

The Effects of Job Demands and Work Engagement on the Well-Being of Chinese College Teachers: A Work–Life Balance Perspective

Changwu Wei¹

¹Dhurakij Pundit University, Bangkok, Thailand; Chw.wei@163.com

Correspondence: Changwu Wei, Dhurakij Pundit University, Bangkok, Thailand. E-mail: Chw.wei@163.com

Received: April 9, 2023

Accepted: April 23, 2023

Online Published: April 25, 2023

doi:10.5430/ijhe.v12n2p60

URL: <https://doi.org/10.5430/ijhe.v12n2p60>

Abstract

The study explored the relationship among job demands, work engagement, work–life balance, and the well-being of Chinese college teachers. A snowball sampling method was used to distribute online questionnaires through the Questionnaire Star platform. The valid subjects were 586 university teachers—367 females (62.6%) and 219 males (37.4%). The structural equation model indicated that work–life balance was a positive factor in promoting well-being while job demands negatively affected work–life balance and work engagement positively affected work–life balance. Colleges, therefore, should maintain and promote the work–life balance of college teachers through practical job design, providing college teachers with appropriate job demands and taking incentive measures to enhance college teachers' work engagement. This study enriched the research on applying the work–life balance model among college teachers and understanding the interrelationship among job demands, work engagement, work–life balance, and well-being of current college teachers in China as well as provided empirical support for maintaining and promoting the well-being of college teachers.

Keywords: job demands, work–life balance, work engagement, well-being, college teachers

1. Introduction

College teachers' well-being (WB) is significant in ensuring higher education quality and sustainable development (Jiang & Tanaka, 2022; Rahm & Heise, 2019; Xin et al., 2021). WB refers to one's positive psychological experience of happiness and joy when their needs are met and expectations are fulfilled in realistic circumstances (Diener, 1984; Ryff, 1989; Waterman, 1993). However, college teachers experience lower levels of WB than employees in other professions (Grenville-Cleave & Boniwell, 2012) because they generally face higher job demands (McKee et al., 2021; Stelmokienė et al., 2019), and excessive job demands can lead to emotional exhaustion (Klusmann et al., 2023), which thus diminishes WB (Teles et al., 2020). More specifically, Chinese college teachers have a great mission and high expectations and are thus under tremendous pressure, with high job demands from teaching, research, and social service (Cao et al., 2020; Han et al., 2020a). Furthermore, the stress caused by these job demands may lead to mental health problems (Akbari & Hossaini, 2018), thereby further endangering the WB of Chinese college teachers. Therefore, it is necessary to explore the factors linked to the WB of Chinese college teachers and discover ways to enhance WB.

The work–life balance (WLB) model (Sirgy & Lee, 2017) suggests that WLB contributes to WB. At the same time, WLB is influenced by individual factors (e.g., work engagement) and organizational factors (e.g., job demands). WLB refers to engagement in work and life roles and minimal conflict between work and life roles (Sirgy & Lee, 2017). WLB enhances WB (Landolfi et al., 2021), while work–life imbalance decreases WB (Ono et al., 2020; Shui et al., 2020). WLB also contributes significantly to college teachers' WB (Franco et al., 2021). Time pressure caused by the interweaving of work and life roles, reduction of leisure and free time, accumulation of negative emotions, and increased job demands results in work–life imbalance among college teachers, which harms their WB (Smith et al., 2020), while WLB has a positive effect on the WB of college teachers (Lin et al., 2020), or, more precisely, those college teachers with WLB experience WB (Kirby et al., 2023). Therefore, it is necessary to explore the effect of WLB on the WB of college teachers in China.

It is difficult for college teachers to achieve WLB because job demands (JD) from teaching, research, and service increase stress in their family, job adaptation, and work performance (Azevedo et al., 2020). JD refers to the physical,

psychological, social, or organizational demands that require sustained physical or psychological effort or skill and is associated with particular physical and psychological exertion (Demerouti et al., 2001). Teachers in higher education generally have moderate or high JD (Liu et al., 2021; McKee et al., 2021; Messmann et al., 2017). Increasing JD (Garraio et al., 2022; Rotenberg & Carlos, 2018) negatively predicts WLB, possibly because the JD of long working hours among college teachers causes a high number of intrusive work-related thoughts, decreases their exercise activities, and distorts their perception of WLB—all of which serve to negatively affect the WB of college teachers (Fetherston et al., 2021). In contrast, WLB among college teachers helps them overcome the difficulties associated with JD (Love et al., 2022) and thus enhances their WB. Therefore, the relationship among JD, WLB, and WB is worth exploring.

In addition, studies have shown that high levels of work engagement (WEN) are typical among college teachers (Bi & Ye, 2021; Liu, 2020), most likely because college teachers' WEN is based on the satisfaction of survival, pleasure, and achievement (Jennifer, 2004), and, moreover, college teaching is a highly ethically conscious profession with interpersonal exchange and interaction of ideas, knowledge, and emotions, which generally brings great joy and fulfillment (Yan, 2018). WEN refers to a working state of energy and concentration with a willingness to dedicate oneself to one's work (Schaufeli et al., 2002). WEN of college teachers has a positive effect on WLB (Abdulaziz et al., 2022; Innstrand & Grødal, 2022; Znidarsic & Maric, 2021), thereby enhancing the WB of college teachers (Fute et al., 2022); in particular, dedication and concentration in WEN have a more positive effect on the WB of college teachers (Guo et al., 2022). Therefore, the relationship among WEN, WLB, and WB in higher education deserves attention.

In summary, the WB of college teachers can be explored from the perspective of WLB. However, studies have yet to be conducted to explore the factors affecting the WB of college teachers from the perspective of WLB. This study intends to fill this research gap by using the WLB model as a basis and Chinese college teachers as the research object to explore the effects of job requirements and WEN on WLB as well as to explore the effects of WLB on the WB of Chinese college teachers.

