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RECEIVED 05 October 2023

ACCEPTED 22 May 2024

PUBLISHED 06 June 2024

CITATION

Chen Y (2024) Effects of the proportion of students with special educational needs on middle school teachers' well-being. *Front. Educ.* 9:1307709. doi: 10.3389/feduc.2024.1307709

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Effects of the proportion of students with special educational needs on middle school teachers' well-being

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This study explores the impact of the proportion of students with special educational needs (SEN) on Chinese middle school teachers' job stress, satisfaction, and exhaustion, amid increasing emphasis on inclusive education. The research hypothesizes that a higher proportion of SEN students may lead to increased job stress, decreased job satisfaction, and heightened job exhaustion. This study utilized data from the China Education Panel Survey, and Structural equation modeling was used for data analysis. The study found a significant negative association between the proportion of SEN students and teacher job satisfaction ($\beta = -0.09, p < 0.05$). No direct relationship was found between the proportion of SEN students and job stress ($\beta = 0.00, p > 0.05$) and job exhaustion ($\beta = -0.08, p > 0.05$). However, there was an indirect positive impact of the proportion of SEN students on job exhaustion via job satisfaction ($\beta = 0.05, p < 0.05$). This research provides valuable insights into potential strategies for enhancing job satisfaction and reducing job exhaustion among teachers with a high proportion of SEN students.

KEYWORDS

inclusive education, special educational needs, middle school, job stress, job satisfaction, job exhaustion

1 Introduction

The education system in China can be split into mandatory and non-mandatory segments (Ge and Zhang, 2019). The mandatory segment comprises of 6 years in primary school followed by 3 years in middle school. The non-mandatory segment initiates with 3 years in high school, followed by 3 or 4 years in college or more (Ge and Zhang, 2019). Since the beginning of the 21st century, almost all children have been enrolled at the compulsory stage of education. Nonetheless, in 2012, close to 28% of disabled children between the ages of 6 and 14 were not enrolled in any form of education (Chen et al., 2014).

With the primary goal being to increase access to compulsory education for students with special educational needs (SEN) in any forms of education, the Chinese government has been promoting inclusive education since the 1980s (Ge and Zhang, 2019). However, unlike several European countries where nearly all students with SEN attend regular schools. In China, special education sectors hold a significant role within the broader educational system (Ge and Zhang, 2019). However, the government is increasingly encouraging students with SEN, who are "eligible," to attend regular schools (Ge and Zhang, 2019).

For example, from a policy perspective, the Ministry of Education of China released the Promotion Plan of Special Education 2017–2020 (Ge and Zhang, 2019), which outlined a goal to ensure 95% of school-age children with disabilities receive a nine-year compulsory education by 2020 (Ge and Zhang, 2019). The Promotion Plan also placed a strong emphasis on inclusive education, defining it as a means of promoting equitable and high-quality education for all children with disabilities (Ge and Zhang, 2019). This emphasis was further reinforced by the 2017 Regulations on the Education of Persons with Disabilities, which prioritized the construction of special resource classrooms in regular schools (The PRC State Council, 2017). Consequently, SEN students in Chinese regular schools have doubled from 28% in 1992 to approximately 60% in 2010 (Xu et al., 2018).

The coexistence of special schools alongside regular schools can be attributed to several factors. First, there is a recognition that some students with SEN require more specialized support than what can be provided in regular schools, even with the inclusion of special resource (Xu et al., 2017). These special schools are equipped with specialized teachers and facilities specifically designed to cater to the unique needs of these students (Xu et al., 2017). Second, societal attitudes and stigma toward disabilities can sometimes result in resistance to full inclusion, with some parents and educators arguing for the continuation of special schools as a more suitable educational environment for students with SEN (Xu et al., 2017).

The concurrent existence of special schools and regular schools affects the integration of students with SEN (Ge and Zhang, 2019). Typically, students with SEN who attend regular schools have less severe conditions compared to those in special schools. The key issue in improving the quality of inclusive education concerns appropriately qualified teachers who can provide effective teaching and support in regular education (Xu et al., 2017). In contrast to multi-disciplinary professionals coordinating together in Western legislation and policies in relation to inclusion, mainstream teachers in China assume the responsibility of taking care of children with SEN therein (Deng et al., 2001). Multidisciplinary support and integrated related services, such as psychological assessment and counseling and speech therapy, are still uncommon for most the mainstream schools (Xu et al., 2017). In addition, even if the teachers who work with SEN students are offered in-service training, the training tends to emphasize theory rather than practice, which is not helpful for improving service and support in mainstream schools (Xu et al., 2017).

Consequently, although students with SEN might display symptoms that are less severe compared to their counterparts in special schools, including SEN students in mainstream classrooms could increase the workload for educators and lead to challenges in classroom management. This situation potentially impacts teachers' work-related well-being, encompassing job stress, job satisfaction, and job exhaustion.

