

## Research article

# Highest order moderation of extraversion and neuroticism into the relationship between job stress and flourishing: Mediated by readiness to change among Chinese medical teachers

Sun Yan<sup>a,\*</sup>, Lubao Ping<sup>b</sup>, Xiaodong Feng<sup>a</sup>, Xiaoqin Jin<sup>a</sup><sup>a</sup> School of Rehabilitation Medicine, Henan University of Chinese Medicine, Zhengzhou, 450058, Henan, China<sup>b</sup> Academic Affairs Office, Henan University of Chinese Medicine, Zhengzhou, 450058, Henan, China

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## ABSTRACT

This study investigates the mediating role of Readiness to Change in the relationship between job stress and flourishing among Chinese medical teachers, as well as the highest order moderation of Extraversion and Neuroticism into this relationship. The research utilized a quantitative approach, surveying a sample of Chinese Medical Education teachers (N = 500) consisted of 342 males and 158 females with an age range between 30 and 65 (M = 43.69; SD = 9.31). The average tenure in the education landscape was 12.39 years (SD = 10.91) through an online platform. The primary aim was to explore how readiness attitudes influence the well-being and work capacity of Teachers in high-stress medical teaching environments. The survey incorporated self-assessment instruments to measure job stress, Readiness to Change attitudes, levels of flourishing, and personality traits (Extraversion and Neuroticism). Statistical analyses, including mediation models, were employed to test the relationships between these variables. Preliminary findings suggest a significant mediating role of Readiness to Change into the effects of job stress on flourishing and a moderation of extraversion into this relationship. The findings also failed to support the moderation of Neuroticism into the relationships, while the Higher order moderation showed a statistical marginal value. This indicates that effective readiness attitudes may not only mitigate the negative impacts of job stress but also enhance personal well-being and professional capacity. These results hold critical implications for the development of support systems and interventions aimed at fostering resilience and adaptive skills among medical teachers. Such initiatives could potentially improve job satisfaction, mental health, and teaching effectiveness in medical education settings. The study contributes to the growing body of literature on occupational stress and coping mechanisms in the educational sector, particularly within the field of medical education.

## 1. Introduction

In the dynamic socio-economic landscape of China, medical education has emerged as a pivotal element in both governmental and institutional strategies. This focus is driven by the urgent need to adapt traditional and emerging teaching methods to enhance health care education amidst sweeping societal and technological transformations. In this context, medical education in China faces unique

\* Corresponding author.

E-mail address: [sun0811yan@126.com](mailto:sun0811yan@126.com) (S. Yan).

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pressures, including rigorous examination standards, the imperative for ongoing research, and intense competition among peers [1].

The transition from traditional classroom settings to remote or hybrid models of medical instruction is reshaping the educational experience. This shift, necessitated by technological advancements and recent global health crises, introduces significant challenges. Teachers and students must navigate the complexities of digital communication and pedagogical adjustments while managing the psychological stresses associated with such profound changes [2].

Furthermore, the integration of remote teaching methodologies has highlighted critical issues such as job stress among medical teachers, who must balance professional responsibilities with personal life in increasingly blurred settings [3]. The need for effective stress management strategies and robust support systems is crucial to ensure the well-being and effectiveness of teachers [4,5], fostering an environment conducive to learning and professional development [6].

Globally, remote teaching, including medical education, has gained traction due to factors like the COVID-19 pandemic. In China, this trend is further driven by ambitions for technological advancement, cost efficiency, and regional diversity [7]. Such transitions profoundly affect professional practices and organizational dynamics in the Chinese health education sector. The adaptability and change receptivity of Chinese medical teachers are thus increasingly vital [8].

Research indicates that employees less open to change may be prone to exit organizations, potentially elevating turnover rates, a concern also pertinent in the context of China's work culture.

As medical education in China continues to evolve, understanding and addressing the challenges of job stress, educator well-being, and pedagogical efficacy within both hospital-based and remote learning environments are essential [9,10]. Our research aims to delve into these issues, exploring the interplay between change readiness and its effect on job stress among teachers. This research is crucial, as job stress can significantly impact educator well-being and teaching effectiveness. We explore how change readiness relates to job stress and its broader implications on well-being, including aspects like flourishing [11]. By focusing on these elements, this study contributes to the broader discourse on optimizing medical education in China, ensuring it remains responsive to the needs of both teachers and the healthcare industry.

## 2. Literature review

### 2.1. Medical teachers' wellbeing: job –stress, and flourishing

In the context of Medical Education in China, job stress is an increasingly recognized factor influencing teachers' wellbeing and flourishing. This stress is multifaceted, stemming not only from workload but also from performance expectations, emotional demands, and broader organizational dynamics. The challenges are particularly pronounced in the health-related education, where constant facing to death, illness and pain add to other stressors affecting personal and professional efficacy.