2. Research Model and Hypothesis

2.1 Research Model

The WLB model assumes that individual factors (e.g., WEN) and organizational factors (e.g., JD) impact WLB, leading to work-related and non-work-related stress (Sirgy & Lee, 2017). Various factors influence WLB as well as the outcomes resulting from WLB, making it difficult to examine all variables in one study, so it is reasonable to simplify the WLB model according to the research purpose (Sirgy et al., 2018). This study selected JD and WEN as contributing factors to the WLB of Chinese college teachers and WB as the outcome resulting from WLB; as such, the framework of this study is shown in Figure 1:

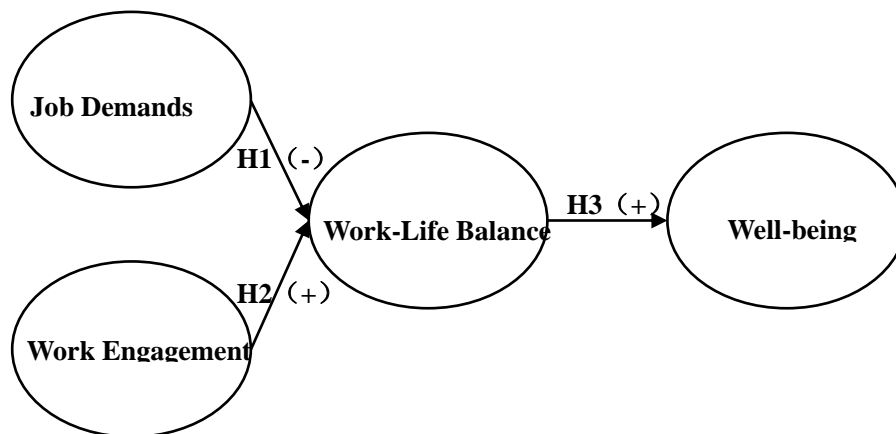


Figure 1. Research Framework

2.2 JD and WLB

Because JD can lead to work stress, numerous studies have shown that JD is negatively associated with WLB (Aruldoss et al., 2022; Haar & Brougham, 2022; Ng et al., 2017). “Working around the clock,” “changing personal or family plans due to work,” and “working overtime” are the most detrimental to WLB (Lee et al., 2022). In other words, JD can lead to reduced family involvement and work–family conflict, thereby decreasing WLB (Mohamad & Despois, 2022); Lack of time under the increased pressure of JD is not conducive to employees' WLB (Rotenberg & Carlos, 2018); and those groups who are often overloaded with work have the most difficulty in achieving WLB (Love et al., 2022). It can be challenging to balance the multiple roles regarding work, family, and friends because of the many different tasks that work entails (Houlfort et al., 2019), but a proper allocation of time among work, family, and other roles can promote WLB (Branch et al., 2021). Based on the literature, the hypothesis is as follows:

H1: JD of Chinese college teachers is negatively associated with WLB.

2.3 WEN and WLB

WEN positively affects WLB (Inggamara et al., 2022; Jaharuddin & Zainol, 2019). More specifically, studies have shown the following: The dimensions of WEN, precisely vigour, dedication, and absorption, are positively related to WLB and negatively related to work–life imbalance (Innstrand & Grødal, 2022); the vigour and dedication dimensions of WEN are positively related to WLB (Pace & Sciotto, 2021); WEN is positively correlated with WLB resulting from work–family enhancement and family–work enhancement (Ebrahimi, 2021); WEN is negatively related to the work–life imbalance caused by work–family conflict (Vu, 2020); and WEN is positively correlated with WLB because of Family-to-Work Positive Spillover (Fukuzaki et al., 2021). Therefore, the hypothesis is as follows:

H2: WEN is positively associated with WLB among Chinese college teachers.

2.4 WLB and WB

WLB is positively associated with work WB (Arar & Oneren, 2021), employee WB, workplace WB, life WB, and psychological WB (Nabawanuka & Ekmekcioglu, 2022), whereas work–life imbalance resulting from work–family conflict is negatively related to WB (Lin et al., 2020, Shui et al., 2020), particularly among female teachers aged 30–39, who have a higher risk of work–family conflict and work–life imbalance and thus experience lower WB (Ono et al., 2020). In addition, the overlap of work and life, time pressure, reduction of leisure time, and accumulation of negative emotions among college teachers all diminish WLB and negatively impact WB (Smith et al., 2020). On the contrary, WLB resulting from work–family and family–work promotion has a positive effect on WB (Lin et al., 2020). Based on the literature, the corresponding hypothesis is as follows:

H3: WLB is positively correlated with WB among Chinese college teachers.

2.5 JD, WEN, WLB, and WB

Studies have shown that JD has negative impacts on WB (Falatah & Alhalal, 2022; Zhou et al., 2022) and is negatively correlated with WLB (Aruldoss et al., 2022; Haar & Brougham, 2022), which is positively related to WB (Arar & Oneren, 2021; Nabawanuka & Ekmekcioglu, 2022). Therefore, it is reasonable to presume that WLB mediates the relationship between JD and WB. Recently, Tokdemir (2022) found that WLB decreases the negative effect of JD on WB, suggesting that WLB may affect the relationship between JD and WB. Therefore, the following hypothesis is proposed:

H4: WLB of Chinese college teachers plays a mediating role in the relationship between JD and WB.

In addition, studies have shown that WEN has a positive effect on WB (Ammupriya & Subrahmanyam, 2023; Andrulli & Gerards, 2023) and is positively correlated with WLB (Abdulaziz et al., 2022; Innstrand & Grødal, 2022), which is positively related to WB (Nabawanuka & Ekmekcioglu, 2022; Shui et al., 2020). From these studies, the following hypothesis is proposed:

H5: WLB plays a mediating role in the effect of WEN on WB among Chinese college teachers.

3. Method

3.1 Process and Participants

The study participants can be recruited effectively and efficiently through social media using snowball sampling (Leighton et al., 2017) under the risk of a pandemic, which increases the sample size and reduces the time to complete the test. Structural Equation Modeling (SEM) is used statistically to test hypotheses about the relationship between observed and potential variables (Hoyle, 1995). There is no standard for determining the appropriate sample

size for structural equations (Kim, 2005; Wolf et al., 2013). The rule is typically 5–10 times the number of observed variables (Bentler & Chou, 1987). The observed variables in this study were 36, which required a subject size of 180–360. Hair et al. (2012) stated that if the constructs are more than seven, the sample size should ideally be more significant than 500. The total number of constructs for the observed variables in this study was seven, so the sample size was 600.