Middle school teachers in China play a particularly significant role due to the structure of the Chinese education system (Msuya, 2021). Since middle school education falls within the compulsory education phase, these teachers are directly influencing a large proportion of the

student population. Their well-being and job satisfaction can, therefore, have a direct impact on the quality of education for most students (Msuya, 2021). Moreover, middle school represents a significant transition period for students. Teachers have the challenging task of preparing students for higher levels of education while navigating the unique academic and developmental changes associated with this transition. High levels of stress and burnout among these teachers could hinder their ability to manage these challenges effectively (Msuya, 2021). Lastly, focusing on the well-being of middle school teachers enables early intervention. If these teachers are supported early in their career, it can lead to improved job satisfaction and reduced burnout, which could have a cascading positive effect on their future teaching experiences and their students' learning outcomes.

Therefore, as the number of students with SEN in mainstream middle schools continues to rise (Ge and Zhang, 2019), this study aims to explore the relationship between the proportion of SEN students (PSENS) and teachers' workload, job satisfaction, job stress, and job exhaustion in Chinese regular middle schools. This data is essential for appropriately allocating workloads to middle school teachers and enhancing their working-related wellbeing.

1.1 Proportion of students with SEN and job stress

Stress in the occupational setting of teaching refers to the level of pressure and demands placed on teachers, which arises when they experience prolonged, increasing, or new pressures that exceed their coping resources (Male and May, 1997). Middle school teachers in mainland China typically face intense teaching tasks and class management responsibilities, along with high expectations for their students' academic performance from various sources such as students, schools, parents, and society (Zang et al., 2022). As a result, they tend to experience higher levels of job stress compared to teachers in other educational stages, such as preliminary schools and universities (Zang et al., 2022).

When teachers have a higher PSENS in their classrooms, they often face additional challenges and responsibilities, which can increase their overall job stress levels. These additional challenges and responsibilities include: (1) Increased Individualization: Students with SEN often require individualized attention, specialized instructional strategies, and differentiated materials. Meeting the diverse needs of these students can be time-consuming and demanding for teachers. (2) Classroom Management: Students with SEN may exhibit challenging behaviors or require specific accommodations, which can make classroom management more complex. Addressing these behaviors while ensuring an inclusive and supportive environment can add to the teacher's workload and stress (Amstad and Müller, 2020). (3) Emotional Demands: Supporting students with SEN often involves addressing their emotional well-being, building relationships, and providing additional emotional support. This emotional investment can be draining and contribute to teacher stress (Jennings and Greenberg, 2009; Chen and Wong, 2020). (4) Lack of Resources and Support: Teachers may face challenges related to limited resources, including inadequate funding, lack of training in special education, and insufficient support staff. These resource constraints can further increase the stress of teachers working with students with SEN

Abbreviations: CEPS, China Education Panel Survey; CFA, Confirmatory Factor Analysis; CFI, Comparative Fit Index; NSRC, National Survey Research Center; PSENS, Proportion of Special Educational Needs students; RMSEA, Root Mean Square Error of Approximation; SEM, Structural Equation Modeling; SEN, Special Educational Needs; SRMR, Standardized Root Mean Square Residual.

(Jennings and Greenberg, 2009; Wong et al., 2019). (5) Accountability and Pressure: Teachers may feel increased pressure to meet academic standards and demonstrate progress for students with SEN. This can add accountability and scrutiny, leading to higher job stress (Engelbrecht et al., 2003; Amstad and Müller, 2020). Therefore, we hypothesize that the higher PSENS was associated with higher levels of job stress.

1.2 Proportion of students with SEN and job satisfaction

Job satisfaction is a complex construct that refers to an individual's overall evaluation of their job or job experiences (Msuya, 2021; Zang et al., 2022). It is characterized by a pleasurable or positive emotional state, which arises from various factors such as salary, school administration, school facilities, and student competence (Msuya, 2021; Zang et al., 2022). Symbolic Interactionism (SI) theory posits that an individual's contentment with a job is positively influenced by the quality of their ego's role enactment in that position (LaRossa and Reitzes, 2009). Thus, the level of stress and effort associated with a job will likely shape how individuals feel about the position (Skaalvik and Skaalvik, 2017).

Research suggests that job stress can negatively impact job satisfaction (Ahsan et al., 2009; Zang et al., 2022). Teachers who experience high levels of job stress are more likely to exhibit negative behaviors, value their jobs less, and express lower satisfaction with their output (Zang et al., 2022). Teachers who work with students with SEN often face unique challenges, such as managing disruptive behaviors and adapting instruction to meet individual needs. These challenges can lead to increased stress and an individual's contentment with a job. Therefore, it is hypothesized that a higher PSENS is directly and indirectly associated with job satisfaction through its influence on job-related stress.

1.3 Proportion of students with SEN and job exhaustion

Job exhaustion is a phenomenon that describes a chronic state of physical and psychological depletion that arises due to excessive job demands (Zang et al., 2022). It is considered a core component of job burnout (Hansen and Pit, 2016) and has been linked to negative outcomes such as turnover intention (Mudau, 2016) and poor academic and psychological performance among students (e.g., negative self-concept and reduced learning interest) (Arens and Morin, 2016; Klusmann et al., 2022).