The Job-Demands and Resources (JD-R) Model [12] proposes that job stress is a consequence of the combination of both demands and resources that arise into the working environments. Specifically, job demands refer to the physical, psychological, organizational, or social aspects of work that require effort [13,14]. Conversely, job resources are those physical, psychological, and organizational aspects of work that can mitigate job demands and their associated physiological and psychological costs, be instrumental in achieving work goals, or foster personal growth, learning, and development [15]. This model has been applied to a wide range of empirical studies, most of them focused on teachers. Positive facets of educational work, as occupational wellbeing [16], teachers' social goal orientation [17], as well as negative processes as workplace bullying [18] and technostress [19] have been explored under the JD-R Model theoretical framework, providing evidence of its usefulness.

In line with this theory, it has been demonstrated that resources have been linked to processes such as job satisfaction and engagement [20], with the latter understood as voluntary effort or commitment to work by the employee. Based on the JD-R Model, the present study focused on the specific influences of both types of personal resources (personality traits and attitudes) and the potential interaction among them into the relationships between job stress and personal wellbeing among medical teachers in China.

Following the proposals of Positive Psychology, the concept of flourishing is widely recognized as an indicator of personal wellbeing. Flourishing in Medical Education teachers in China is not merely about thriving under favorable conditions but also about effectively coping with professional stressors. This concept encompasses growth, resilience, and positive societal contribution, and recent studies among Chinese teachers have integrated the assessment of Flourishing as an indicator on individual wellbeing [21–23]. For Chinese Medical Education teachers, the ability to manage job stress is crucial for sustaining their wellbeing and professional excellence, as well as for the further impact on their students' success and the general Public health.

The global prevalence of Job stress in doctors is constantly affirmed by empirical studies [24], as well as their effect on Medical teachers and undergraduate [25] and postgraduate medical students [26]. This insight, while not exclusive to China, underscores the broader context in which Medical Education teachers operate, suggesting that the issues faced in China may be part of a global trend. Empirical evidence is obtained also from relevant study investigated the effect of psychodrama therapy on the emotional regulation of teachers during the COVID-19 epidemic [27]. Although not specific to Medical Education teachers, this research highlights the importance of emotional well-being and the potential of therapeutic interventions in managing job-related stress.

To sum up, the specific impact of job stress on the wellbeing and flourishing of Medical Education teachers in China is an area that requires further research. The available literature indicates that stress management and emotional well-being are crucial elements for the professional efficacy and personal health of these teachers. The integration of Positive Psychology principles with the JD-R Model, focusing on flourishing and resilience, could offer valuable strategies for coping with the unique challenges faced by Medical Education teachers in China.

Hence, based on the revised literature, the present study proposed the following hypothesis.

**Hypothesis 1.** Job stress (X) will be negatively related to Flourishing (Y) among Medical Teachers.

Mediation of Readiness to Change in the relationships between Job stress and Flourishing among medical teachers.

The concept of Readiness to Change, pivotal in the field of Positive Psychology, is not solely about embracing growth opportunities but also about coping with the stressors and challenges that accompany shifts and transformations. According to Seligman and Csikszentmihalyi [28], while change can be a conduit for personal development, it invariably introduces elements of uncertainty and complexity that can be stressful. Di Fabio and Gori [29] underscore this by highlighting the link between change acceptance and stress management, where resilience and adaptability become crucial for maintaining an individual's quality of life amidst change.

In the sphere of organizational behavior, particularly within the rapidly evolving Chinese Medical Education sector, the implications of Readiness to Change are profound, not just for personal growth but also in terms of job-related stress. Research indicates that teachers who are more predisposed to accept change are better equipped to handle stressors associated with evolving technological and cultural landscapes. These stressors, if not managed effectively, can lead to burnout and decreased job performance. Teachers in this field are required to navigate not only the pedagogical challenges but also the stress induced by continuous technological and scientific changes.

Furthermore, the concept of Readiness to Change, defined as a positive attitude to cope to unexpected and uncontrollable work-related situations, is intricately linked to job stress. As identified by Ünlü and Filiz, job satisfaction and stress are two sides of the same coin, with one influencing the other [30]. Stress can also arise from a lack of openness to change, affecting overall well-being [31] and leading to issues like reduced organizational commitment [32]. Viola pointed out that resistance to change is often linked with higher stress levels and, consequently, higher turnover rates [33].

In terms of student development, personal factors like academic performance, confidence, and utilization of resources, as well as contextual factors like learning resources and family income, have been associated with self-directed learning abilities of medical students in mainland China [26]. This suggests that medical teachers are also expected to consider a range of factors in fostering effective learning environments [34]. Among other empirical evidence, medical teachers in China are actively exploring and adopting new teaching methods. For instance, Problem-based Learning is increasingly being used in medical colleges, aiming to bridge the gap between academic learning and practical healthcare service skills. This reflects a trend towards innovative and student-centered teaching approaches [35]. In a similar way, research focused on specific pathologies showed that younger medical workers had a better understanding of autism than older ones. This indicates a generational difference in knowledge and possibly in teaching methods and curricula used by medical teachers [36], as well as other differential reactions to changes. In the intricate tapestry of China's Medical Education culture, understanding the mediating role of Readiness to Change emerges not just as an academic pursuit but a strategic imperative, shaping the trajectory of both individuals and organizations.

