Changes in Work-Family Conflict of Chinese Employees: A Cross-Temporal Meta-Analysis, 2005–2016

Sufei Xin*, Yang Zheng¹ and Ziqiang Xin²*

¹ School of Education Science, Ludong University, Yantai, China, ² School of Sociology and Psychology, Central University of Finance and Economics, Beijing, China

With the rapid growth of China's economy, work-family conflict (WFC) level of Chinese employees might have changed over time. The present research performed a cross-temporal meta-analysis of 71 papers using the Work-Family Conflict Scale (WFCS) from three Chinese academic databases and three databases in English to investigate changes in Chinese employees' WFC (N = 23,635) during 2005–2016. Results showed that the WFC level of employees increased significantly by 0.77 standard deviations over the past 12 years. The increasing trend over time occurred among both male and female employees, which is slightly more salient among male employees. However, there was no significant gender difference in WFC scores. This study found that the increase in WFC scores among Chinese employees was associated with scores of six social indicators that might cause stress in workplace (the number of employees and number of college graduates) and stress in family (divorce rate, residents' consumption level, elderly dependency ratio, and family size) of 5 years before and the year of data collection, which indicates that social changes played an important role in changes of WFC. The explanations and implications of these changes are discussed.

Keywords: Chinese employees, work-family conflict, cross-temporal meta-analysis, stress, social changes

INTRODUCTION

People in modern societies are faced with difficulties in balancing weight of their work and family, which has been considered not only as a broader social phenomenon but also as a notable psychological one (Săucan et al., 2015). Since Greenhaus and Beutell (1985) first defined Work-Family Conflict (WFC) as a failure in building compatible relationship between work and family roles, numerous studies have been conducted with this remarkable social concern (e.g., Duxbury et al., 1994; Aycan and Eskin, 2005). It was found that the increase in the sense of WFC among American employed parents between 1977 and 1997 (Nomaguchi and Johnson, 2009). In China, the traditional Chinese large family system could be collapsed by the industrialization processes (Tian, 2002), leading to a general increase in the number of dual-earner couples (Tong and Liu, 2015). Consequently it might be more difficult for Chinese employees to balance time allocation between work and family. Moreover, China has experienced a surprisingly growing annual GDP with an average rate of 10% (Xin and Xin, 2016), in which employees play a crucial role. The
number of employees in China is also increasing continuously by ~13.97% from 1997 to 2016 (National Bureau of Statistics of China., 2017). Therefore, it is necessary to examine the influence of these critical social changes in WFC perceived by Chinese employees in China.

CHANGES IN CHINESE EMPLOYEES’ WORK-FAMILY CONFLICT OVER TIME

WFC is a conflict between roles that occurs when the demands of work or family make it difficult to fulfill the demands in the other roles (e.g., Carlson et al., 2000; Promislo et al., 2011). Conflict can occur in two directions (e.g., French et al., 2018): family interfering work (FIW) and work interfering family (WIF). In recent years, many studies on WFC and its influence have been published in academic journals. Previous research showed that WFC has crucial effects on physical-mental health and work-family satisfaction (Eby et al., 2005; Zhang, 2009). It has also been confirmed that WFC is associated with higher turnover intention and absenteeism rates (Kossek and Ozeki, 1998), which makes it difficult for individuals to take part in family (Duxbury and Higgins, 1991). Since the 1980s, the rapid growth of China’s economy might make it more difficult to balance time allocation between work and family for employees. However, no study examines how WFC among Chinese employees has varied with birth cohort. Therefore, it is important to investigate the changes in WFC of Chinese employees over time, which will also provide important reference for other countries with rapid economic development worldwide.

Along with social changes, WFC of employees might have changed across birth cohort. Previous studies have found that birth cohort is an important proxy for macro-level social environment of different time periods that might have substantial effects on individuals’ psychological traits (e.g., Stewart and Healy, 1989; Twenge, 2000). Studies by Twenge and her colleagues showed strong birth cohort differences in Americans’ anxiety (Twenge, 2000), self-esteem (Twenge and Campbell, 2001), and narcissism (Twenge and Foster, 2010). In China, Xin and his associates have found that psychological functioning (i.e., anxiety, mental health, and loneliness) of adolescents changed over time (Xin and Zhang, 2009; Xin et al., 2010; Xin and Xin, 2016). All the above studies indicated the important role social changes might play in individuals’ psychological status. WFC, as an important negative indicator relating to individuals’ psychological well-being (e.g., Hong et al., 2013), has never been studied with regards to its cross-temporal changes. Considering the mean score of WFC was 2.52 in 2005 (Gan, 2007) and 4.08 in 2015 reported in a recent cross-sectional study by Zhang and Sun (2017), it may be reasonable to argue that the WFC level of Chinese employees have increased since the early 2000s.

WFC is generally assessed using classic self-report inventories such as the Work-Family Conflict Scale (WFCS) (Carlson et al., 2000), which is well-developed and found with sound psychometric properties in prior research (Promislo et al., 2011). The Chinese version of the WFCS is the most popular scale for measuring WFC of Chinese employees, with high validity and reliability (Cronbach’s α coefficients ranging from 0.84 to 0.90, e.g., Bian et al., 2017; Ding et al., 2017; Hao et al., 2017). A large body of previous studies adopting the scale that measures WFC among Chinese employees across different birth cohorts has been published in different years (e.g., Gan, 2007; Chen et al., 2010; Li, 2012; Hao et al., 2017), which makes it rather convenient to investigate how WFC scores on the scale have changed over time by using a cross-temporal meta-analysis.

We conducted a cross-temporal meta-analysis for the present study to examine changes in WFC of Chinese employees. Instead of computing an effect size for each study, cross-temporal meta-analysis locates samples of the similar age who completed the same psychological scales at different time points, and then analyzes the relationship between mean scores on the scale (e.g., WFCS) and the year of data collection (e.g., Twenge, 2000; Twenge and Im, 2007; Xin et al., 2010; Xin and Xin, 2016).