Drawing upon the Symbolic Interactionism theory, we can better understand the dynamics of job satisfaction and its relationship with job stress and exhaustion. The theory suggests that the meanings and interpretations individuals attach to their roles and responsibilities are shaped through social interactions (LaRossa and Reitzes, 2009). Applying this to the context of teaching, the social interactions teachers have at work, especially with SEN students, can significantly influence their job stress and job satisfaction. For instance, a teacher who continually interacts with SEN students who require greater attention and care may interpret their role as more challenging, leading to potential exhaustion.

Based on these factors, we hypothesize that a higher PSENS is associated with a higher level of job exhaustion. In addition, job stress and job satisfaction may mediate the relationship between the PSENS and job exhaustion.

1.4 The present study

This study utilized a national panel survey of middle school teachers in China to investigate the correlation between the PSENS, job stress, job satisfaction, and job exhaustion. Figure 1 was used to illustrate their relationships conceptually. The study posited three hypotheses: (1) a direct relationship between the PSENS and job stress, (2) an indirect relationship between the PSENS and job satisfaction, mediated by job stress, (3) an indirect relationship between the PSENS and job exhaustion, mediated by job stress and job satisfaction, and (4) a direct relationship between the PSENS and job exhaustion.

2 Methods

2.1 Participants

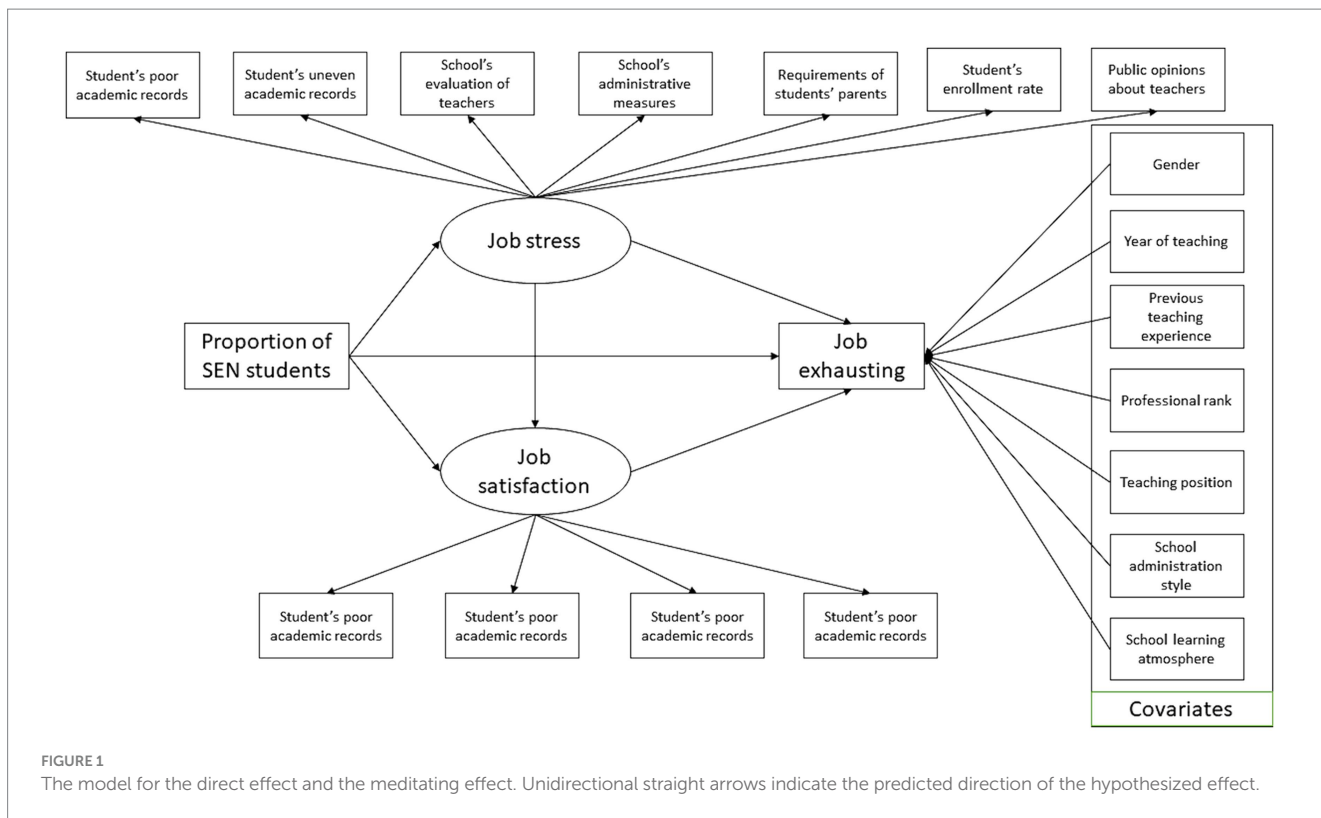
The data for this study were obtained from the China Education Panel Survey (CEPS) second wave (2014–2015), which was conducted by the National Survey Research Center (NSRC) at Renmin University of China (Hao and Yu, 2017). The survey utilized a stratified, multistage sampling design with a probability proportional to size approach to select a nationally representative sample of 10,750 students from 291 classrooms in 112 middle schools across 28 country-level units in mainland China (Hao and Yu, 2017).