Hence, considering that Readiness to Change would be conceived as a personal attitudinal resource that positively mediate the relationships between Medical teachers' job stress and flourishing, the present study proposed the following hypothesis.

**Hypothesis 2.** Readiness to Change (M) will mediate the relationship between Job stress (X) and Flourishing (Y) among Medical teachers.

Moderating role of Extraversion and Neuroticism into the relationships between Readiness to Change and Flourishing.

The current field of Medical Education can be only interpreted by interactional models that encompass both dispositional and situational factors. According to the Job Demands-Resources Theory, it is crucial to recognize that each individual manages stress and interprets their environment based on their personality trait, attitudes and life experiences.

The Five-Factor Model of personality, validated by McCrae and Costa [37], provides a framework for assessing these traits, and states that Extraversion and Neuroticism should be considered as the main personal features. For instance, extraversion, associated with positive coping, sociability, and assertiveness [38], is a crucial positive factor in predicting adjustment in roles that require interaction and cooperation. Research like that of Swider and Zimmerman [39] has shown that lower extraversion scores can be linked to a higher propensity for burnout. In this line, Neuroticism is identified as the dimension of emotional instability. It is associated with anxiety, depressive feelings, irritability, worry, and insecurity. Neuroticism appears to be an effective negative predictor for the performance across a wide variety of job roles [38]. Research has reported significant relationships between extroversion and neuroticism, on the one hand, and job stress [40] or wellbeing, on the other [41], as well as the moderating role of extraversion and neuroticism on work-related outcomes [42]. Recent studies continue applying personality traits as relevant individual differences associated to motivation to teach [43], research involvement [44] or academic performance among Chinese teachers [45].

To sum up, understanding these dynamics is crucial for proper personnel selection and assignment in medical education, considering the impact of personality traits on job performance and wellbeing, given that research concludes that stress and wellbeing processes arise from the interaction between certain environmental work variables and personality variables. The individual plays a crucial role in the genesis and development of these processes, capable of actively confronting the environment and modifying it to their advantage if equipped with the right coping strategies.

Hence, based on the above revised literature, the present study proposed the following hypotheses.

**Hypothesis 3.** Personality traits, Extraversion (W) and Neuroticism (Z), will moderate the direct relationships between Readiness to Change (M) and Flourishing (Y) among Medical teachers. Specifically, the following is proposed, as **Hypothesis 3a**: when Extraversion is high and Neuroticism is Low, the positive effect of Readiness to Change on Flourishing will be less intense. On the contrary (**Hypothesis 3b**), when Extraversion is low and Neuroticism is high, the positive effect of Readiness to Change on Flourishing will be more intense.

## 2.2. Highest order interaction between extraversion and neuroticism

The exploration of the highest order interaction of Extraversion and Neuroticism in the context of Readiness to change and Flourishing remains a bit unexplored. Despite, there is a significant body of literature examining the broader relationships between these two personality traits. Theories regarding the relationship between extraversion and neuroticism have proposed various models, ranging from them being independent dimensions [46] to having a hierarchical relationship [47]. However, the majority of studies have found a negative correlation between these two traits [48–50]. This implies that individuals who score high on neuroticism are likely to score low on extraversion and vice versa. This negative correlation is important in understanding the combined effects of these traits on other psychological constructs.

Related to our model, that linked Readiness to change and flourishing, each of these personality dimensions could be independently linked to outcomes in change processes and well-being. Extraversion, characterized by sociability, assertiveness, and positive emotions, is generally associated with a higher Readiness to change and greater flourishing. Extraverts are often more open to new experiences and adapt more readily to change, contributing to their overall well-being.

Neuroticism, on the other hand, is marked by emotional instability, anxiety, and negative affectivity. High levels of neuroticism are often negatively correlated with readiness to change and flourishing. Individuals high in neuroticism may find it more challenging to adapt to change due to their predisposition to experience negative emotions. This can hinder their capacity to flourish in changing environments.

The interaction between extraversion and neuroticism in this context could therefore be complex. Individuals with high extraversion but low neuroticism might be particularly adept at navigating change and experiencing flourishing. Conversely, those high in neuroticism and low in extraversion might struggle more in adapting to change and achieving a state of flourishing.

However, the specific dynamics of how these traits interact at a higher order to influence readiness to change and flourishing have not been extensively documented. Hence, further empirical research is needed to elucidate these relationships more fully. This gap in the literature presents an opportunity for future studies to explore how these personality dimensions collectively impact an individual's ability to adapt to change and their overall sense of well-being.

Hence, based on the above revised literature, the present study proposed the following hypotheses.

**Hypothesis 4.** Personality traits, Extraversion (W) and Neuroticism (Z), will moderate the indirect relationships between Job stress (X) and Flourishing (Y), mediated by Readiness to Change (M) among Medical teachers. Specifically, the following is proposed, as **Hypothesis 4a**: when Extraversion is high and Neuroticism is Low, the mediational negative effect of Readiness to Change into the relationship between Job stress and Flourishing will be less intense. On the contrary (**Hypothesis 4b**), when Extraversion is low and Neuroticism is high, the mediational negative effect of Readiness to Change into the relationship between Job stress and Flourishing will be more intense.