In this study, 600 questionnaires were received through the Questionnaire Star platform. Fourteen subjects whose answers were too regular and whose answer time was fewer than 3 minutes were excluded, resulting in 586 valid subjects, with an effective rate of 97.6%. Among them, 219 (37.4%) were male, and 367 (62.6%) were female; the subjects came from 29 provinces in China (no participants in Qinghai, Tibet, Hong Kong, Macao, and Taiwan)—a sample size with wide, but uneven distribution among different regions: 269 (45.9%) in the western region, 228 (38.9%) in the eastern region, 73 (12.5%) in the central region, and 16 (2.7%) in Northeast China.

3.2 Measurement Instruments

The primary measurement instruments in this study included the Work–Life Balance Scale, the Job Demands Scale, the Work Engagement Scale, and the Well-Being Scale. The accuracy of the scale translation was ensured through back translation, and the content validity of the scales was then checked by three doctors majored in educational management. All instruments were measured on a 5-point scale, with 1 indicating strong disagreement and 5 indicating strong agreement.

WLB was measured by the Work–Non-Work Balance Scale (Wayne et al., 2021). The scale is a single dimension containing five items, with sample statements such as, “Overall, my work and non-work roles are in harmony.” The Cronbach’s alpha was 0.92.

JD was measured by the Job Content Questionnaire’s Job Demands Inventory (Karasek et al., 1998), which was adapted to a single dimension containing six items. Statements such as “I need to finish my work quickly” were included. The Cronbach’s alpha was 0.92.

WEN was assessed by the Utrecht Work Engagement Scale-Student (Schaufeli et al., 2002). It includes three subscales measuring the basic dimensions of WEN: vigour, dedication, and absorption. However, the correlations among the three dimensions were high, so WEN as a single dimension (Schaufeli et al., 2002). Therefore, this study adopted a scale of a single dimension to measure WEN. The Cronbach’s alpha coefficient was 0.93.

WB was measured by the Chinese College Well-being Scale-Short Version, revised by Wei & Ye (2022). This scale is a single dimension containing ten items (e.g., “I feel happy” and “I have a sense of accomplishment in my life”). The Cronbach’s alpha coefficient was 0.95.

3.3 Common Method Variance (CMV)

First, the standard method deviation was controlled beforehand using anonymous, unrestricted time and place and scrambled item ranking (Podsakoff et al., 2003). CMV could also be limited by using an online questionnaire to some extent (Tehseen et al., 2017). Next, the severity of the standard method deviation was tested (Podsakoff et al., 2003). Controlling for the Effects of an Unmeasured Latent Methods Factor (Tang & Wen, 2020), a method factor M of all observed variables will be added to the confirmatory factor analysis (CFA) model of trait factors to construct a CFA model containing M factor. Comparing the model with the trait factor model, a difference between the two in the fitting index CFI that is more significant than 0.05 indicates a serious CMV. In this study, the CFI difference between the two models was 0.007 (0.946-0.939), far from the standard of 0.05, so the CMV was not serious.

3.4 Reliability and Validity Analysis

3.4.1 Item Analysis

This study used First-Order Confirmatory Factor Analysis for item analysis. Hair et al. (2010) concluded that χ^2/df values should be less than 5, GFI and AGFI should be greater than 0.80, RMSEA should be less than 0.10, and items with factor loadings less than 0.5 should be deleted. According to these criteria, four items were retained in the WLB Scale (one item was excluded), five items were retained the Job Demand Scale (one item was excluded), seven items were retained in the WEN Scale (two items were excluded), and eight items were retained in the WB Scale (two were excluded). The model fit index in this study meets the criteria.

The Critical Ratio value was more significant than 3, indicating that the items had good discrimination (McIver & Carmines, 1981). The data in Table 1 show that all retained items’ Critical Ratio value was more significant than 13.69, indicating good discrimination of items (McIver & Carmines, 1981).

3.4.2 Reliability Analysis

The internal consistency coefficient (Cronbach's α) and the composite reliability (CR) were examined for reliability analysis. According to Hair et al. (2013), Cronbach's α value and CR value should be at least 0.70, indicating an acceptable internal consistency reliability. The data in Table 1 indicated that Cronbach's α and CR values were all greater than 0.90, indicating good reliability of the scales with retained items (Hair et al., 2013).

3.4.3 Convergence Validity Analysis

Factor Loading and Average Variance Extracted (AVE) Value for each dimension were used to determine the convergence validity of the scale. According to the convergent validity assessment criteria (Hair et al., 2013), a factor loading value of at least 0.50 for each question and an AVE value of at least 0.50 for each dimension indicate acceptable convergent validity of scales. Table 1 indicates that all factor loadings were more outstanding than 0.75 and AVE values were more significant than 0.65, indicating that the scales with retained items had good convergent validity (Hair et al., 2013).

Table 1. Reliability and Validity Analysis

Variables	α	CR	AVE	FL	M \pm SD	Max
Criteria	>0.70	>0.70	>0.50	>0.50	-	-
Work-Life Balance	0.92	0.91	0.73	0.83~0.88	3.11 \pm 1.02	5
Job Demands	0.92	0.92	0.70	0.80-0.87	3.10 \pm 1.01	5
Work Engagement	0.93	0.94	0.72	0.83-0.89	3.12 \pm 0.97	5
Well-Being	0.95	0.95	0.74	0.82~0.89	3.16 \pm 0.93	5

Note: FL (Factor Loading); CR (Composite Reliability); AVE (Average Variance Extracted Value)

3.4.4 Discriminant Validity Analysis

Discriminant validity is determined when the square root of AVE for a dimension is greater than the correlation coefficient between the dimension and the other dimensions (Fornell & Larcker, 1981). The data in Table 2 indicate that the correlation coefficients between the scales were less than the square root of the AVE of each scale, indicating good discriminant validity for the scales with retained items (Fornell & Larcker, 1981).

Table 2. Discriminant Validity Analysis

Variables	1	2	3	4
1. Work-Life Balance	0.85			
2. Job Demands	-0.68	0.83		
3. Work Engagement	0.71	-0.68	0.84	
4. Well-Being	0.74	-0.70	0.80	0.86

Note: The bold numbers on the diagonal line indicate the square root of the AVE, and the remaining values are the correlation coefficients between variables.

3.4.5 Fit Index Test of SEM

To indicate that the model fits the data acceptably, Hair et al. (2010) concluded that χ^2/df should be less than 5, PNFI and PGFI should be greater than 0.5, and Abedi et al. (2015) concluded that RMSEA should be less than 0.1 and GFI, AGFI, NFI, NNFI, CFI, IFI and RFI should be greater than 0.8. All the indicators reached the fit criteria, indicating a good fit for this SEM.