To achieve this, the CEPS initially divided the entire country into three strata based on the 2010 national population census. Next, 28 country-level districts were randomly chosen from these three strata and considered primary sampling units (PSUs). Within each PSU, four middle schools were selected, resulting in a total of 112 middle schools. Finally, two grade 8 classes were randomly selected from each chosen school to participate in the survey (Hao and Yu, 2017).

2.2 Measures

2.2.1 Job stress

To assess teacher job stress, a 7-item scale was used to examine their perceived stress from three sources: stress from students (i.e., students' poor academic records and uneven academic records) (items 1–2), from school (i.e., school evaluations of teacher performance and administration) (items 3–4), and stress from society (i.e., expectations from requirements of students' parents, students' success and admission rate to prestigious senior schools, and public opinions about teachers) (items 5–7). A sample question from the scale is "How stressful do you find it dealing with students' poor academic performance?" This scale was adapted from Kyriacou and Sutcliffe's (1978) study, which originally consisted of 51 stress-inducing items, but was reduced to 7 items for the purposes of a national survey that required a more succinct questionnaire. Confirmatory factor analysis (CFA) showed that the measurement fit the data well: $\chi^2 = 34.17$,



$df = 12$ $p < 0.001$, CFI = 0.99, TLI = 0.99, SRMR = 0.02, RMSEA = 0.06. Cronbach’s α was 0.85 for the overall scale.

2.2.2 Job satisfaction

Job satisfaction was examined using the questionnaire drawn from the Survey Questionnaire on Secondary School Teacher Job Satisfaction (Weiqi, 2007). Teachers are asked to rate their satisfaction with salary, school administration, school facilities, and student competence (4 items) using a 5-point scale ranging from 1 (strongly unsatisfied) to 5 (strongly satisfied). An example of a question from this scale is, “How satisfied are you with your salary?” The scores from these four items were employed as manifest indicators of the latent construct of job satisfaction. CFA showed that the measurement fit the data well: $\chi^2 = 9.5$, $df = 2$, $p < 0.01$, CFI = 0.99, TLI = 0.98, SRMR = 0.01, RMSEA = 0.07. Cronbach’s α for this scale in the present sample was 0.76.

2.2.3 Job exhaustion

To assess job exhaustion, teachers were asked to rate how often they felt exhausted or burned out while working as a teacher, using a four-point scale ranging from 1 (never) to 4 (often). Previous studies have shown that a single-item measure of self-reported exhaustion is comparable to more established measures that use 22 items for job exhaustion screening (West et al., 2009; Cavanaugh et al., 2020; Zang et al., 2022). This question has been widely used in previous studies (West et al., 2009; Dolan et al., 2015; Lee et al., 2020; Zang et al., 2022) to evaluate job exhaustion.

2.2.4 The proportion of students with SEN

The primary independent variable of interest is the PSENS in mainstream classrooms. Parents were asked to indicate whether

their child had any of the following types of SEN: hearing impairment, visual impairment, physical disability, speech impairment, attention deficit hyperactivity disorder, autism/other mental disorders, multiple disabilities, or other conditions. All SEN categories were combined into a single group and coded as 0 for no SEN and 1 for SEN, indicating the child’s SEN status. Next, the number of students with SEN was divided by the total class size to obtain the variable representing the PSENS in the classroom. In addition, the average class size in middle schools in Mainland China is 46 students, with most classes exceeding 30 students (The PRC Ministry of Education, 2018). Consequently, only class sizes larger than 30 were considered for the analysis. The decision to amalgamate all types of SEN into a single group was primarily driven by three factors: First, the study’s objective was to examine the impact of the proportion of SEN students on teacher well-being, irrespective of the specific type of SEN. This method provided a comprehensive overview of the situation and aided in understanding the collective impact of SEN students on teachers’ job stress, satisfaction, and exhaustion. Second, while students with different types of SEN might pose unique challenges for teachers, they also exhibit shared characteristics (Ge and Zhang, 2019). For example, irrespective of the type of SEN, these students typically required additional support, personalized attention, and differentiated teaching strategies. By grouping all SEN students together, the study can encapsulate these shared experiences and challenges encountered by teachers. The sample size for individual SEN categories might be insufficient for meaningful statistical analysis, and classes typically contain students with various SEN types (Ge and Zhang, 2019). By amalgamating these categories, the study increased its sample size and statistical robustness, thereby enhancing the reliability and validity of its findings.

2.2.5 Covariates

The following covariates have been found to be correlated with study variables and therefore were included into the analysis (Gong et al., 2018; Zang et al., 2022). These covariates included gender (0 = male, 1 = female), years of teaching, teaching experiences ("Have you ever worked as a teacher in any other schools before you came to work in the present school?" 0 = No, 1 = Yes), professional rank title (0 = junior-level professional rank titles, 1 = senior-level professional rank titles, and 2 = senior-level professional rank titles), home teacher (0 = home teacher, 1 = subject teacher), school administration style (what is the administration style of your school?" 1 = very loose, 2 = loose, 3 = moderate, 4 = strict, 5 = very strict), and school learning atmosphere ("what is the overall learning atmosphere of your school?" 1 = very bad, 2 = bad, 3 = moderate, 4 = good, 5 = very good).