THE ASSOCIATION BETWEEN WORK-FAMILY CONFLICT AND SOCIAL CHANGES OVER TIME

In the past few decades, dramatic macro social changes have occurred in China due to the rapid development of economy. The cross-temporal meta-analysis assumes that social statistical indicators can be used to reflect macro social changes and partially explain individual psychological changes (e.g., Twenge, 2000; Xin and Xin, 2016). Previous research found that WFC level of employees is mainly affected by dual-stress from work and family (French et al., 2018). On the one hand, regarding stress from work, the job strain model (e.g., Karasek, 1979) has been one of the most influential theories in research on work characteristics and WFC. Evidence continues to accumulate that high job strain is associated with high level of WFC (e.g., Wang, 2005; Zhao, 2011). Chinese employees experienced increasing stress from employment competition in recent decades: the number of employees and college graduates has increased ~2- and 48-fold, respectively, since 1980s (National Bureau of Statistics of China., 2017). In order to cope with such stress, Chinese employees might sacrifice family time for work leading to more WFC (e.g., Wang, 2005; Gan, 2007). On the other hand, in terms of stress from family, previous studies found that the level of social support from family is negatively correlated with employees’ WFC level (e.g., Chen et al., 2010; Zhao, 2015; French et al., 2018), and Chinese society has experienced a decline in social support from family (Tian, 2002; Xin et al., 2010). Specifically, the number of family member decreased by 1.30 from 4.41 in 1982 to 3.11 in 2016 (National Bureau of Statistics of China., 2017), which might lead to a reduced level of social support from family among Chinese employees. Moreover, the divorce rate in China has increased continuously (from 0.44 in 1985 to 3.02 in 2016), implying a more unstable and lonely family environment (Xin et al., 2010), which might make Chinese employees worry about their marital status. In addition, they also experienced increasing stress from supporting the elderly: the elderly dependency ratio in China has grown quickly and increased about 2-fold since 1980s (National Bureau
of Statistics of China., 2017). These changes could lead to Chinese employees’ sacrificing work time for family. Chinese employees also encountered increasing family economic stressors in recent decades: residents’ consumption level has increased ∼89-fold since 1980s (National Bureau of Statistics of China., 2017), which might cause employees to work hard for a living and cut the amount of time spending with their families. Therefore, for an interner summary in terms of those social indicators, the number of employees and college graduates could affect the intensity of employment competition, which in turn leads to changes in the employees’ stress level from work. Meanwhile, the influence of divorce rate, family size, elderly dependency ratio and residents’ consumption level accumulates to employees’ stress level from family. Thus, we would hypothesize that changes in stress both from work and from family that are associated with the corresponding social indicators might be responsible for the increase WFC level for Chinese employees.

OVERVIEW OF THE PRESENT RESEARCH

To test these hypotheses, the cross-temporal meta-analysis was performed to investigate the changes in WFC among Chinese employees. According to the proposition of dual-stress from work and family, certain social indicators might predict changes in the level of WFC over time. To examine such predictive effect, a time lag analysis was conducted to test the correlations between WFC and six social indicators related to dual-stress from work and family. Moreover, the findings of gender differences in WFC scores were controversial. Some studies (Frone et al., 1992; Behson, 2002; Zhou and Hao, 2009) showed that female employees have higher levels of WFC than males, while others found that the WFC among male employees was higher than among their female counterparts (e.g., Parasman and Simmers, 2001; Zhang, 2009). Therefore, we also performed the cross-temporal meta-analysis to investigate the changes in WFC for male and female employees, and conducted a general meta-analysis to explore whether there was gender difference in WFC.

METHODS

Literature Search

Work-Family Conflict Scale

The Chinese version of the WFCS (Carlson et al., 2000) is the most popular scale to measure WFC. The WFCS consists of 18 items describing subjective feelings of WFC in two domains: (1) work interfering family (WIF, e.g., “I can not carry out some ordinary family activities due to the influence of work.”), reflecting that work can interfere with the ability to meet family demands; (2) family interfering work (FIW, e.g., “Family life brings me anxiety and has an impact on my usual work performance.”), reflecting that family can interfere with the ability to meet work demands (Bian et al., 2017; Ding et al., 2017; French et al., 2018). Responses are measured on a 5-point Likert Scale (1 = strongly disagree, 5 = strongly agree). Higher scores of WFCS indicate higher WFC.

Literature Search and Inclusion Rules

We selected the literature for the current study from the most influential academic literature databases in China: CNKI, Wanfang, and Chongqing VIP, which contain a large number of Chinese journal articles of all fields including natural sciences and social sciences as well as a considerable number of master’s theses and doctoral dissertations since 1985. The search terms used to identify relevant studies were “employee”, “work-family conflict”, “psychological problems”, and ”WFCS”. Further, using the same keywords, we searched the following three academic databases in English: Web of Science, ProQuest Psychology Journals, and Elsevier.

Studies that could be included in the current cross-temporal meta-analysis must meet the criteria: (a) studies must have used all 18 items of the WFCS; (b) participants were employees involved in all walks of life (e.g., nurses, teachers, and bus drivers); (c) sample sizes and means for the total sample were reported; (d) participants should be from mainland China; (e) the sample size should be at least 30; (f) the study did not preselect participants who were clients at a counseling center. The PRISMA flowchart for study selection is shown in Figure 1.

Final Sample

This method yielded 71 studies of WFC, consisting of a total of 23,635 employees from 2005 to 2016 (the year of data collection). The minimum sample size is 116, and the maximum sample size is 1,273. There was no research of English language published conformance to the inclusion rules. Detailed information for included studies can be found in Table 1, and the references of all studies on meta-analysis are available in the references list.

Main and Control Variables Coding

The average score and standard deviation (SD) of WFC, sample size, and the year of data collection were recorded in each study. The year of data collection was coded as 2 years before publication if not specified in the article (Twenge, 2000; Xin et al., 2010). If an article reported sample mean and SD for different subgroups (i.e., means by gender), the overall mean and SD were calculated weighted by sample size of each subgroup. Furthermore, publication class, region, and gender ratio in each study were recorded and used as controls in the analysis, because they may confound with birth cohort. Consistent with previous studies (e.g., Xin and Zhang, 2009; Xin and Xin, 2016, 2017), region was coded into East, Northeast, Middle, West (in descending order of economic level), or Mixed (i.e., participants in one study were selected from more than 1 region). Publication class was coded into first (journals from CSSCI and CSC), second (other journals), and third class (master’s theses and doctoral dissertations). Publication class was controlled for to avoid the influence of publication bias. Namely, studies with statically significant results would have higher chance to be accepted for publication than those with non-significant findings (Xin et al., 2010; Xin and Xin, 2016, 2017).
Sources for Social Indicators
Consistent with previous research (e.g., Xin and Zhang, 2009; Xin and Xin, 2016), we chose the number of employees and college graduates as two indicators of the level of stress from work and selected family size, divorce rate, elderly dependency ratio, and residents’ consumption level as four indicators of the level of stress from family. In the present study, these two types of important social indicators that might reflect macro social changes in Chinese society and account for changes in employees’ WFC. All of these indicators were obtained from China Statistical Yearbook (CSY; National Bureau of Statistics of China., 2017).