4. Results

The direct and indirect effects among JD, WEN, WLB, and WB among Chinese college teachers can be seen in Table 3 and Figure 2.

4.1 Direct Effects

The study results showed that the direct effects were significant for all paths and the research hypothesis regarding the direct effects was valid. Specifically, JD negatively predicted WLB ($\beta = -0.43$, $p < 0.001$); WEN positively predicted WLB ($\beta = 0.68$, $p < 0.001$); and WLB positively predicted WB ($\beta = 0.79$, $p < 0.001$).

4.2 Mediating Effects

In this study, a Bootstrapping Technique (Efron, 1992) was used with a replicate sample of 2000. The bootstrap method of bias correction percentage was used to test 95% confidence intervals, with confidence intervals not containing 0 indicating a significant mediating effect. The study’s results indicated that WLB mediated the effect of JD on WB ($\beta = -0.094$, 95% confidence interval $[-0.141, -0.051]$, excluding 0), with the mediating effect accounting for 28.65% of the total effect. In addition, the direct effect of job demands on WB ($\beta = -0.234$, 95% confidence interval $[0.3331, -0.138]$, excluding 0) was also significant after adding the mediating variable WLB, indicating that WLB partially mediated the effect of JD on WB; and WLB mediated the effect of WEN on WB ($\beta = 0.139$, 95% confidence interval $[0.083, 0.195]$, excluding 0), with the mediating effect accounting for 18.12% of the total effect. The direct effect of WEN on WB ($\beta = 0.628$, 95% confidence interval $[0.534, 0.719]$, excluding 0) was also significant after adding the mediating variable WLB, indicating that WLB had a partial mediating effect in the effect of WEN on WB, as shown in Table 3.

Table 3. Mediating Effects Analysis

Path	Standard Indirect Effect	95% confidence interval	
		Lower Bound	Upper Bound
JD→WLB→WB	-0.094	-0.141	-0.051
Direct Effect	-0.234	-0.331	-0.138
Total Effect	-0.328	-0.423	-0.235
Direct Effect / Direct Effect (%)	28.65%		
WEN→WLB→WB	0.139	0.083	0.195
Direct Effect	0.628	0.534	0.719
Total Effect	0.767	0.696	0.828
Direct Effect / Direct Effect (%)	18.12%		

Note: JD is job demands; WLB is work–life balance; WB is well-being; and WEN is work engagement.

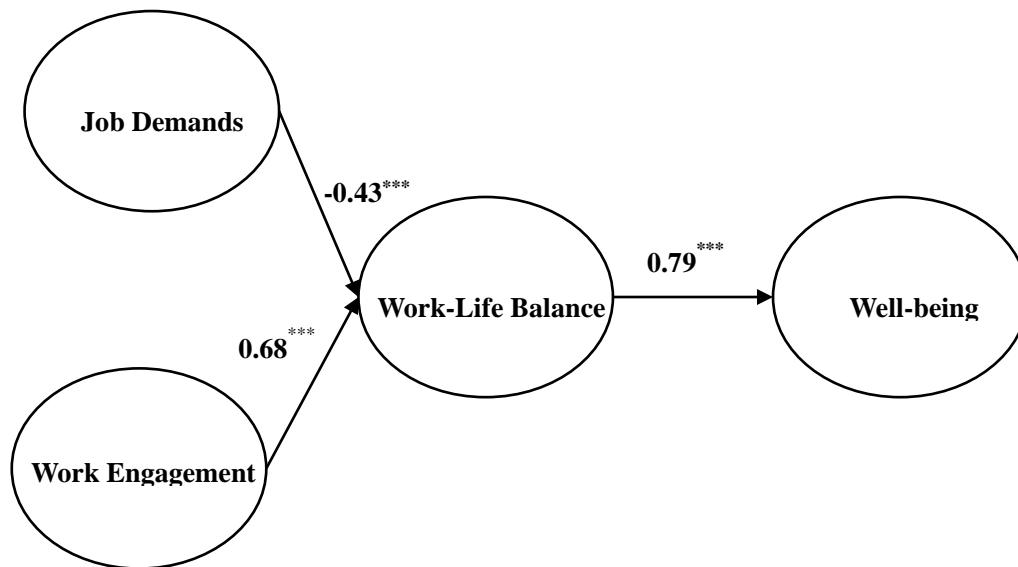


Figure 2. SEM of the Relationship Among Variables

5. Discussion

5.1 Discussion of Direct Effects

Further enriching previous related research findings, the present study found that among Chinese college teachers, JD negatively predicted WLB, WEN positively predicted WLB, and WLB positively predicted WB. JD can lead to work stress, which in turn affects WLB (Aruldoss et al., 2022), and the prominent JD of college teachers includes mainly research, teaching, and service demands, which put them under pressure in terms of tenure, family–work adaptation, and performance completion, thus making it challenging to achieve WLB (Azevedo et al., 2020; Love et al., 2022). College teaching is a highly ethically conscious profession (Yan, 2018), and their WEN level is generally above average (Gu et al., 2018), positively affecting WLB. This is consistent with the findings of studies among college teachers in Saudi Arabia (Abdulaziz et al., 2022), Norway (Innstrand & Grødal, 2022), and Austria (Znidarsic & Maric, 2021). It is also found that WLB positively impacts the WB of college teachers in Britain (Smith et al., 2020) and Pakistan (Haider & Dasti, 2022).

5.2 Discussion of Mediating Effects

This study also found that WLB among Chinese college teachers partially mediated the effect of JD on WB and the effect of WEN on WB. The results suggest that WLB can reduce the negative effect of JD on WB and increase the positive effect of WEN on WB. It has also been found that WLB can weaken the negative effect of work stress on WB (Tokdemir, 2022), consistent with the present study's findings among Chinese college teachers. However, the mechanism of the role of WLB in the effect of JD on WB has yet to be explored. Also, studies have found that WEN positively affects WB (Ammupriya & Subrahmanyam, 2023; Andrulli & Gerards, 2023) and WLB positively affects WB (Nabawanuka & Ekmekcioglu, 2022; Shui et al., 2020), but the mechanism of the role of WLB in the effect of WEN on WB has not been explored. Therefore, the present study fills a gap in the research on the mediating effects of WLB.