Teacher rank titles in China are categorized into junior, intermediate, and senior levels. These professional ranks are part of the Teacher Qualification System in China and are used to distinguish the professional competency level of teachers (Zhang and Tsang, 2019). Initially, educators begin at the junior level, holding titles such as Assistant Teacher or Junior Teacher, which marks the commencement of their teaching career. With the accumulation of experience, they become eligible for promotion to the intermediate rank, characterized by titles like Teacher or Intermediate Teacher, signifying their evolving expertise and experience in teaching. Progressing beyond the intermediate stage, educators ascend to the senior level. At this pinnacle, titles such as Senior Teacher or Advanced Teacher are awarded, acknowledging a teacher's extensive experience, mastery in teaching methodologies, and noteworthy contributions to the educational community (Zhang and Tsang, 2019).

Homeroom teachers in middle schools oversee a specific class's overall well-being, managing administrative tasks and monitoring students' social and academic progress. In contrast, subject teachers specialize in teaching specific subjects, focusing on imparting subject-related knowledge and assessing students' learning in that area (Zhang and Tsang, 2019).

2.3 Data analysis

The first step in this study was to examine the association between the PSENS, job stress, job satisfaction, and job exhaustion using Spearman's rank correlation and Pearson correlation. To test the hypothesized relationships proposed in Figure 1, structural equation modeling (SEM) was conducted while controlling for several covariates, including gender, years of teaching, teaching experience, professional rank title, school administration style, and school learning atmosphere. The full information maximum likelihood estimation method was used to handle missing data, and diagonally weighted least squares (WLSMV) were used instead of robust maximum likelihood, as WLSMV is more appropriate for an ordinal scale dependent variable (Li, 2016).

To evaluate the adequacy of the model fit, several model fit indices were used, including a non-significant Chi-Square statistic (χ^2), a comparative fit index (CFI) greater than 0.90, a root-mean-square error of approximation (RMSEA) less than 0.08, and a standardized root-mean-square residual (SRMR) less than 0.08. However, in larger sample sizes, a significant χ^2 should be expected for most models (Byrne, 2013). For the data analysis, Mplus (Version 8.4) was utilized,

leveraging its advanced features for a comprehensive examination of the proposed model.

3 Results

In the study, 494 middle teachers were sampled. Out of these teachers, 71% were female ($n = 351$). On average, these teachers had 17.01 years of teaching experience, with a standard deviation of 8.87. Among the participants, 32.2% ($n = 159$) were homeroom teachers. Furthermore, 62.4% of the teachers reported having prior teaching experience in other schools. In terms of professional rank titles, 24.9% had junior-level titles, 46.0% had middle-level titles, and 20.6% had senior-level titles. The mean PSENS in mainstream classrooms was 5% ($SD = 5$, ranging from 0–29%).

Bivariate correlations for study variables and covariates are presented in Table 1. Higher PSENS was significantly related to higher levels of teachers' job stress from students' uneven academic records ($r = 0.09$, $p < 0.05$), less satisfaction with school facilities ($r = 0.09$, $p < 0.05$), and less satisfaction with student competence ($r = 0.09$, $p < 0.05$). However, there is no significant association between the PSENS and teachers' job exhaustion ($r = 0.09$, $p > 0.05$). Job exhaustion is significantly associated with all the test items for job stress and job satisfaction ($r = -0.37$ – 0.25 , $p < 0.05$).

The structural model (Figure 2) showed an acceptable model fit: $\chi^2 = 250.43$, $df = 119$, $p < 0.001$. TLI = 0.96, CFI = 0.97, RMSA = 0.05, SRMR = 0.06. Table 2 shows the standardized path coefficients for the hypothesized model. The findings indicate a statistically significant negative direct association between the PSENS and job satisfaction ($\beta = -0.09$, $p < 0.05$). There is no significant association between the PSENS and job stress ($\beta = 0.00$, $p > 0.05$) and job exhaustion ($\beta = -0.08$, $p > 0.05$). However, the PSENS also had indirect and positive effects on job exhaustion via its association with job satisfaction ($\beta = 0.05$, $p < 0.05$).

In addition, higher levels of job exhaustion are significantly associated with more job stress ($\beta = 0.25$, $p < 0.05$) and less job satisfaction ($\beta = -0.53$, $p < 0.05$). However, there is no significant association between job stress and job satisfaction ($\beta = -0.11$, $p > 0.05$).

4 Discussion

4.1 The proportion of SEN students and job stress

The construct of job stress examined in our study encompasses several factors, including students' poor academic records, uneven academic records, school evaluations of teacher performance, administration, expectations from requirements of students' parents, admission rate to prestigious senior schools, and public opinions about teachers. We did not observe a significant relationship between the PSENS and job stress overall. However, we did find a significant association between a higher percentage of SEN students and increased levels of job stress arising from their uneven academic records.