The theoretical research is displayed in Fig. 1.

## 3. Method

### 3.1. Participants and procedure

In this study, the participants comprised 500 Chinese Medical Education teachers, selected through non-probability sampling methods. Non-probability sampling was chosen due to the practical constraints of the research setting and the specific nature of the population being studied. This approach allowed for the selection of participants who were readily accessible and willing to participate, which is particularly useful in educational settings where certain characteristics (such as tenure, experience, and specialization) are prioritized for the study's relevance to educational outcomes.

The demographic profile of the sample included 342 males (68.4 %) and 158 females (31.6 %), reflecting the gender distribution within the targeted educational institutions. Participants ranged in age from 30 to 65 years, with a mean age of 43.69 years (SD =

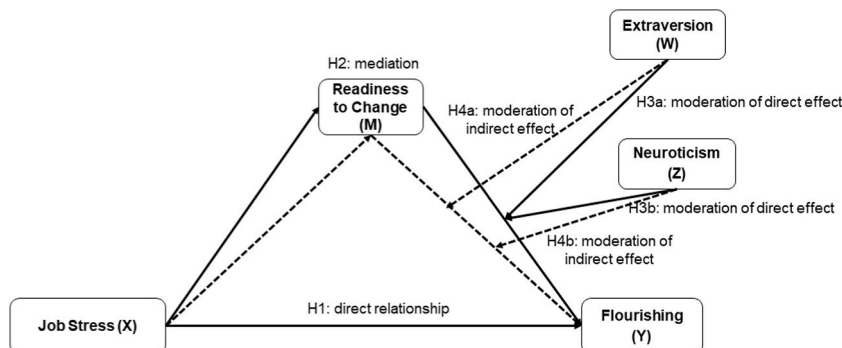


Fig. 1. Theoretical research model.

9.31), providing a broad perspective across different career stages. The average tenure of these educators in the medical education sector was 12.39 years (SD = 10.91), indicating a significant level of professional experience and insight into the evolving dynamics of medical training.

These demographic details are crucial as they underscore the diverse range of experiences and backgrounds represented in the study, enhancing the applicability and relevance of the findings within the broader context of Chinese Medical Education.

The present study was approved by the Human Research Ethics Committee of Henan University of Chinese Medicine. The research team disseminated the survey using professional social networks, as WeChat, Weibo, DingTalk, Zhihu, Xueqiu and LinkedIn, as well as the personal social networks of the four authors, who are enrolled in Chinese Medicine Universities. Information provided included the invitation to answer the questionnaire using online survey platform Wenjuanxing to potential respondents enrolled as Teachers in Chinese Medical Universities. Participants completed the task after receiving precise instructions to standardize the test administration procedures. They were informed about the study's objectives, confidentiality, and the anonymity of the collected data. Informed consent was sought prior to the administration of the study, by answering the first two questions. After providing informed consent, all participants completed the questionnaires. To avoid bias and repeated participation, individuals who did not provide personal data, did not complete the consent form, or submitted multiple responses were removed from the database (response rate = 97 %).

### 3.2. Instruments

The following instruments were used to assess the study variables:

**Job Stress:** The Perceived Stress Scale has been used for assessing this variable (Cohen et al., 1994). The Perceived Stress Scale is the most widely used tool for measuring stress and it consist in ten items that are focused in stress as a general phenomenon. In the present study we adapted the redaction of some items to focus more on stress at work. Examples of items were: In the last month, how often have you been angered because of things (at work) that happened that were outside of your control? The scale has been validated for Chinese populations of different occupational sectors [51,52], and showed adequate psychometric properties [53]. In this study, the Cronbach's alpha is 0.85, the same as in the original scale.

**Readiness to Change:** This variable was evaluated using the Belief in Change Scale [54], developed based on the original proposals from Alas, Vadi [55] consisting of four items that assess individuals' inclination to embrace or move towards change. The scale includes items that consists of two topics: how necessary the changes are for the organization and how the planned reforms influence the performance of the organization. In the individual part, the respondents are asked about how Medical teachers personally were included in the implementation of the changes and about individuals' benefits from these changes. The response range oscillated between 1 (*Never*) and 5 (*Always*). The Cronbach's alpha was 0.82.

**Flourishing:** was assessed using the Flourishing Scale developed by Diener et al. [56]. It is a self-report measure consisting of eight items that evaluate individuals' perceived success in important areas of their lives, such as relationships, self-esteem, purpose, and optimism. The response options are on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Examples of questions include "My social relationships provide me with support and fulfillment," "I am competent and capable in activities that are important to me," and "I feel engaged and interested in my daily activities." The instrument demonstrated good reliability ( $\alpha = 0.85$ ).

**Personality Traits Extraversion and Neuroticism:** these variables have been assessed with the Ten-Item Personality Inventory (TIPI), a brief instrument of the Big Five personality traits, using the Chinese version (TIPI-C), that was validated with a large sample of medical college students [57]. The TIPI's dimensions for assessment of Extraversion and Neuroticism are comprised of two items each one, scored from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). One item should be reverse-coded in each dimension. The findings suggested the TIPI-C as suitable for time-limited research.