6. Conclusions and Recommendations

6.1 Conclusion

The results of this study supported the WLB model and found that JD of Chinese college teachers negatively predicted WLB, WEN positively predicted WLB, and WLB positively predicted WB. In addition, the findings of this study revealed that WLB has a partially mediating role in the effect of JD on WB and in the effect of WEN on WB. Furthermore, these results convey that WLB is an essential factor in maintaining and promoting Chinese college teachers' WB.

6.2 Management Recommendations

The results of this study, in line with those of other studies (Abdulaziz et al., 2022; Falatah & Alhalal, 2022; Innstrand & Grødal, 2022; Love et al., 2022), revealed that WLB is an essential factor in maintaining and promoting the WB of Chinese college teachers, and JD is one of the factors contributing to their work–life imbalance, while WEN is one of the factors in promoting their WLB. Therefore, it is necessary to arrange reasonable JD for Chinese college teachers and increase their WEN to maintain their WLB, thereby enhancing their WB. To be specific, on the one hand, it is suggested that higher institutions and college teachers should set appropriate goals for teaching, research, and professional titles, reasonably design and allocate work tasks, and ensure an appropriate workload to adjust JD to appropriate levels, thus reducing excessive work pressure; on the other hand, it is suggested that higher institutions should cultivate and motivate college teachers' enthusiasm for teaching and research through pre-service and in-service training to promote their WEN.

6.3 Contribution

The WLB model may be used in future studies to explore relationship among WLB's antecedents, consequences, and WLB (Sirgy & Lee, 2017). For example, Sirgy et al. (2018) applied the WLB model to the shopping domain and proposed a shopping–life balance model. Borgia et al. (2022) explored the relationship among knowledge risk, WLB, and work performance, using knowledge risk as an antecedent variable and work performance as an outcome variable. These studies validated the rationality of the WLB model, but few studies have verified the effectiveness of the WLB model among college teachers. The results of this study provide empirical support not only for the rationality of the WLB model (Sirgy & Lee, 2017) but also for applying the WLB model among college teachers. Applying these research findings may promote the WLB and enhance the WB of college teachers.

With the internal development and transformation of education in China, college teachers are facing significant challenges and pressures, with a high level of JD from teaching, research, and new challenges (Cao et al., 2020; Han

et al., 2020a), thereby making it difficult for them to achieve WLB (Lin et al., 2020) and experience WB (Akbari & Hossaini, 2018), which is not conducive to achieving higher education goals in China (Jiang & Tanaka, 2022; Xin et al., 2021). This study revealed characteristics of JD, WEN, WLB, and WB of Chinese college teachers and the relationships among them, which may help administrators and higher institutions deepen their understanding of the significance and urgency of promoting WLB and WB among Chinese college teachers. Furthermore, the results can help solve the problem of imbalance between work and life and the resulting low WB of Chinese college teachers, primarily through a practical design of work requirements and an appropriate increase of WEN.

6.4 Limitations and Suggestions for Future Research

Because of the limitations of the researchers' resources and the impact of the COVID-19 pandemic, the main limitations of this study are as follows:

First, the study sample needs to be more representative. Snowballing, as a non-probability sampling method, can collect sufficient target samples in an epidemic (Sharma, 2017), but the representativeness may need to be improved. Although the sample in this study involved 29 of the 31 provinces in China, the regional distribution was uneven, mainly concentrated in the western and eastern regions. Furthermore, it failed to balance gender, with nearly twice as many female subjects as male subjects. Field research studies can be conducted to increase sample representativeness, adopting stratified random sampling to balance the number of subjects by region, school type, and gender (Tyrer & Heyman, 2016).

Second, the quantitative findings have yet to be interpreted. The interview method can provide insight into the interviewees' explanations for the occurrence of certain phenomena and thus help disclose the reasons behind the quantitative findings (Chen, 2000). Therefore, the interview method can be used in the future to explore the impact of JD and job engagement on WLB, as well as the reasons and ways of the impact of WLB on WB among college teachers.

References

- Abdulaziz, A., Bashir, M., & Alfalih, A. A. (2022). The impact of work-life balance and work overload on teacher's organizational commitment: Do job engagement and perceived organizational support matter? *Education and Information Technologies*, 27(7), 9441-9463. <https://doi.org/10.1007/s10639-022-11013-8>
- Akbari, M., & Hossaini, S. M. (2018). The relationship of spiritual health with quality of life, mental health, and burnout: The mediating role of emotional regulation. *Iranian Journal of Psychiatry*, 13(1), 22–31. <http://eprints.bmsu.ac.ir/id/eprint/1467>
- Ammupriya, A., & Subrahmanyam, P. (2023). Enhancement of work engagement through HRIS adoption mediated by workplace well-being. *Brazilian Journal of Operations & Production Management*, 20(1), Article e20231499. <https://doi.org/10.14488/bjopm.1499.2023>
- Andrulli, R., & Gerards, R. (2023). How new ways of working during COVID-19 affect employee well-being via technostress, need for recovery, and work engagement. *Computers in Human Behavior*, 139, 12, Article 107560. <https://doi.org/10.1016/j.chb.2022.107560>
- Arar, T., & Oneren, M. (2021). Role of emotional intelligence and work-life balance in the relationship between workplace happiness and perceived performance in an academic setting. *Ege Academic Review*, 21(4), 391-406. <https://doi.org/10.21121/eab.1015653>
- Aruldoss, A., Kowalski, K. B., Travis, M. L., & Parayitam, S. (2022). The relationship between work-life balance and job satisfaction: Moderating role of training and development and work environment. *Journal of Advances in Management Research*, 19(2), 240-271. <https://doi.org/10.1108/jamr-01-2021-0002>
- Azevedo, L., Shi, W., Medina, P. S., & Bagwell, M. T. (2020). Examining junior faculty work-life balance in public affairs programs in the United States. *Journal of Public Affairs Education*, 17(8), 1-21. <https://doi.org/10.1080/15236803.2020.1788372>
- Bagozzi, R. P., & Yi, Y. (1990). Assessing method variance in multitrait-multimethod matrices: The case of self-reported effect and perceptions at work. *Journal of Applied Psychology*, 75(5), 547-560. <https://doi.org/10.1037/0021-9010.75.5.547>
- Bentler, P. M., & Chou, C. P. (1987). Practical Issues in Structural Modeling. *Sociological Methods & Research*, 16(1), 78–117. <https://doi.org/10.1177/0049124187016001004>