Students with SEN often exhibit uneven academic performance, necessitating adaptations in teaching methods and creating individualized education plans (Avramidis and Norwich, 2002).

TABLE 1 Zero-order bivariate inter-correlations for study variables and covariates.

	1	2	3	4	5	6	7	8	9	10	11	12	13
Study variables													
1. Proportion of students with SEN		−0.05	0.09*	0.01	0.00	−0.02	−0.02	0.05	−0.06	−0.05	−0.16*	−0.10*	0.01
2. Stress from students' poor academic records			0.56***	0.43***	0.36***	0.35***	0.42***	0.35***	−0.08	0.03	0.01	−0.06	0.17**
3. Stress from uneven academic records				0.34***	0.31***	0.33***	0.38***	0.35***	−0.06	0.01	−0.03	−0.07	0.13**
4. Stress from schools' evaluation of teachers					0.68***	0.50***	0.52***	0.47***	−0.17***	−0.07	0.05	−0.03	0.15***
5. Stress from schools' administrative measures						0.47***	0.44***	0.43***	−0.28***	−0.17***	−0.08	−0.12**	0.25***
6. Stress from parents							0.55***	0.56***	−0.09	−0.05	−0.03	−0.02	0.16***
7. Stress from enrolment rate								0.54***	−0.07	0.04	0.04	−0.03	0.17***
8. Stress from public opinions									−0.17**	−0.07	−0.01	−0.11*	0.20***
9. Satisfaction with salary										0.52***	0.41***	0.37***	−0.37***
10. Satisfaction with school administration											0.49***	0.43***	−0.30***
11. Satisfaction with school facilities												0.44***	−0.23***
12. Satisfaction with student competence													−0.28***
13. Job exhaustion													
Covariates													
14. Gender	−0.10*	−0.09	0.02	−0.07	−0.07	−0.06	0.07	−0.10*	0.07	0.03	0.10*	0.10*	−0.11*
15. Teacher's role (homeroom vs. subject)	−0.10	0.06	0.04	0.60	0.09*	0.09*	0.01	0.07	−0.15**	−0.06	−0.08	−0.10	0.12**
16. Years of teaching	−0.07	0.04	−0.03	0.12**	0.11	0.15***	0.08	0.06	−0.01	−0.01	0.03	−0.10*	0.06
17. Prior teaching experience	−0.06	0.05	−0.02	0.00	−0.01	−0.05	−0.00	0.01	−0.05	−0.05	−0.03	−0.01	0.10*
18. School learning atmosphere	−0.11*	−0.02	0.01	0.01	−0.07	0.06	0.08	−0.01	0.29***	0.46***	0.36***	0.56***	−0.20***
19. School administration style	0.02	0.04	0.01	−0.01	−0.05	0.08	0.05	0.03	0.20***	0.43***	0.34***	0.36***	−0.13**
20. Professional ranking	−0.17*	−0.05	−0.05	0.11*	0.09	0.20***	0.14**	0.08	0.04	−0.03	0.04	0.08	0.05

