). This study indicates that preschools should improve teachers' teaching efficacy, because such preschool teachers could cope with their work well, perceive less work stress, and be happy physically and mentally, thus more likely to stay at work with less turnover intention.

Conclusion, limitation and implications

This study was conducted during the COVID-19 pandemic. In a sample of 388 Chinese preschool teachers, the present study found that preschool teachers' teaching efficacy was not associated with turnover intention directly; however, teaching efficacy was related to turnover intention through two mediating factors of work engagement and work stress, respectively.

There are several limitations that warrant discussion. First, the sample in this study was from two cities in China, which may not be representative of the whole country. Second, all the variables in the present study were examined by self-reported questionnaire; however, self-reported responses may lead to overestimations of correlations among factors due to common method variance and a subjective social desirability bias (Kline et al. 2000). Several measurements should be used in the future studies (e.g. observation, interviews and multi-agent reports by colleagues and supervisors) for data collection. Third, the present study explored the possible concurrent relationships among teaching efficacy, work engagement, work stress and turnover intention in the Chinese preschool teacher group but failed to reveal the long-term and causal relationships among them without a longitudinal study design. Last but not least, this study did not include potential predictive variables (e.g. organizational commitment, work-family conflict and social support) that have been proven to be associated with preschool teachers' turnover intentions in the existing studies (Guo and Li 2022; Guo et al. 2021; Li, Guo, and Zhou 2021).

According to our findings, this study has enhanced theoretical and practical understandings of the JD-R model in the group of preschool teachers, and signpost directions for reducing turnover intention. Preschool principals should organize various targeted training to improve preschool teachers' sense of teaching efficacy, promote their work engagement, and guide them to better cope with work stress, leading to decreased turnover intention. Especially during crises, such as the COVID-19 pandemic, preschools should organize relevant training and some psychological counselling courses to help preschool teachers better understand epidemic prevention measures, integrate them into teaching activities, promote their sense of teaching efficacy, so that they can better cope with work stress and reduce turnover intention.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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