Data Analysis Strategy
Unlike traditional meta-analysis, the cross-temporal meta-analysis does not focus on an effect size for each study and does not need use the comprehensive meta-analysis (CMA). Instead, the main focus of the cross-temporal meta-analysis is to investigate the change in mean scores on psychological measures across time. Therefore, to examine the changes in WFCS scores over time, correlations were conducted between mean WFCS scores of each study and year of data collection, weighted by sample size of each study (e.g., Twenge and Campbell, 2001; Twenge and Foster, 2010; Xin and Xin, 2016, 2017). We performed the analyses using SPSS, and reported standardized $\beta$ s. For a study that only reported a sample mean without $SD$, we included this study to examine the mean-level WFCS changes to make best use of data, but only included those with both means and $SD$s to estimate the magnitude of the changes of WFC scores.

Then, we used three weighted regression equation and the average standard deviation ($SD$) of the individual samples to calculate the magnitude of the changes of work-family conflict scores (WFCS, WIF, FIW). The following regression equation was used to calculate the mean scores for a specific year: $y = b x + c$, where $b = $ the unstandardized regression coefficient, $c = $ the intercept or constant, $x = $ the year of data collection, and $y = $ the predicted mean score (WFCS, WIF, FIW). These equations yielded the expected average WFCS, WIF and FIW scores for particular years. We computed the average $SD$ by averaging the within-sample $SD$s reported in the studies. It is important to note that this method is likely to avoid the ecological fallacy, also known as ecological correlations or alerting correlations (Rosenthal et al., 2000), which occurs when the magnitude of change is calculated using the variation in mean scores rather than the variation within a population.
### TABLE 1 | Description of work-family conflict studies included in the overall meta-analysis.

| Authors          | Publication year | N  | Region | Publication class | WFC          | WIF          | FIW          |
|------------------|------------------|----|--------|-------------------|--------------|--------------|--------------|
| Gan              | 2007             | 580| 1      | 3                 | 2.52 ± 0.59  | NA           | NA           |
| Zeng et al.      | 2008             | 249| NA     | 2                 | 2.43 ± NA    | 2.86 ± 0.84  | 2.00 ± 0.64  |
| Cheng et al.     | 2008             | 1,273| 2      | 3                 | 2.82 ± 0.50  | 3.29 ± 0.72  | 2.35 ± 0.59  |
| Chen             | 2008             | 427| 3      | 3                 | 2.74 ± 0.64  | 2.97 ± 0.80  | 2.49 ± 0.74  |
| Wang             | 2009             | 244| 1      | 3                 | 1.82 ± NA    | 1.80 ± NA    | 1.84 ± NA    |
| Zhou and Hao     | 2009             | 543| 2      | 1                 | 3.04 ± NA    | 3.10 ± 0.65  | 2.98 ± 0.61  |
| Zhang            | 2009             | 206| NA     | 3                 | 3.15 ± NA    | 3.48 ± 0.87  | 2.81 ± 0.84  |
| Chen et al.      | 2010             | 513| 4      | 1                 | 3.02 ± NA    | 3.49 ± 0.68  | 2.55 ± 0.71  |
| Mu et al.        | 2010             | 305| 1      | 2                 | 2.69 ± 0.57  | 3.16 ± 0.78  | 2.22 ± 0.61  |
| Fang             | 2010             | 142| NA     | 3                 | 2.90 ± NA    | 3.20 ± NA    | 2.60 ± NA    |
| Gao              | 2011             | 380| 3      | 3                 | 2.92 ± NA    | 3.29 ± 0.67  | 2.54 ± 0.52  |
| Zhang and Liu    | 2011             | 387| 1      | 2                 | 2.85 ± NA    | 3.23 ± 0.74  | 2.47 ± 0.63  |
| Zhou et al.      | 2011a            | 458| 1      | 1                 | 2.93 ± 0.62  | 3.56 ± 0.81  | 2.30 ± 0.66  |
| Chen             | 2011             | 513| NA     | 3                 | 3.02 ± NA    | 3.49 ± 0.69  | 2.55 ± 0.71  |
| Zhou et al.      | 2011b            | 412| 1      | 2                 | 2.95 ± 0.62  | 3.46 ± 0.82  | 2.33 ± 0.66  |
| Zhao             | 2011             | 578| NA     | 3                 | 2.96 ± 0.58  | 3.63 ± 0.77  | 2.30 ± 0.68  |
| Bi               | 2011             | 198| NA     | 3                 | 3.15 ± NA    | 3.67 ± 0.55  | 2.63 ± 0.53  |
| Zuo et al.       | 2011             | 260| NA     | 2                 | 3.09 ± NA    | 3.53 ± NA    | 2.65 ± NA    |
| Li et al.        | 2011             | 197| 4      | 2                 | NA           | 2.64 ± NA    | NA           |
| Sun et al.       | 2011             | 207| NA     | 1                 | 3.60 ± NA    | NA           | NA           |
| Yan et al.       | 2011             | 426| 3      | 1                 | 2.98 ± 0.48  | 2.72 ± 0.26  | 3.24 ± 0.28  |
| Zhang            | 2011             | 313| 5      | 3                 | 2.66 ± NA    | 2.76 ± 0.08  | 2.56 ± 0.37  |
| Yan              | 2012             | 577| NA     | 3                 | 3.16 ± 0.53  | 3.44 ± NA    | 2.89 ± NA    |
| Shen et al.      | 2012             | 210| 1      | 2                 | 2.82 ± NA    | 2.98 ± 0.56  | 2.66 ± 0.50  |
| Liu and Wu       | 2012             | 426| 3      | 2                 | 2.96 ± NA    | 3.34 ± 0.66  | 2.57 ± 0.54  |
| Liu Y.           | 2012             | 376| 4      | 3                 | 2.93 ± 0.70  | 2.97 ± 0.78  | 2.95 ± 0.79  |
| Sun              | 2012             | 727| NA     | 3                 | 2.42 ± 0.81  | NA           | NA           |
| Li               | 2012             | 116| NA     | 2                 | 2.64 ± 0.84  | NA           | NA           |
| He and Sun       | 2012             | 210| 4      | 2                 | 2.79 ± 0.50  | 3.13 ± 0.65  | 2.45 ± 0.64  |
| Feng et al.      | 2012             | 273| 4      | 1                 | 2.97 ± NA    | 3.27 ± 1.01  | 2.66 ± 0.27  |
| Li C. K. et al.  | 2012             | 197| 4      | 3                 | NA           | NA           | NA           |
| He               | 2012             | 209| 2      | 3                 | 2.72 ± 0.62  | 2.95 ± 0.70  | 2.49 ± 0.76  |
| Li K. J. et al.  | 2012             | 574| 3      | 1                 | 2.89 ± 0.53  | 3.24 ± 0.67  | 2.54 ± 0.58  |
| Liu X.           | 2012             | 170| 5      | 1                 | 2.63 ± 0.91  | 3.14 ± 0.99  | 2.80 ± 0.69  |
| Pan and Chen     | 2012             | 250| 3      | 2                 | 3.11 ± NA    | NA           | NA           |
| Zhang Z. F.      | 2013             | 256| NA     | 3                 | 3.04 ± 0.49  | 3.18 ± NA    | 2.79 ± NA    |
| Wang             | 2013             | 216| 5      | 3                 | 3.23 ± NA    | NA           | NA           |
| Hu et al.        | 2013             | 514| 4      | 1                 | 3.01 ± 1.69  | 2.99 ± NA    | 3.03 ± NA    |
| Wang et al.      | 2013             | 577| NA     | 2                 | 3.04 ± 0.56  | NA           | NA           |
| Zhang Y. X.      | 2013             | 300| 1      | 3                 | 3.20 ± NA    | 4.42 ± 0.33  | 1.98 ± 0.72  |
| Zhao             | 2013             | 578| 2      | 1                 | 3.07 ± NA    | 3.83 ± 0.76  | 2.30 ± 0.68  |
| Jiang            | 2013             | 138| NA     | 3                 | 3.11 ± 0.65  | 3.10 ± NA    | NA           |
| Hong et al.      | 2013             | 230| NA     | 2                 | 2.79 ± 0.50  | 2.91 ± NA    | 2.66 ± NA    |
| Chen             | 2013             | 250| NA     | 3                 | 3.11 ± 0.56  | NA           | NA           |
| Liang            | 2014             | 244| NA     | 3                 | 3.34 ± 1.09  | NA           | NA           |
| Chen et al.      | 2014             | 234| 5      | 2                 | 3.23 ± NA    | 3.25 ± 0.86  | 3.21 ± 0.85  |
| Huang            | 2014             | 119| 1      | 3                 | 3.31 ± 0.58  | 3.71 ± 0.69  | 2.91 ± 0.39  |
| Rong et al.      | 2014             | 372| 1      | 1                 | 3.07 ± 0.88  | 3.35 ± 0.76  | 2.80 ± 0.72  |
| Yang             | 2014             | 296| 5      | 3                 | NA           | 2.63 ± 0.74  | NA           |
| Zhang and Qian   | 2014             | 139| 1      | 3                 | 3.09 ± NA    | 3.41 ± 0.72  | 2.77 ± 0.60  |