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

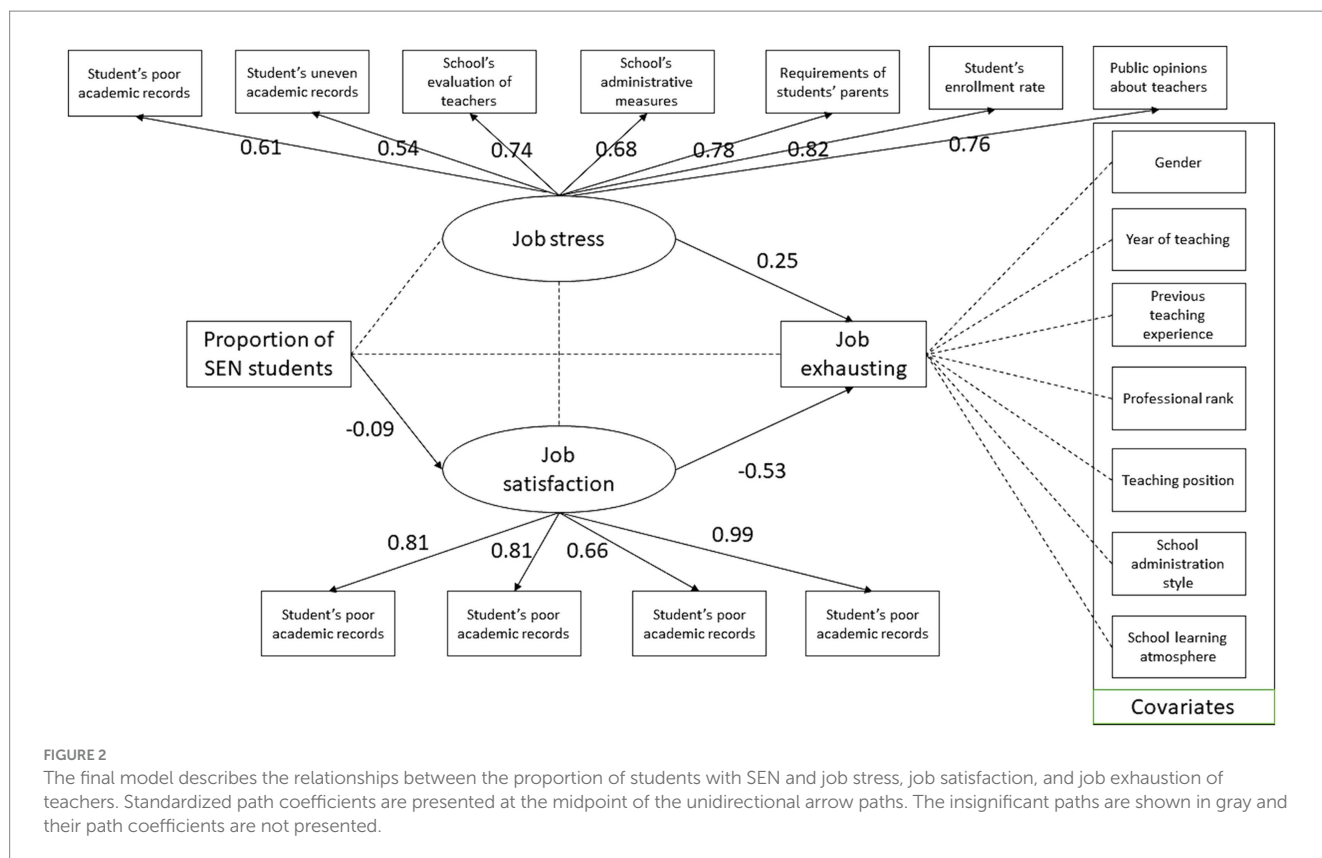


FIGURE 2

The final model describes the relationships between the proportion of students with SEN and job stress, job satisfaction, and job exhaustion of teachers. Standardized path coefficients are presented at the midpoint of the unidirectional arrow paths. The insignificant paths are shown in gray and their path coefficients are not presented.

This can involve differentiated instruction and managing behavioral issues (Avramidis and Norwich, 2002). However, these additional responsibilities can create a more demanding and stressful work environment, especially when resources are limited or support systems are inadequate (Kokkinos and Davazoglou, 2009). This stress is often exacerbated by the uneven academic records of SEN students, leading to higher levels of job stress among teachers.

Based on these findings, it is suggested that grouping SEN students with similar academic performance together might help mitigate job stress resulting from uneven academic records. Lou et al. (1996) conducted a meta-analysis comparing homogeneous and heterogeneous ability grouping, finding that homogeneous grouping benefits students more. However, the impact of homogeneous grouping on teachers' job stress remains unclear. Future studies should investigate the validity of this suggestion.

4.2 The proportion of SEN and job satisfaction

We have discovered a significant correlation between a higher PSENS and lower levels of job satisfaction among teachers. Specifically, this relationship is particularly evident in terms of job satisfaction with school facilities and student competence, as opposed to job satisfaction with salary and school administration as shown in the correlation analysis (see Table 1).

It is well-established that students with SEN generally exhibit weaker academic performance compared to their typically developing peers (Avramidis and Norwich, 2002). Previous studies found that the

competence of students is strongly associated with teachers' job satisfaction (Caprara et al., 2003; Dicke et al., 2018).

School facilities play a critical role in providing a safe and supportive learning environment tailored to the unique needs of students with SEN. Different types of school facilities are designed to accommodate these students, such as separate classrooms or resource centers, and specialized equipment or assistive technology for those with physical disabilities (Lindsay, 2007). Moreover, school facilities can also significantly impact the emotional and social well-being of students with SEN. Schools fostering a positive and inclusive culture, where students feel respected and valued, facilitate a more comfortable and inclusive environment for students with disabilities (Villa and Thousand, 2005). However, it's worth noting that these well-equipped school facilities may not be common in Mainland China. Hence, the higher PSENS in such schools underscores the importance of improving these facilities, which, in turn, could enhance teachers' job satisfaction with school facilities.

The results indicate that teachers' job satisfaction with a high PSENS could be improved by enhancing teachers' efficacy and capacity to support the performance of SEN students, along with upgrading school facilities. Conversely, increasing salaries may not significantly impact job satisfaction in this specific population.

4.3 The proportion of SEN students and job exhaustion

Although there was no direct relationship found between PSENS and job exhaustion, job satisfaction was found to mediate the relationship between PSENS and job exhaustion. This suggests that

TABLE 2 The standardized path coefficients for the hypothesized model.