- Bi, Y., & Ye, X. (2021). The effect of trait mindfulness on teachers' emotional exhaustion: The chain mediating role of psychological capital and job engagement. *Healthcare (Switzerland)*, 9(11), Article e111527. <https://doi.org/10.3390/healthcare9111527>
- Borgia, M. S., Di Virgilio, F., La Torre, M., & Khan, M. A. (2022). Relationship between work-life balance and job performance moderated by knowledge risks: Are bank employees ready? *Sustainability*, 14(9), Article e14095416. <https://doi.org/10.3390/su14095416>
- Branch, J., Chapman, M., & Gomez, M. (2021). Investigating the interplay between institutional, spousal, parental, and personal demands in tenure track faculty everyday life. *Community Work & Family*, 24(2), 143–154. <https://doi.org/10.1080/13668803.2020.1727414>
- Cao, C., Shang, L., & Meng, Q. (2020). Applying the job demands-resources model to explore predictors of innovative teaching among university teachers. *Teaching and Teacher Education*, 89, Article e103009. <https://doi.org/10.1016/j.tate.2019.103009>
- Chen, X. (2000). *Qualitative and social science research methods*. Educational Science Press.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542–575. <https://psycnet.apa.org/doi/10.1037/0033-2909.95.3.542>
- Ebrahimi, E. (2021). Work-family enrichment as a silver lining of work-family interface in the academic society: Causes and consequences. *Iranian Journal of Management Studies*, 14(4), 777–798. <https://doi.org/10.22059/IJMS.2021.299877.674010>
- Falatah, R., & Alhalal, E. (2022). A structural equation model analysis of the association between work-related stress, burnout and job-related affective well-being among nurses in Saudi Arabia during the COVID-19 pandemic. *Journal of Nursing Management*, 30(4), 892-900. <https://doi.org/10.1111/jonm.13587>
- Fetherston, C., Fetherston, A., Batt, S., Sully, M., & Wei, R. (2021). Well-being and work-life merge in Australian and UK academics. *Studies in Higher Education*, 46(12), 2774–2788. <https://doi.org/10.1080/03075079.2020.1828326>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 382-388. <https://doi.org/10.2307/3151312>
- Franco, L. S., Picinin, C. T., Pilatti, L. A., & Franco, A. C. (2021). Work-life balance in higher education: A systematic review of the impact on the well-being of teachers. *Ensaio: Avaliação e Políticas Públicas em Educação*, 29(112), 691-717. <https://doi.org/10.1590/s0104-403620210002903021>
- Fukuzaki, T., Iwata, N., Ooba, S., Takeda, S., & Inoue, M. (2021). The effect of nurses' work-life balance on work engagement: The adjustment effect of affective commitment. *Yonago Acta Medica*, 64(3), 269-281. <https://doi.org/10.33160/yam.2021.08.005>
- Fute, A., Oubibi, M., Sun, B. H., Zhou, Y. L., & Xiao, W. L. (2022). Work values predict job satisfaction among Chinese teachers during COVID-19: The mediation role of work engagement. *Sustainability*, 14(3), Article e14031353. <https://doi.org/10.3390/su14031353>
- Garraio, C., Freitas, J. P., Magalhaes, S. I., & Matias, M. (2022). Work-life conflict among higher education institution workers during COVID-19: A demands-resources approach. *Frontiers in Sociology*, 7(11), Article e856613. <https://doi.org/10.3389/fsoc.2022.856613>
- Grenville-Cleave, B., & Boniwell, I. (2012). Surviving or thriving? Do teachers have lower perceived control and well-being than other professions? *Management in Education*, 26(1), 3–5. <https://doi.org/10.1177/0892020611429252>
- Gu, J.H., Jiang, X.H., Ding, S.Q., Xie, L.X., & Huang, B. (2018). Career mission-driven work engagement: Transcendence and reinforcement of work and personal resource effects. *Nankai Management Review*, 21(2), 107-120. <https://doi.org/CNKI:SUN:LKGP.0.2018-02-012>
- Guo, J., Qiu, Y. J., & Gan, Y. T. (2022). Workplace incivility and work engagement: The mediating chain effects of perceived insider status, affective organizational commitment, and organizational identification. *Current Psychology*, 41(4), 1809-1820. <https://doi.org/10.1007/s12144-020-00699-z>