Demographic information as age (number of years), seniority in the Medical teachers' position (number of years), and gender (binary option: male, female) have been asked.

### 3.3. Data analysis

Descriptive statistics were computed for all scales, and the Pearson's correlation matrix was analyzed. Data from single sources, such as questionnaire surveys, may be subject to common method bias [58]. To enhance clarity and comprehension for respondents, we conducted a back-translation process between Chinese and English, implemented expert recommendations for modifications, and pretested the questionnaire. To mitigate common method bias, we guaranteed respondent anonymity and emphasized that responses were not confined to "yes" or "no," thereby encouraging participants to express their thoughts freely [59]. Moreover, this survey was distributed to potential respondents using a web-based survey which displays the scales for the different variables along different web-pages. By this procedure we avoid the location of the items in close proximity to one another.

Data were analyzed using SPSS 24 and PROCESS 4.2 macro [60] has been used for examining Moderated mediation. We tested the mediational where Readiness to Change mediated the link between Job Stress and Medical Teachers' Flourishing, using Model 16 to test the moderated mediation, with Extraversion, and Neuroticism moderating effect in the relationships between Readiness to Change and Flourishing. Finally, the PROCESS Model n° 16 included the Highest order moderating role combining both Extraversion and Neuroticism levels. Both the mediation hypotheses and the moderated mediation hypotheses are supported when zero is not included in the 95 % bias-corrected confidence interval, and it may be concluded that the parameter is significantly different from zero at  $p < 0.05$ . Moreover, regarding moderated mediation, it was expected that the mediation process varies in line with the different values taken by the moderating variables. This procedure was based on 5000 bootstrap re-samples and provided a moderated mediation index, as well as estimates of the indirect effect and associated confidence intervals conditional on the specific levels of the moderators,



categorized as mean and  $\pm$ SD from the mean.

## 4. Results

### 4.1. Descriptive and correlational analysis

In Table 1, a Pearson's correlation matrix is presented, delineating the relationships between five variables. A significant negative correlation is observed between Job Stress and Readiness to Change, Flourishing, and Extraversion. The correlation between Job Stress and Neuroticism is not statistically significant, indicating a negligible linear relationship between these two variables in the sample. Conversely, Readiness to Change exhibits a positive correlation with Flourishing and Extraversion, while there is a significant negative correlation between Readiness to Change and Neuroticism. Flourishing also shows a positive correlation with Extraversion and it is negatively correlated with Neuroticism.

### 4.2. Mediation analysis

The analysis shows that Job Stress (X) significantly predicts Readiness to Change (M), with the model explaining approximately 14.37% of the variance ( $R^2 = 0.1437$ ). The negative coefficient for Job Stress ( $\beta = -0.2792$ ,  $p < 0.0001$ ) suggests that higher levels of job stress are associated with a lower Readiness to change. Moving to Flourishing (Y), the model's robustness increases ( $R^2 = 0.4256$ ), indicating that Job Stress (X), including the mediator, explains a significant portion of Flourishing's variance. Here, Job Stress has a direct, negative effect on Flourishing ( $\beta = -0.1623$ ,  $p < 0.0001$ ), supporting Hypothesis 1. Additionally, the positive coefficient of Readiness to Change (M) ( $\beta = 0.5919$ ,  $p < 0.0001$ ) demonstrates its beneficial impact on Flourishing (Y), supporting Hypothesis 2. These results suggest that Job Stress detrimentally affects employee well-being not only directly but also indirectly by diminishing their readiness to change. The mediation effect indicates that part of the reason why Job Stress decreased Medical Teachers' Flourishing is because it reduces an individual's readiness to adapt or change, which is in turn crucial for their sense of Flourishing.

### 4.3. Moderated mediation analyses

First, in testing Hypothesis 3, the study examines how Extraversion (W) moderates the effect of Readiness to Change (M) on Flourishing (Y) in the context of Job Stress (X). This analysis assesses whether the strength or direction of the relationship between Readiness to Change and Flourishing varies depending on the level of Extraversion (W). There is a significant interaction between Readiness to Change and Extraversion in predicting Flourishing ( $\beta = -0.0730$ ,  $p = 0.0300$ ). This suggests that the positive impact of Readiness to Change on Flourishing differs based on the levels of Extraversion, providing partial support to the third hypothesis.

Second, we tested the role of Neuroticism (Z) in moderating the effect of Readiness to Change (M) on Flourishing (Y) in the context of Job Stress (X). The interaction between Readiness to Change and Neuroticism is not statistically significant in predicting Flourishing ( $\beta = -0.0146$ ,  $p = 0.5794$ ), failing to fully support Hypothesis 3. In summary, the moderation analysis reveals that Extraversion does play a role in influencing how Readiness to Change (M) impacts Flourishing under Job Stress, while Neuroticism does not have a significant moderating effect. Hence, the indices of partial moderated mediation were statistically significant for Extraversion ( $b = 0.0204$ ;  $\text{BootSE} = 0.0091$ ;  $\text{BootLLCI} = 0.0024$ ;  $\text{BootULCI} = 0.0387$ ), but not for Neuroticism ( $b = 0.0041$ ;  $\text{BootSE} = 0.0076$ ;  $\text{BootLLCI} = -0.0114$ ;  $\text{BootULCI} = 0.0190$ ), given that the interval contains zero [61].