	Direct effects (standardized β) (SE)	Indirect effects (standardized β) (SE)	
Proportion of SEN students to job stress	0.00 (0.00)	/	/
Proportion of SEN students to job satisfaction	-0.09 (0.04)*	Proportion of SEN students – Job stress-job satisfaction	-0.00 (0.00)
Proportion of SEN students job exhausting	-0.08 (0.05)	Proportion of SEN students – Job stress -job exhausting	0.00 (0.00)
		Proportion of SEN students –job satisfaction – job exhausting	0.05 (0.02)*
		Proportion of SEN students – job stress-job satisfaction -job exhausting	0.00 (0.00)

* $p < 0.05$. *Significant relationships have been highlighted in bold letters. Standardized path coefficients in SEM indicate the expected change in the outcome variable per standard deviation change in the predictor, holding other variables constant. The absolute value shows the relationship's strength, and the sign shows its direction. A higher absolute value means a stronger relationship. Positive coefficients suggest direct relationships, while negative ones indicate inverse relationships.

teachers with a higher PSEN may exhibit higher levels of job exhaustion, due to the low level of job satisfaction. The relationship between job satisfaction and job exhaustion in teachers is well-documented in the literature (Zang et al., 2022). Studies have demonstrated that high levels of job satisfaction, associated with positive emotions and a sense of accomplishment, can protect against job exhaustion (Skaalvik and Skaalvik, 2011). Conversely, low job satisfaction, which often correlates with negative emotions and a lack of motivation, can contribute to higher levels of job exhaustion (Hakanen et al., 2006).

The results imply that when teachers with higher PSENS, it is important for schools and educational institutions to prioritize the job satisfaction of their teachers to prevent job exhaustion and promote a positive work environment.

4.4 Implications

The findings of this study have significant implications for policy making, school administration, and teachers themselves, especially in the context of promoting inclusive education.

In terms of policy making, policymakers should focus on providing adequate resources and training to teachers to effectively manage classrooms with a high proportion of SEN students. This includes funding for specialized training programs, hiring of support staff, and upgrading school facilities. Furthermore, policies ought to facilitate a more equitable distribution of SEN students across classrooms or alleviate additional responsibilities from teachers handling a high PSENS. Such measures are critical to preventing teacher overload and cultivating an inclusive learning atmosphere.

From a school administration perspective, administrators can play a crucial role by ensuring that teachers are adequately supported in managing classrooms with a high PSENS. They could provide access to professional development programs that equip teachers with the skills to handle the unique challenges posed by SEN students. Furthermore, school administrators should also strive to improve school facilities, which was found to be a significant factor affecting teacher job satisfaction.

For teachers, it's important to understand the potential impact of a high PSENS on their job stress, satisfaction, and exhaustion.

This knowledge can better equip them to seek support when needed. Teachers can advocate for professional development opportunities and resources to enhance their ability to teach and support SEN students.

These recommendations stem from the study's findings, which highlight a gap in existing research related to SEN proportions and teacher well-being. Given the limited number of studies exploring similar interventions, further research is needed to assess the effectiveness of these recommendations and support their implementation by policymakers and school administrators.

4.5 Limitations

The lumping of all types of SEN into one category also presents certain limitations. It prevents the examination of potential differences in teacher well-being associated with different types of SEN. For instance, teachers might experience different levels of stress and satisfaction when working with students with physical disabilities compared to those with attention deficit hyperactivity disorder or autism. Additionally, this approach may oversimplify the complexities associated with teaching students with different types of SEN. It assumes that the experiences and challenges faced by teachers are similar across all types of SEN, which might not be the case. Therefore, future studies could benefit from examining the impact of individual types of SEN on teacher well-being to provide more nuanced and detailed insights. Additionally, the causal relationship between PSEN, job stress, job satisfaction, and job exhaustion remain unclear. To better understand these relationships, a longitudinal study is recommended for future research.

5 Conclusion

The study explored the impact of the PSENS on the job stress, job satisfaction, and job exhaustion of middle school teachers in China. It revealed that a higher PSENS in mainstream classrooms is associated with lower levels of job satisfaction among teachers, particularly in terms of satisfaction with school facilities and

student competence. This could be due to the additional responsibilities and demands placed on teachers to adapt their teaching methods and manage behavioral issues. However, no significant direct association was found between the PSENS and job stress or job exhaustion.

Interestingly, an indirect positive effect of the PSENS on job exhaustion was found, mediated by job satisfaction. This suggests that while the direct impact of SEN students on job exhaustion may not be significant, the decreased job satisfaction associated with a higher PSENS could indirectly lead to increased job exhaustion.

This study underscores the significance of equipping teachers with suitable training and resources to handle students with SEN proficiently. It also emphasizes the benefits of grouping students based on similar academic performance. Additionally, the study draws attention to the essential need to upgrade school facilities, to boost job satisfaction and minimize job exhaustion.

For future research, the implementation of a longitudinal study design should be considered to allow for the exploration of changes over time and the identification of potential causal relationships. Furthermore, investigations into the impact of individual types of SEN on teacher well-being are necessary to provide more nuanced and comprehensive insights.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: <http://ceps.ruc.edu.cn>.

Ethics statement

The studies involving humans were approved by the Institutional Review Board of Renmin University of China. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

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Author contributions

YC: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Funding

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article. This study was partly supported by the General Research Fund (GRF 18608423), Hong Kong SAR, China, and the Knowledge Transfer Seed Fund for 2023–2024 (DTSF03109), Department of Special Education and Counselling, The Education University of Hong Kong, Hong Kong SAR, China.

Acknowledgments

The author gratefully acknowledge the National Survey Research Center at Renmin University and the China Education Panel Survey team for data sharing.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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