(Continued)
TABLE 1 | Continued

| Authors         | Publication year | N   | Region | Publication class | WFC           | WIF           | FIW           |
|-----------------|-----------------|-----|--------|-------------------|---------------|---------------|---------------|
| Zhu             | 2014            | 183 | NA     | 3                 | 2.53 ± NA     | 2.74 ± 0.88  | 2.32 ± 0.69  |
| Xu              | 2015            | 432 | 3      | 3                 | 3.57 ± 0.69   | 3.64 ± 0.71  | 3.50 ± 0.72  |
| Xing            | 2015            | 276 | 3      | 3                 | NA            | NA            | NA            |
| Wang            | 2015            | 476 | NA     | 3                 | 2.74 ± 0.67   | 3.00 ± 0.78  | 2.48 ± 0.77  |
| Jia             | 2015            | 395 | 5      | 3                 | 2.57 ± NA     | 2.58 ± 0.61  | NA            |
| Qi              | 2015            | 467 | NA     | 2                 | 3.19 ± NA     | 3.16 ± 0.79  | 3.21 ± 0.77  |
| Cao et al.      | 2015            | 482 | NA     | 2                 | 3.05 ± 0.51   | 3.69 ± NA    | 2.40 ± NA    |
| Xie et al.      | 2015            | 261 | NA     | 1                 | NA            | NA            | NA            |
| Zhao            | 2015            | 205 | 1      | 3                 | NA            | NA            | 2.66 ± 1.04  |
| Yuan            | 2016            | 237 | NA     | 3                 | 2.66 ± NA     | NA            | NA            |
| Ren             | 2016            | 296 | NA     | 3                 | NA            | 3.80 ± 1.21  | NA            |
| Song and Guo    | 2016            | 207 | 4      | 3                 | 2.93 ± 0.29   | 2.94 ± NA    | 2.93 ± NA    |
| Yang            | 2016            | 286 | 3      | 3                 | 2.70 ± NA     | 2.72 ± NA    | 2.67 ± NA    |
| Bian et al.     | 2017            | 133 | 2      | 2                 | 2.91 ± 0.59   | 2.99 ± 0.79  | 2.84 ± 0.76  |
| Ding et al.     | 2017            | 159 | 3      | 2                 | 2.74 ± 0.60   | 3.25 ± 0.78  | 2.22 ± 0.57  |
| Hao et al.      | 2017            | 200 | 2      | 2                 | 3.15 ± 0.48   | 3.55 ± 0.61  | 2.75 ± 0.27  |
| Ren et al.      | 2017            | 306 | 3      | 1                 | 3.17 ± 0.54   | 3.62 ± 0.62  | 2.72 ± 0.70  |
| Zhang and Sun   | 2017            | 344 | 5      | 2                 | 4.08 ± 0.68   | 4.16 ± 0.65  | 3.99 ± 0.53  |
| Cheng           | 2017            | 277 | 5      | 3                 | 3.56 ± 0.78   | NA            | NA            |
| Yang            | 2017            | 209 | 5      | 3                 | 3.21 ± 0.69   | 3.33 ± 0.73  | 2.97 ± 0.65  |
| Tang            | 2017            | 215 | 4      | 2                 | 2.99 ± 0.67   | 3.39 ± 0.84  | 2.60 ± 0.73  |

N, sample size; WFC, work-family conflict total score; WIF, work interfering family score; FIW, family interfering work score; region, Region: 1 = east; 2 = northeast; 3 = middle; 4 = west; 5 = mixed; publication class, 1 = core journal; 2 = publication from other academic sources; 3 = dissertations and master’s theses; NA, missing values.

of individuals. This exaggerates the magnitude because mean scores do not differ as much as individual scores. The method used here, in contrast, uses the SD of the individual studies to capture the variance of the scale among a population of individuals.