- Haar, J., & Brougham, D. (2022). Work antecedents and consequences of work-life balance: A two-sample study within New Zealand. *International Journal of Human Resource Management*, 33(4), 784–807. <https://doi.org/10.1080/09585192.2020.1751238>
- Haider, Z., & Dasti, R. (2022). Mentoring, research self-efficacy, work-life balance and psychological well-being of doctoral program students. *International Journal of Mentoring and Coaching in Education*, 11(2), 170–182. <https://doi.org/10.1108/ijmce-07-2020-0036>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis (7th ed.)*. Pearson Prentice Hall.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2012). *Multivariate data analysis (6th ed.)*. Pearson.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M. (2013). *A Primer on partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications, Inc.
- Han, J., Yin, H., & Wang, J. (2020). Examining the relationships between job characteristics, emotional regulation, and university teachers' well-being: The mediation of emotional regulation. *Frontiers in Psychology*, 11, Article e01727. <https://doi.org/10.3389/fpsyg.2020.01727>
- Houliort, N., Lefrançois, M., Bernstein, S., Messing, K., Gravel, A.-R., & Blanchette-Luong, V. (2019). Bridging between academia and the workplace: Lessons learned about translational research on work-family balance. *Community, Work & Family*, 22(4), 465–477. <https://doi.org/10.1080/13668803.2019.1629877>
- Hoyle, R. H. (1995). The structural equation modeling approach: basic concepts and fundamental issues. In R.H. Hoyle (ed.), *Structural equation modeling: concepts, issues, and applications* (pp. 1–15). Sage Publications.
- Inggamara, A., Pierewan, A. C., & Ayriza, Y. (2022). Work-life balance and social support: The influence on work engagement in the Sixth European Working Conditions Survey. *Journal of Employment Counseling*, 59(1), 17–26. <https://doi.org/10.1002/joec.12175>
- Innstrand, S. T., & Grodal, K. (2022). Antecedents and consequences of perceived inclusion in academia. *International Journal of Environmental Research and Public Health*, 19(1), Article e19010431. <https://doi.org/10.3390/ijerph19010431>
- Jaharuddin, N. S., & Zainol, L. N. (2019). The impact of work-life balance on job engagement and turnover intention. *South East Asian Journal of Management*, 13(1), 106–117. <https://doi.org/10.21002/seam.v13i1.10912>
- Jennifer A. L. (2004). Pathways to the professoriate: The role of self, others, and environment in shaping academic career aspirations. *The Journal of Higher Education*, 75(6), 603–635. <https://doi.org/10.1080/00221546.2004.11773579>
- Jiang, J., & Tanaka, A. (2022). Autonomy support from support staff in higher education and students' academic engagement and psychological well-being. *Educational Psychology*, 42(1), 42–63. <https://doi.org/10.1080/01443410.2021.1982866>
- Karasek, Robert; Brisson, Chantal; Kawakami, Norito; Houtman, Irene; Bongers, Paulien; Amick, Benjamin (1998). The Job Content Questionnaire (JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of Occupational Health Psychology*, 3(4), 322–355. <https://doi.org/10.1037/1076-8998.3.4.322>
- Kim, K. H. (2005). The Relation Among Fit Indexes, Power, and Sample Size in Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, 12(3), 368–390. https://doi.org/10.1207/s15328007sem1203_2
- Kirby, L., Zolkoski, S., O'Brien, K., Mathew, J., Kennedy, B., & Sass, S. (2023). Examining staff and faculty work-life balance and well-being using the dual continua model of mental health during COVID-19. *Journal of Happiness and Health*, 3(1), 34–48. <https://doi.org/10.47602/johah.v3i1.31>
- Klusmann, U., Aldrup, K., Roloff-Bruchmann, J., Carstensen, B., Wartenberg, G., Hansen, J., & Hanewinkel, R. (2023). Teachers' emotional exhaustion during the Covid-19 pandemic: Levels, changes, and relations to pandemic-specific demands. *Teaching and Teacher Education*, 121, Article e103908. <https://doi.org/10.1016/j.tate.2022.103908>

- Landolfi, A., Barattucci, M., De Rosa, A., & Lo Presti, A. (2021). The association of job and family resources and demands with life satisfaction through work-family balance: A longitudinal study among Italian schoolteachers during the COVID-19 pandemic. *Behavioral Sciences*, *11*(10), Article e1110136. <https://doi.org/10.3390/bs11100136>
- Lee, M. H., Lee, Y. C., Huang, C. H., Wu, C. F., Hsueh, H. W., & Wu, H. H. (2022). A longitudinal study of nurses' work-life balance: A case of a regional teaching hospital in Taiwan. *Applied Research in Quality of Life*, *17*(1), 93–108. <https://doi.org/10.1007/s11482-020-09881-8>
- Leighton, K., Kardong-Edgren, S., Schneidereith, T., & Foisy-Doll, C. (2021). Using social media and snowball sampling as an alternative recruitment strategy for research. *Clinical Simulation in Nursing*, *55*, 37-42. <https://doi.org/10.1016/j.ecns.2021.03.006>
- Lin, B., Xu, Z., & Zhao, S. (2020). Research on the relationship between work-family balance and innovation performance of college teachers – mediating effect of subjective well-being. *ICIC Express Letters, Part B: Applications*, *11*(7), 641–647. <https://doi.org/10.24507/icicelb.11.07.641>
- Liu, B., Zhang, Z., & Lu, Q. (2021). Influence of leader mindfulness on the emotional exhaustion of university teachers: Resources crossover effect. *Frontiers in Psychology*, *12*, Article 597208. <https://doi.org/10.3389/fpsyg.2021.597208>
- Liu, J. (2020, June 20). *Work engagement among higher vocational college teachers: Level and internal variation*. 2020 International Symposium on Advances in Informatics, Electronics and Education (ISAIEE), San Francisco, USA. <https://doi.org/10.1109/ISAIEE51769.2020.00050>
- Love, A. S., Morris, D., & Sego, A. (2022). Navigating the demands of tenure-track positions. *Health Promotion Practice*. *22*(5), 1–5. <https://doi.org/10.1177/15248399221084225>
- McIver, J., & Carmines, E. G. (1981). *Unidimensional scaling*. sage.
- McKee, H., Gohar, B., Appleby, R., Nowrouzi-Kia, B., Hagen, B. N. M., & Jones-Bitton, A. (2021). High psychosocial work demands, decreased well-being, and perceived well-being needs within Veterinary academia during the COVID-19 pandemic. *Frontiers in Veterinary Science*, *8*, Article e746716. <https://doi.org/10.3389/fvets.2021.746716>
- Messmann, G., Stoffers, J., Van der Heijden, B., & Mulder, R. H. (2017). Joint effects of job demands and job resources on vocational teachers' innovative work behavior. *Personnel Review*, *46*(8), 1948-1961. <https://doi.org/10.1108/PR-03-2016-0053>
- Mohamad, Z. S., & Despois, D. Y. (2022). Spillover-crossover effects of work-life conflict among married academicians in a private university. *Pertanika Journal of Social Sciences and Humanities*, *30*(1), 139-157. <https://doi.org/10.47836/pjssh.30.1.08>
- Nabawanuka, H., & Ekmekcioglu, E. B. (2022). Millennials in the workplace: perceived supervisor support, work-life balance, and employee well-being. *Industrial and Commercial Training*, *54*(1), 123-144. <https://doi.org/10.1108/ict-05-2021-0041>
- Ng, L. P., Chen, I. C., Ng, H. F., Lin, B. Y., & Kuar, L. S. (2017). Influence of job demands and job control on the Work-life balance among Taiwanese nurses. *Journal of Nursing Management*, *25*(6), 438-448. <https://doi.org/10.1111/jonm.12482>
- Ono, Y., Goto, A., Maejima, Y., Maruyama, I., Suzuki, T., Shikama, Y., & Yoshida-Komiya, H. (2020). Work-life conflict, gender-based discrimination, and their associations among professionals in a medical university and affiliated hospitals in Japan: A cross-sectional study. *Fukushima Journal of Medical Science*, *66*(1), 25-36. <https://doi.org/10.5387/fms.2020-03>
- Pace, F., & Sciotto, G. (2021). The effect of emotional dissonance and mental load on need for recovery and work engagement among Italian fixed-term researchers. *International Journal of Environmental Research and Public Health*, *18*(1), 1-18. <https://doi.org/10.3390/ijerph18010099>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Rahm, T., & Heise, E. (2019). Teaching happiness to teachers - development and evaluation of a training in subjective well-being. *Frontiers in Psychology*, *10*, Article e02703. <https://doi.org/10.3389/fpsyg.2019.02703>