In testing Hypotheses 4a and 4b, Model 16 conducted a test of the highest order unconditional interactions, which examines the combined and individual moderating effects of Extraversion (W) and Neuroticism (Z) on the relationship between Readiness to Change (M) and Flourishing. As mentioned above, the interaction between Readiness to Change and Extraversion results in a statistically significant, albeit modest, change in the explained variance of Flourishing ( $\Delta R^2 = 0.0055$ ,  $p = 0.0300$ ). But, the interaction between Readiness to Change and Neuroticism, however, does not significantly contribute to the prediction of Flourishing ( $\Delta R^2 = 0.0004$ ,  $p = 0.5794$ ).

The values of the unstandardized estimates are shown in Fig. 2.

When considering both interactions together (MW and MZ), the change in explained variance in Flourishing is still relatively small ( $\Delta R^2 = 0.0057$ ), and the combined effect is only marginally statistically significant ( $p = 0.0874$ ). This suggests that the combined moderating effect of Extraversion and Neuroticism on the mediation pathway from Job Stress to Flourishing through Readiness to Change does not add substantially more explanatory power than considering the moderators separately, failing to support both

**Table 1**  
Pearson's correlation matrix (N = 500).

Variables	Mean	S. D.	Job Stress	Readiness to Change	Flourishing	Extraversion
Job Stress	2.44	0.92	1			
Readiness to Change	3.68	0.68	-0.379**	1		
Flourishing	4.08	0.58	-0.457**	0.548**	1	
Extraversion	3.34	0.76	-0.244**	0.295**	0.373**	1
Neuroticism	2.53	1.01	0.086	-0.178**	-0.198**	0.056

Note: \* $p < .05$ ; \*\* $p < .01$ .

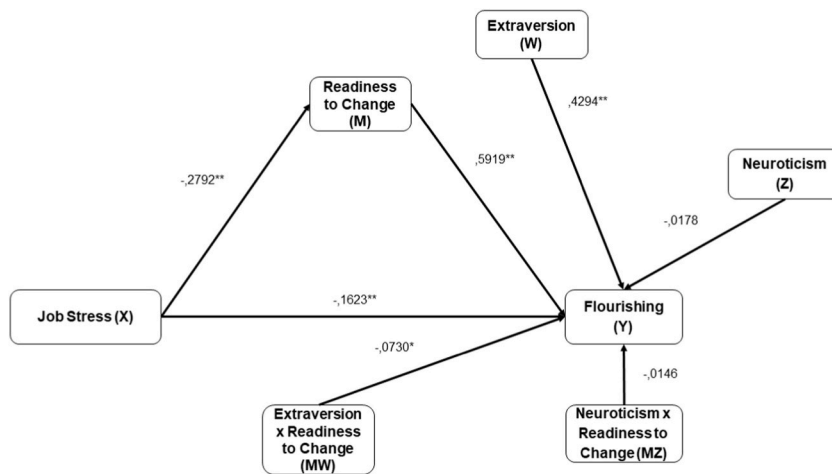


Fig. 2. Unstandardized estimates of the statistical model. Note: \* $p < 0.05$ ; \*\* $p < 0.001$ .

Hypotheses 4a and 4b. The values for the conditional effects at the different levels of the moderators are displayed in Table 2 and Table 3.

5. Discussion

The main aim of this study was to provide an understanding of the interplay between job stress, personality traits, and flourishing among Chinese medical teachers, considering the mediating role of Readiness to Change. Our findings about the direct effect of Job stress that negatively impact on Medical Teachers’ wellbeing agrees with previous studies. Rehman, Qingren [62] discussed the moderating effect of positive personality traits on the relationship between occupational stress and performance outcomes. This highlights the role of positive psychological traits in mitigating negative occupational outcomes.

The mediational analysis in our study illuminates the complex interplay between job stress, readiness to change, and flourishing among educators. Our findings suggest that job stress not only has a direct negative impact on flourishing but also diminishes educators’ readiness to change, which is an essential mediator in this relationship. This aligns with Lazarus and Folkman’s stress-vulnerability model [63], which posits that stress reduces an individual’s capacity to adapt to changes, crucial for maintaining psychological well-being and effectiveness in the workplace.

In the context of educational settings, where reforms and curricular changes are frequent, readiness to change is particularly salient. Educators who exhibit a higher readiness to change are better equipped to manage these frequent shifts, which in turn enhances their sense of flourishing. This is in stark contrast to findings in other sectors, such as those reported by Apergis [64], where a propensity for risk-taking—often equated with readiness for change—correlates with higher earnings and life satisfaction. Our results suggest that in educational settings, the stress associated with continual adaptation demands may suppress this potential benefit.