Finally, we performed a time lag analysis based on previous research (e.g., Xin and Xin, 2016) to determine whether two types of social indicators could explain changes in WFC. Two indicators of the level of stress from work (number of employees and college graduates) and four indicators of the level of stress from family (family size, divorce rate, elderly dependency ratio, and residents’ consumption level) of each year was matched with the WFCS mean of each study of the year in two ways: the year of data collection, and 5 years before the data were collected. For instance, a data point for WFCS score of each study from 2010 was matched with each social indicator from 2005, 2010. Three regression analyses of each social indicator were conducted by weighting sample size. We reported the standardized βs, representing the correlations between social indicators related to dual-stress from work and family and WFC, weighted by sample size. According to Twenge (2000), if social indicators of dual-stress from work and family can explain the changes in WFC over time, the correlations should be significant when WFCS scores are matched with social indicators lagged several years ago. Furthermore, if WFC and social indicators have concurrent associations, there should be significant correlations between the two variables at the year of data collection.

RESULTS

Correlations Between Mean Scores of Work-Family Conflict and Year

Figures 2, 3 indicated that Chinese employees’ scores on WFCS (WFC, WIF, FIW) increased gradually from 2005 to 2016. Meanwhile, we conducted a Steiger’s Z test to investigate whether the trends of FIW and WIF changes were statistically different, and found that distinct patterns of change for FIW and WIF was not observed (Z = −1.17, p > 0.05). Furthermore, in order to demonstrate how WFC scores of Chinese employees have changed from 2005 to 2016, we conducted three regressions with WFC, WIF, FIW scores (as dependent variables), and year of data collection (as independent variables) with all controlling variables (gender ratio, publication class, and region) as covariates. As shown in Table 2, both WFC and FIW scores were significantly positively correlated with the year of data collection. However, no significant correlation was found between WIF score and the year of data collection. That is, there was a significant increase with Chinese employees’ WFC and FIW scores from 2005 to 2016, but not with their WIF scores. The correlations were also very similar when gender ratio, publication class and region were controlled and sample size was weighted (see Table 2). Thus, Chinese employees’ WFC score (especially FIW) showed an evident increase over the past 12 years.

Single-gender means were also analyzed separately when they were reported, with controls included. Female employees’ WFC score was not significantly correlated with year (β = 0.32,
standards (i.e., effect size is large when

guidelines, \(R^2 = 0.01\). In short, WFC score on the WFCS increased across birth cohort among male and female employees, with a slightly stronger relationship for male employees than female employees.

To examine gender difference in WFC, in total 21 studies that reported means by gender were analyzed by a general meta-analysis using SPSS (gender difference was indicated by the effect size \(d\) for this analysis). The formulae are written as follows:

\[
d = \frac{\bar{M}_i - \bar{M}_j}{SD}, \quad d = \frac{W_{\text{female}} - W_{\text{male}}}{SD},
\]

where \(W_i\) is the weight of all studies, \(N_i\) is the total sample size, \(d\) is the effect size of a single study, and \(SD\) is the combined standard deviation of male and female employees, \(n_i/n_a\) and \(S_a/S_c\) are the sample size and the standard deviation of male or female employees, respectively. Results showed that mean effect sizes of gender difference in WFC scores (\(d_{\text{WFC}} = -0.05, d_{\text{FIW}} = -0.15, d_{\text{WIF}} = -0.02\), respectively) were small according to Cohen's (1992) standards (i.e., effect size is large when \(d = 0.80\), medium when \(d = 0.50\), and small when \(d = 0.20\)), which suggested that there was no significant difference in WFC between males and females.

The above results showed that WFC of Chinese employees increased gradually. However, exactly how much has WFC increased? To further examine the amount of changes in WFC scores, three weighted regression equations were performed to predict the mean scores of the first and the last year of included studies. During 2005–2016, the mean scores of WFC, FIW, and WIF increased by 0.50, 0.65, and 0.27, respectively. The average SDs of WFC, FIW, and WIF reported for the individual samples were 0.65, 0.64, and 0.72, respectively. Thus, WFC, FIW, and WIF scores increased 0.77, 1.02, and 0.38 standard deviations from 2005 to 2016, that is \(d_{\text{WFC}} = 0.77, d_{\text{FIW}} = 1.02, d_{\text{WIF}} = 0.38\) (\(d = (M_{2016} - M_{2005})/M_{SD}\), where \(M_{2016}\) and \(M_{2005}\) represent the mean score in the last and first year, respectively, and \(M_{SD}\) represents the averaged \(SD\)). Therefore, according to Cohen's (1992) guidelines, \(d_{\text{FIW}} = 1.02\) should be considered a large effect size, \(d_{\text{WIF}} = 0.77\) should be considered a medium effect size, and \(d_{\text{WIF}} = 0.38\) should be considered a small effect size. If we converted the SD into percentile scores, the result is also informative. If the average Chinese employees in 2005 scored at the 50th percentile of the distribution, the average employees' WFC, FIW, and WIF in 2016 were in the 78th, 85th, and 65th percentile (assuming a normal curve), respectively. The \(d\) value was then converted (0.77, 1.02, and 0.38) into variance explained by year and found that the proportion (\(r^2 = d^2/(4+d^2)\)) was \(\sim 12.91, 20.64\), and 3.48%. That is, birth cohort explains 12.91, 20.64, and 3.48% of the variance in WFC, FIW, and WIF, respectively.

**Correlations of Employees’ Work-Family Conflict With Social Indicators Over Time**

The direct correlations between WFC scores and social indicators provided possible explanations of the increase in Chinese employees' WFC. As mentioned above, two types of social indicators related to *dual-stress from work and family* were matched with WFC data in two ways: 5 years prior to

\[SE = 0.02, p = 0.09, 95\% \text{ CI} = [-0.03, 0.60], R^2 = 0.11,\] whereas male employees' WFC score was significantly correlated with year (\(\beta = 0.48, SE = 0.03, p = 0.03, 95\% \text{ CI} = [0.09, 0.75], R^2 = 0.23\)). The positive correlations between FIW score and year among male and female employees were both significant (\(\beta_{\text{men}} = 0.57, SE = 0.03, p = 0.03, 95\% \text{ CI} = [0.08, 0.84], R^2 = 0.32; \beta_{\text{women}} = 0.48, SE = 0.02, p = 0.03, 95\% \text{ CI} = [0.07, 0.75], R^2 = 0.23\)). In addition, for male employees, the correlation between WIF score and year was not significant (\(\beta = 0.27, SE = 0.03, p = 0.30, 95\% \text{ CI} = [-0.23, 0.66], R^2 = 0.07\)); and the correlation for female employees was also not significant (\(\beta = 0.06, SE = 0.02, p = 0.77, 95\% \text{ CI} = [-0.33, 0.43], R^2 = 0.01\)).
data collection, and the year of data collection (see Table 3). If the correlations were significant between social indicator scores from 5 years prior or the year of data collection and WFC scores, social indicators could predict WFC changes. It is believed that the time lag of 5 years helped us to determine the predictive effect of social indicators on WFC scores.