- Rotenberg, L., & Carlos, R. S. L. (2018). How social acceleration affects the work practices of academics: A study in Brazil. *German Journal of Human Resource Management*, 32(3-4), 257-270. <https://doi.org/10.1177/2397002218788781>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. <http://dx.doi.org/10.1037/0022-3514.57.6.1069>
- Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students - A cross-national study. *Journal of Cross-Cultural Psychology*, 33(5), 464-481. <https://doi.org/10.1177/0022022102033005003>
- Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3 (7), 749–752. <https://www.xueshufan.com/publication/2750693154>
- Shui, Y., Xu, D. D., Liu, Y., & Liu, S. Q. (2020). Work-family balance and the subjective well-being of rural women in Sichuan, China. *BMC Women's Health*, 20(1), 10. <https://doi.org/10.1186/s12905-019-0871-6>
- Sirgy, M. J., & Lee, D. J. (2017). Work-life balance: An integrative review. *Applied Research in Quality of Life*, 13(1), 229–254. <https://doi.org/10.1007/s11482-017-9509-8>
- Sirgy, M. J., Lee, D. J., & Yu, G. B. (2018). Shopping-Life balance: Towards a unifying framework. *Applied Research in Quality of Life*, 15(1), 17–34. <https://doi.org/10.1007/s11482-018-9662-8>
- Smith, J., Fisher, J., & Ramprogus, V. (2020). Adding university to work and life: The work–life balance and well-being experiences of women who combine employment, HE learning and care of the family. *Community, Work and Family*, 25(5), 583–602. <https://doi.org/10.1080/13668803.2020.1779662>
- Stelmokienė, A., Genevičiūtė-Janonė, G., Gustainienė, L., & Kovalčikienė, K. (2019). Job demands-resources and personal resources as risk and safety factors for the professional burnout among university teachers. *Pedagogika*, 134(2), 25-44. <https://doi.org/10.15823/p.2019.134.2>
- Tang, D. & Wen, Z. (2020). Common method bias testing: issues and recommendations. *Psychological Science*, 43(1), 215-223. <https://doi.org/10.16719/j.cnki.1671-6981.20200130>
- Tehseen, S., Ramayah, T., & Sajilan, S. (2017). Testing and controlling for common method variance: A review of available methods. *Journal of Management Sciences*, 4(2), 142-168. <https://doi.org/10.20547/jms.2014.1704202>
- Teles, R., Valle, A., Rodriguez, S., Pineiro, I., & Regueiro, B. (2020). Perceived stress and indicators of burnout in teachers at Portuguese higher education institutions (HEI). *International Journal of Environmental Research and Public Health*, 17(9), Article e17093248. <https://doi.org/10.3390/ijerph17093248>
- Tokdemir, G. (2022). Software professionals during the COVID-19 pandemic in Turkey: Factors affecting their mental well-being and work engagement in the home-based work setting. *Journal of Systems and Software*, 188, Article e111286. <https://doi.org/10.1016/j.jss.2022.111286>
- Tyrer, S., & Heyman, B. (2016). Sampling in epidemiological research: Issues, hazards and pitfalls. *British Journal of Psychiatry Bulletin*, 40(2), 57–60. <https://doi.org/10.1192/pb.bp.114.050203>
- Vu, H. M. (2020). Relationship between work-life balance, religiosity and employee engagement: A proposed moderated mediation model. *Journal of Asian Finance Economics and Business*, 7(10), 339–345. <https://doi.org/10.13106/jafeb.2020.vol7.n10.339>
- Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology*, 64(4), 678–691. <https://doi.org/10.1037/0022-3514.64.4.678>
- Wayne, J. H., Vaziri, H., & Casper, W. J. (2021). Work-nonwork balance: Development and validation of a global and multidimensional measure. *Journal of Vocational Behavior*, 127, Article e103565. <https://doi.org/10.1016/j.jvb.2021.103565>
- Wei, C. & Ye, J.-H. (2022). The Impacts of Work-Life Balance on the Emotional Exhaustion and Well-Being of College Teachers in China. *Healthcare*, 10(11), Article 10112234. <https://doi.org/10.3390/healthcare10112234>
- Wen, Z.L., Hou, J.T., & Marsh, H. (2004). Structural equation model testing: fit indices and chi-square criteria. *Journal of Psychology*, 2(9), 186–194. <https://doi.org/CNKI:SUN:XLXB.0.2004-02-009>

- Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: An evaluation of power, bias, and solution propriety. *Educational and psychological measurement*, 73(6), 913–934. <https://doi.org/10.1177/0013164413495237>
- Xin, S., Liang, X., Sheng L. & Zhao, Z. (2021). Changes of teachers' subjective well-being in mainland China (2002~2019): The perspective of cross-temporal meta-analysis. *Acta Psychologica Sinica*, 53(8), 875–889. <https://doi.org/10.3724/SP.J.1041.2021.00875>
- Yan, G. (2018). Analysis of high-level university teachers' undergraduate teaching commitment and its influencing factors. *China Higher Education Research*, 11(5), 22–27. <https://doi.org/10.16298/j.cnki.1004-3667.2018.11.05>.
- Zhou, T., Xu, C. S., Wang, C. L., Sha, S., Wang, Z., Zhou, Y., Zhang, X. R., Hu, D., Liu, Y. Q., Tian, T. F., Liang, S. X., Zhou, L., & Wang, Q. (2022). Burnout and well-being of healthcare workers in the post-pandemic period of COVID-19: A perspective from the job demands-resources model. *BMC Health Services Research*, 22(1), 1–15. <https://doi.org/10.1186/s12913-022-07608-z>
- Znidarsic, J., & Maric, M. (2021). Relationships between work-family balance, job satisfaction, life satisfaction and work engagement among higher education lecturers. *Organizacija*, 54(3), 227-237. <https://doi.org/10.2478/orga-2021-0015>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).