Furthermore, the moderated mediation analyses revealed that extraversion plays a dual role in this framework. While generally promoting resilience and a positive affect—as noted within the positive psychology framework by Seligman and Csikszentmihalyi [28]—extraversion also slightly diminishes the positive impact of readiness to change on flourishing among educators. This could be attributed to the possibility that more extraverted educators already possess higher baseline levels of flourishing, thus the additional benefits of increased readiness to change are less pronounced. This insight is crucial for educational leaders and policymakers as it suggests that interventions aimed at enhancing flourishing through fostering readiness to change might need to be tailored differently for educators based on their personality traits.

These findings contribute significantly to our understanding of how educational professionals cope with the inherent stresses of their roles and highlight the need for supportive policies that enhance educators’ ability to adapt to change. Recognizing the unique pressures faced by this sector, educational institutions could benefit from implementing targeted strategies that not only address job stress but also actively cultivate an environment that supports change readiness and promotes overall well-being.

In the current study, neuroticism did not emerge as a significant moderator in the relationship between readiness to change and

Table 2  
Conditional effects of the focal predictor Readiness to Change (M) at values of the moderators Extraversion and Neuroticism.

Extraversion	Neuroticism	Effect	se	t	p	LLCI	ULCI
Mean -1SD	Mean -1SD	0.3808	0.0500	7.6175	0.0000	0.2826	0.4790
Mean -1SD	Mean +1SD	0.3513	0.0458	7.6692	0.0000	0.2613	0.4413
Mean +1SD	Mean -1SD	0.2698	0.0517	5.2150	0.0000	0.1682	0.3715
Mean +1SD	Mean +1SD	0.2403	0.0516	4.6565	0.0000	0.1389	0.3417

**Table 3**  
Conditional indirect effects of X on Y: Job Stress -> Readiness to Change- > Flourishing.

Extraversion	Neuroticism	Effect	BootSE	BootLLCI	BootULCI
Mean -1SD	Mean -1SD	-0.1063	0.0196	-0.1467	-0.0700
Mean -1SD	Mean +1SD	-0.0981	0.0179	-0.1333	-0.0635
Mean +1SD	Mean -1SD	-0.0753	0.0160	-0.1092	-0.0461
Mean +1SD	Mean +1SD	-0.0671	0.0171	-0.1030	-0.0359

flourishing among educators facing job stress. This finding is intriguing, as it deviates from the often-reported negative impact of neuroticism on workplace outcomes [65]. Our results suggest that in the context of educational settings, the influence of neuroticism on the efficacy of readiness to change in promoting flourishing is minimal. This implies that regardless of an individual's level of neuroticism, the benefits of readiness to change on flourishing are relatively uniform, which may be attributed to the specific demands and structure of educational environments that differ from those in corporate or clinical settings.

Further exploring the role of personality traits, our study aligns with the broader discourse on the predictive validity of these traits across various domains. For instance, McAbee and Oswald [66] emphasized that among different personality traits, conscientiousness exhibits the strongest correlation with academic success, a finding particularly relevant to the educational sector. This underscores the potential for conscientiousness to significantly influence educational outcomes, possibly through its impact on organizational and pedagogical practices.

Additionally, the study by Sulaiman, Shin [67] offers a nuanced view of the relationship between personality traits and professional behavior, noting that while traits like agreeableness and emotional stability are linked to lower internet addiction, they do not mediate the relationship with job satisfaction. This suggests that certain personality traits may predispose individuals to specific behaviors, such as internet addiction, but these traits might not have a straightforward impact on other critical outcomes like job satisfaction. Within the educational context, this observation could guide the development of targeted interventions that address specific behaviors linked to personality traits without assuming these traits uniformly influence all facets of professional life.

Collectively, these findings highlight the complexity of the interplay between personality traits, readiness to change, and flourishing in the educational sector. They suggest a need for nuanced strategies that consider individual differences in personality when designing and implementing changes aimed at enhancing educator well-being and effectiveness. This approach could lead to more tailored and therefore more effective interventions in educational settings.

Moreover, the highest order moderation analysis, incorporating both extraversion and neuroticism, did not significantly enhance the explanatory power of the model. This finding indicates that while individual personality traits can influence the stress-flourishing relationship, their combined effects do not substantially augment the understanding of this dynamic. This result is somewhat surprising, given the hypothesized compound influence of multiple personality traits on psychological outcomes [37]. Overall, this aspect of our findings encourages a reevaluation of how personality traits are considered in developing organizational policies and practices in educational contexts. It suggests a shift towards simpler, trait-specific approaches that could be more directly aligned with individual needs, potentially leading to more effective and efficient strategies for enhancing educator well-being and productivity.

### 5.1. Limitations of the present study

The methodology of the present study presents some limitations that are crucial for the interpretation of our findings. Firstly, the specificity of the sample, consisting solely of professionals in Chinese medical education, restricts the broader applicability of the results. The unique cultural, educational, and professional context of this group means that extrapolating these findings to other populations [68], both within and outside of China, might lead to inaccuracies [69].

In terms of the instruments used, modifications made to the Perceived Stress Scale to focus more on job-related stress raise concerns about the potential impact on the tool's established psychometric properties. While such adaptations aim to enhance relevance to the study's context, they could alter the instrument's validity. Additionally, the use of the Ten-Item Personality Inventory (TIPI) for assessing complex personality traits such as extraversion and neuroticism might not capture the full spectrum of these traits due to its brevity [70].