As shown in Table 3, correlations were analyzed between social indicators (5 years prior, and the year of data collection) and Chinese employees’ WFC. Results demonstrated that the most significant correlations appeared between WFC and FIW scores and six social indicators from 5 years prior. Correlations between WFC and FIW scores and 6 social indicators from the year of data collection were also significant. In addition, the correlations between FIW scores and six social indicators from 5 years before or the year of data collection were not significant (as shown in Table 3). That is, six social indicator scores from 5 years before or the year of data collection predicted the change in WFC (especially FIW), which indicated that the rise in the number of employees, number of college graduates, divorce rate, elderly dependency ratio, residents’ consumption level, and decline in family size may be some crucial predictors of the increase of WFC in China.

TABLE 2 | Correlations between the year of data collection and employees’ work-family conflict scores, weighted by sample size, 2005–2016.

| Variables          | Bivariate | Weighted |
|--------------------|-----------|-----------|
|                    | r         | 95% CI    | β       | SE | 95% CI | R² |
| WFC                | 0.38**    | [0.15, 0.57] | 0.42** | 0.01 | [0.20, 0.61] | 0.18 |
| WIF                | 0.21      | [-0.06, 0.45] | 0.17 | 0.02 | [-0.10, 0.42] | 0.03 |
| FIW                | 0.41**    | [0.16, 0.62] | 0.44** | 0.02 | [0.19, 0.64] | 0.19 |

WFC, work-family conflict total score; WIF, work interfering family score; FIW, family interfering work score; CI, confidence interval. **p < 0.01.

TABLE 3 | Correlations between social indicators and employees’ work-family conflict scores, weighted by sample size, 2005–2016.

| Social indicators | WFC | WIF | FIW |
|-------------------|-----|-----|-----|
|                    | β   | 95% CI | β   | 95% CI | β   | 95% CI |
| **FIVE YEARS PRIOR** |     |       |     |       |     |       |
| Family size       | -0.26* | [-0.48, -0.02] | -0.04 | [-0.30, 0.23] | -0.45** | [-0.65, -0.20] |
| Divorce rate      | 0.42** | [0.20, 0.61] | 0.20 | [-0.07, 0.44] | 0.42** | [0.17, 0.62] |
| Residents’ consumption level | 0.40** | [0.17, 0.59] | 0.16 | [-0.11, 0.41] | 0.43** | [0.18, 0.63] |
| Elderly dependency ratio | 0.45** | [0.23, 0.63] | 0.21 | [-0.06, 0.45] | 0.41** | [0.16, 0.62] |
| Number of employees | 0.45*** | [0.23, 0.63] | 0.19 | [-0.08, 0.43] | 0.45** | [0.20, 0.65] |
| Number of college graduates | 0.41** | [0.19, 0.60] | 0.15 | [-0.12, 0.40] | 0.44** | [0.19, 0.64] |
| **ACTUAL YEAR**     |     |       |     |       |     |       |
| Family size       | -0.19 | [-0.42, 0.06] | -0.02 | [-0.28, 0.25] | -0.32* | [-0.55, -0.05] |
| Divorce rate      | 0.40** | [0.17, 0.59] | 0.16 | [-0.11, 0.41] | 0.44** | [0.19, 0.64] |
| Residents’ consumption level | 0.42** | [0.20, 0.61] | 0.16 | [-0.11, 0.41] | 0.44** | [0.19, 0.64] |
| Elderly dependency ratio | 0.41** | [0.19, 0.60] | 0.17 | [-0.10, 0.42] | 0.43** | [0.18, 0.63] |
| Number of employees | 0.42** | [0.20, 0.61] | 0.16 | [-0.11, 0.41] | 0.44** | [0.19, 0.64] |
| Number of college graduates | 0.42** | [0.20, 0.61] | 0.17 | [-0.10, 0.42] | 0.42** | [0.17, 0.62] |

WFC, work-family conflict total score; WIF, work interfering family score; FIW, family interfering work score; CI, confidence interval. *p < 0.05, **p < 0.01, ***p < 0.001.

DISCUSSION

Changes in Work-Family Conflict in the Past 12 Years

We performed a cross-temporal meta-analysis of 71 studies to investigate changes in levels of WFC of Chinese employees during 2005–2016. An overall increase was found in scores on WFCs of Chinese employees over time. Both the scores for WFC and FIW increased significantly over time. However, the increase in WIF was not significant. These results supported our hypothesis that WFC has increased over the past 12 years, suggesting that the macro socio-cultural environment may have substantial effects on individuals’ psychological characteristics.

As mentioned above, the increase in the number of the employed population and college graduates in China might boost employees’ stress level from employment competition and unemployment risk. To avoid being laid off, employees must engage more in work to improve their work competence, which inevitably requires long working hours and ineluctably cause different degrees of work engagement. It was found that people with high work engagement have high WFC (e.g., Greenhaus and Kopelman, 1981) because high engagement with work involves...
less time spent with their family, hindering them from fulfilling their family responsibilities.

In addition, the increase in WFC may be related to the decrease in social support, which is in line with previous studies showing that WFC was negatively correlated with social support (e.g., Ford et al., 2007). Moreover, some researchers found that the reduction in social support for work increased levels of WIF and FIW (French et al., 2018). In recent decades, the largely declined social connectedness in China and the collapse of traditional Chinese family system might explain the reduction both in the perceived level of social support for Chinese employees and in the quality of their contact with family members and other people (Xin et al., 2010; Xin and Xin, 2016). Consequently, higher WFC occurred. Moreover, results of the current research indicated that both the growth rate and the variation explained by year in FIW were higher than those in WIF. This difference may be due to the belief that family is more important than work (Wang, 2009). However, people generally tend to sacrifice family time for work, which intensifies the WFC and reduces support from family members. Meanwhile, the one-child policy in China limited population growth until 2015, and the population aging problem in China is becoming worse, which might lead to faster growth in the level of FIW than in the level of WIF.

It is worth noting that the changes in female employees' WFC scores were not significant, which might be consistent with the decline in the desired fertility of the Chinese population (Hou et al., 2014). Female employees' stressors come mainly from bearing and taking care of children; however, their desired fertility has decreased significantly, which might alleviate WFC among female employees. Moreover, the increasing trends in WFC scores for FIW were stronger among male employees than female employees, which could be due to the traditional cultural view that men are supposed to be more independent. Women instead, should be provided with more social support than men (Chen and Zhang, 2012; Xin and Xin, 2016). Gender differences in the means of each type of WFC were small indicated by effect size, which may be because they gradually have equal status both in family and education (Chen, 2008), and the one-child policy has reduced the number of children for whom women need to care.

The Predictive Effect of Social Indicators on Work-Family Conflict

Previous studies have mostly involved the proximal factors (e.g., gender and personality, etc.) influencing WFC of each subject at the individual level, while ignoring the distal factors (e.g., the number of employees and residents' consumption level, etc.) influencing WFC of a group at the macro level. Therefore, the focus of the present study has been on the distal factors at the macro level influencing WFC. This study provided a special opportunity to investigate the predictive effect of two types of social indicators (distal factors at the macro level) on WFC over time. Although prior research has shown that some social indicators (i.e., social support, organizational support) were correlated with WFC among employees (e.g., Zhang, 2009; Chen et al., 2010), they only used cross-sectional design to investigate the intrapersonal associations among these variables. There was no study examined the relationship between WFC and social indicators over time at the group level.

Based on the proposition of dual-stress from work and family, six social indicators of both stress from work and family were considered as facts of the socio-cultural environment, which may be potential predictors of changes in WFC. Therefore, we investigated the predictive effect of six social indicators on Chinese employees' WFC over time by adopting the time lag analysis to compute the correlations of WFC and two types of social indicators related to stress both from work (the number of employees and college graduates) and from family (family size, divorce rate, elderly dependency ratio, and residents' consumption level). As shown in Table 3, two types of social indicators of 5 years before and the year of data collection were significantly correlated with WFC and FIW scores, whereas, the correlations between WIF and social indicators were not significant. Possible explanation for these results is that changes in the stress from work and family were associated with WFC (especially FIW). Specifically, on the one hand, regarding the stress from work, the rise in the number of employees and college graduates might increase pressure from employment competition, which could lead to the rise in employees' WFC. On the other hand, in terms of the stress from family, the decline in social support (i.e., family size), the increased pressure from spousal relationships (divorce rate), supporting the elderly (elderly dependency ratio) and family economic situation (residents' consumption level) might produce higher levels of WFC (especially FIW) among Chinese employees. In a word, the macro external stress brought by the rapid growth of China's economy led to the rise of FIW perceived by employees, but not for WIF.

Implications and Limitations

Our findings from the present research could have important theoretical and practical implications. Most importantly, this research provided evidence to confirm the prediction that WFC of Chinese employees has increased in the past 12 years using the cross-temporal meta-analysis. The current study found that the increasing level of WFC among Chinese employees was associated with six social indicators related to stress both from work (i.e., number of employees, number of college graduates) and from family (i.e., family size, divorce rate, elderly dependency ratio and residents' consumption level) over time. These findings might not only contribute to the knowledge on the distal factors at the macro level influencing WFC, but also suggest that it is necessary to make stress-reducing policies to reduce WFC in China. Therefore, to reduce the WFC level of employees, researchers should investigate the factors influencing WFC of employees and provide some theoretical and empirical evidences to reduce the WFC level of employees; clinicians should focus on the outcome variables of WFC (especially psychological problems) and offer more effective mental health services (such
as lectures on coping with WFC) and design interventions and therapeutic techniques to relieve pressure and reduce mental health problems; policymakers should pay attention to the mental health of employees and adopt effective ways such as Employee Assistance Programs (EAP) to reduce the level of perceived WFC of employees.

Despite these implications, several limitations should be acknowledged. Although the most commonly used assessment of WFC in employees in China is the WFCS, other instruments (e.g., Greenhaus and Beutell, 1985; Frone et al., 1992) have also been employed to examine WFC in this population. Therefore, we suggest that future studies analyze results yielded by different scales in order to deepen the understanding of WFC. In terms of methodology, the effectiveness of the cross-temporal meta-analysis method in reducing ecological fallacy was challenged by some researchers (e.g., Trzesniewski et al., 2008). Thus, we suggest that future research should verify the reliability of the results of the current study using the method proposed by Trzesniewski et al. (2008). Moreover, the present research limited its conclusions to Chinese employees. Future research should investigate whether WFC has also changed in other countries with rapid economic development. In addition, because the employees in the present sample were of different ages and our analysis covered a period of 12 years, it was difficult to distinguish cohort effects from those of age and time period. Unfortunately, few of the original publications employed by the present study provided information regarding the details of age or the WFC scores across different age groups. As this is a limitation, future research should examine this issue by improving current methods or developing new ones.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are available on request to the corresponding author.

AUTHOR CONTRIBUTIONS

SX wrote this manuscript. YZ collected data. ZX revised this manuscript.

FUNDING

This paper was supported by Humanities and Social Sciences Youth Foundation Projects from the Ministry of Education of the People’s Republic of China (No. 17YJC190026).

REFERENCES

Aycan, Z., and Eskin, M. (2005). Relative contribution of childcare, spousal, and organizational support in reducing work-family conflict for males and females: the case of Turkey. Sex Roles 53, 453–471. doi: 10.1007/s11199-005-7134-4

Behson, S. J. (2002). Coping with family-to-work conflict: the role of informal work accommodations to family. J. Occup. Health Psychol. 7, 324–341. doi: 10.1037/1076-8989.7.4.324

*Bi, Y. C. (2011). Research on the influence of work family conflict, compensation and promotion satisfaction on turnover intention based on the tour guide industry (Unpublished master’s thesis). University of Science and Technology of China, Hefei, China.

*Bian, J. L., Zhang, W., Qian, Y. Y., and Yan, L. J. (2017). A study on the relationship between work-family conflict levels and subjective well-being of male employees in Daqing Oilfield. Labor Safeguard World 33–34. doi: 10.3969/j.issn.1007-7243.2017.32.025

*Cao, H. L., Wang, J. H., and Ding, A. M. (2015). Correlation analysis of the conflict between work and family of nurses, self-efficacy and organizational commitment in the general hospitals at the level of grade III class A. J. Qiba Nurs. 21, 24–26. doi: 10.3969/j.issn.1006-7256.2015.07.009

Carlson, D. S., Kacmar, K. M., and Williams, L. J. (2000). Construction and initial validation of a multidimensional measure of work-family conflict. J. Vocat. Behav. 56, 249–276. doi: 10.1006/jvbe.1999.1713

*Chen, C. R. (2011). The study of status and influencing factors of nurses’ work-family conflict (Unpublished master’s thesis). University of South China, Hengyang, China.

*Chen, C. R., Chen, C. P., Zhao, S. S., and Duan, G. X. (2010). The nurse of the investigation of the status quo of the work-family. Chin. J. Nurs. 45, 629–630. doi: 10.3761/j.issn.0254-1769.2010.07.021

*Chen, H. (2008). A research on the relation among work-family conflict of middle school teachers, personality trait and quality of life (Unpublished master’s thesis). Guizhou Normal University, Guiyang, China.