From a statistical standpoint, the bootstrap resampling method employed for moderated mediation indices relies on assumptions that may not always accurately represent the underlying population. The method's treatment of moderator levels, categorizing them around the mean and standard deviations, potentially oversimplifies the intricate nature of personality traits and their interactions.

The study's approach to data collection and participant privacy also warrants scrutiny. The use of online platforms and social networks for distributing the questionnaire, while practical, might have introduced a selection bias. Participants who are more active or engaged in these networks could be overrepresented, possibly skewing the results. Additionally, despite assurances of anonymity and confidentiality, the digital nature of data collection poses inherent challenges to privacy and data security [71].

These limitations underscore the need for a cautious approach in interpreting the study's results. They highlight the importance of considering the specific context and methods employed in the research and suggest avenues for future studies to build upon and address these gaps [72].

Suggestions for HR management policies in Medical education institutions and for theoretical developments.

The present result has significant implications for organizational management within educational settings. It suggests that while it is essential to consider individual personality traits when developing interventions to enhance educator well-being and manage job



stress, the interplay of multiple traits may not be as critical in predicting outcomes as previously thought. This challenges some prevailing assumptions in organizational psychology and underscores the need for a more nuanced understanding of how personality traits influence resilience and coping mechanisms like readiness to change in the face of job stress.

Given this insight, educational administrators and policymakers should focus on targeted strategies that address specific personality traits rather than assuming complex interactions between traits. This could lead to more straightforward and cost-effective interventions aimed at promoting flourishing and managing stress among educators. For example, interventions could be tailored to enhance the resilience of individuals with high extraversion, while supporting those high in neuroticism through stress management programs, without necessarily combining these approaches based on an assumption of their interdependent effects.

The findings of this study also point to potential avenues for enhancing existing theoretical frameworks related to job stress, personality, and readiness for change in educational settings. One area for further theoretical development is the exploration of additional individual difference variables that may moderate the relationships observed in this study. While personality traits like extraversion and neuroticism were examined, other factors such as self-efficacy, coping styles, or resilience could potentially play a role in how educators experience and respond to job stressors and organizational changes [73]. Incorporating these variables into theoretical models could provide a more comprehensive understanding of the complex interplay between personal characteristics and workplace outcomes.

Additionally, the minimal moderating effect of neuroticism found in this study raises questions about the applicability of existing theories on the negative impact of neuroticism in educational contexts. Future research could explore developing context-specific theoretical models that account for the unique demands and dynamics of the educational sector, which may influence the manifestation and consequences of personality traits like neuroticism. Such tailored theoretical frameworks could enhance the predictive validity and practical utility of models in guiding interventions and policies within educational institutions.

Furthermore, as organizational changes and curricular reforms become increasingly frequent in educational systems, there is an opportunity to refine theories related to change readiness and its antecedents. Investigating factors that shape educators' openness to change, such as mentoring programs [74], leadership styles [75], organizational culture, or the nature and pace of changes introduced, could inform the development of more robust theoretical models specifically tailored to the educational domain. These enhanced theories could then guide more effective change management strategies, ultimately fostering a culture of continuous improvement and adaptation within educational institutions.

## 6. Conclusion

The findings of the current study have practical implications for workplace interventions in high-stress environments like medical teaching. Tailored strategies that consider individual differences in extraversion could be more effective. For example, interventions to enhance flourishing in the workplace might focus on fostering adaptability and resilience, especially for less extraverted individuals who might not naturally buffer the stress-flourishing relationship as effectively [76].

However, these results should be interpreted in the context of the study's limitations. The modest changes in explained variance, particularly in the higher-order moderation models, suggest that other unmeasured variables might play a role in this relationship. Future research could explore additional personality dimensions, environmental factors, or cultural influences that might further clarify these complex dynamics [77].

In conclusion, this study underscores the importance of individual personality traits in moderating the impact of job stress on flourishing, highlighting the role of extraversion and, to a lesser extent, neuroticism. This contributes to a deeper understanding of how personal attributes can influence psychological outcomes in stressful work environments. Given the uniqueness of the present study's focus, it's possible that the specific interaction of extraversion and neuroticism with readiness to change and flourishing, particularly in the context of Chinese medical teachers, is an area that has not been extensively explored in existing literature. This gap highlights the innovative nature of the present research and underscores the contribution it could make to the field.

## Ethics statement

The present study was approved by the Human Research Ethics Committee of Henan University of Chinese Medicine, with the approval number 01-03-2023. And all participants provided informed consent to participate in the study.

## Data availability statement

Data will be made available on request.

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## CRedit authorship contribution statement

**Sun Yan:** Writing – review & editing, Writing – original draft, Visualization, Validation, Conceptualization. **Lubao Ping:** Writing – review & editing, Writing – original draft, Conceptualization. **Xiaodong Feng:** Writing – review & editing, Writing – original draft, Conceptualization. **Xiaoqin Jin:** Writing – review & editing, Writing – original draft, Conceptualization.

## Declaration of competing interest

None.

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