Chen, K., and Zhang, Y. Y. (2012). The relationship between social support and subjective well-being: the mediating effects of loneliness. J. Fuyang Teach. Coll. 5, 140–144. doi: 10.14096/j.cnki.cn34-1044/c.2012.05.030

*Chen, Y. Q. (2013). Study on the influence of work-family conflict on turnover intention in China (Unpublished master’s thesis). Nanjing: Nanjing Normal University.

*Chen, Z. W., Tian, S. Q., and Wang, J. L. (2014). The empirical study on bidirectional conflict between work and family and its effect on turnover intention. Soft Sci. 28, 65–69. doi: 10.3969/j.issn.1001-8409.2014.08.014

*Cheng, S. Z., Chen, W. Q., Chen, M. H., Liu, T., and Bu, X. Q. (2008). Relationship between work-family conflict and job satisfaction among nurses. Chin. Nurs. Manag. 23, 40–42. doi: 10.3969/j.issn.1001-4152.2008.17.022

*Cheng, W. Q. (2017). Research on the effect of work-family conflict on engagement among bank practitioners: psychological capital as a moderator (Unpublished master’s thesis). Shandong University, Jinan, China.

Cohen, J. (1992). Statistical power analysis. Curr. Direct. Psychol. Sci. 1, 98–101. doi: 10.1111/1467-8721.ep10768783

*Ding, X. T., Li, H. P., Yang, Y. J., Su, D., and Zhang, T. (2017). Relationship between work-family conflict, work control and job satisfaction among head nurses. Modern Prevent. Med. 44, 2396–2400.

Duxbury, L. E., and Higgins, C. (1991). Gender differences in work-family conflict. J. Appl. Psychol. 76, 60–74. doi: 10.1037/0021-9010.76.1.60

Duxbury, L. E., and Higgins, C., and Lee, C. (1994). Work-family conflict: a comparison by gender, family type, and perceived control. J. Family Issues 15, 449–466. doi: 10.1177/019251394015003006

Eby, L. T., Casper, W. J., Lockwood, A., Bordeux, C., and Brinley, A. (2005). Work and family research in I/O/OB: content analysis and review of the literature (1980-2002). J. Vocat. Behav. 66, 124–197. doi: 10.1016/j.jvob.2003.11.003

*Fang, Y. (2010). Research on the relationship between work-family conflict and job satisfaction of middle managers in enterprises (Unpublished master’s thesis). Northwest University, Xian, China.

*Feng, H. Y., Cui, Y. J., He, J., and Wang, M. Q. (2012). Study on the correlation between work-family conflict and quality of work and life in a hospital of Nanchong. Med. Soc. 25, 63–65. doi: 10.3870/YXSH.2012.04.022

Ford, M. T., Heinen, B. A., and Langkamer, K. L. (2007). Work and family satisfaction and conflict: a meta-analysis of cross-domain relations. J. Appl. Psychol. 92, 57–80. doi: 10.1037/0021-9010.92.1.57

French, K. A., Dumanli, S., Allen, T. D., and Shockley, K. M. (2018). A meta-analysis of work-family conflict and social support. Psychol. Bull. 144, 284–314. doi: 10.1037/bul0000120
Frone, M. R., Russell, M., and Cooper, M. L. (1992). Attendants and outcomes of work-family conflict: testing a model of the work-family interface. J. Appl. Psychol. 77, 65–78. doi: 10.1037/0021-9010.77.1.65

*Gan, Y. F. (2015). Research on the relationship between work-family conflict and subjective well-being of employees (Unpublished master's thesis). Jilin University, Changchun, China.

He, M., and Sun, Y. (2012). Study on correlation between work-family conflict and subjective well-being (Unpublished master's thesis). Jilin University, Changchun, China.

Hu, C. M., He, H. M., and He, L. (2013). Association of quality of life with work-family conflict and neuroticism, 1952–1993. J. Pers. Soc. Psychol. 79, 1007–1021. doi: 10.1037/0022-3514.79.6.1007

He, M., and Sun, Y. (2012). Study on correlation between work-family conflict and turnover intention and social support of emergency nurses. Chin. Nurs. Res. 26, 2986–2989. doi: 10.3969/j.issn.1009-6493.2012.52.005

Huang, L. N. (2014). Empirical research on work-family conflict and job satisfaction (Unpublished master's thesis). Jilin University, Changchun, China.

Hu, C. K., Hu, Y. L., and Ling, Y. (2012). Relationship between work-family conflict and job satisfaction of female librarians. J. Library Sci. Soc. Sichuan 3, 80–83. doi: 10.3969/j.issn.1003-7136.2012.03.023

Li, K. C., Liu, Q., and Luo, H. (2011). Empirical research on work-family conflict (WFC) of female librarians: taking the university libraries in Sichuan as the example. Sci-Tech Inform. Dev. Econ. 21, 68–70. doi: 10.3969/j.issn.1005-6033.2011.33.027

Li, J. (2012). Core self-evaluation of work-family conflict and negative emotion adjustment. Sci. Soc. Psychol. 27, 66–72.

Li, K. J., Liao, S. M., and Xi, Z. (2012). Impact of work-family conflict on community nurses' attitudes toward work. Chin. Gen. Pract. 15, 925–928.

Liang, N. (2014). The impact of work-family conflict on job involvement (Unpublished master's thesis). Nanjing Normal University, Nanjing, China.

Liu, Y. (2012). The collapse of the family system. Zhejiang Acad. J. 3, 97–98. doi: 10.13239/j.cnki.zjyy.2017.0545

Tong, X., and Liu, A. Y. (2015). A model of conjugal cooperation in housework for urban dual-earner couples: based on the third survey of women's status in urban China. J. Sci. China - Natl. Sci. 96–111.

Trzesniewski, K. H., Donnellan, M. B., and Robins, R. W. (2008). Is "Generation Me" really more narcissistic than previous generations? J. Pers. 76, 903–918. doi: 10.1111/j.1467-6494.2008.00508.x

Twenge, J. M. (2000). The age of anxiety? Birth cohort change in anxiety and neuroticism, 1952–1993. J. Pers. Soc. Psychol. 79, 1007–1021. doi: 10.1037//0022-3514.79.6.1007

Twenge, J. M., and Campbell, W. K. (2001). Age and birth cohort differences in self-esteem: a cross-temporal meta-analysis. Pers. Soc. Psychol. Rev. 5, 321–344. doi: 10.1207/S15327957PSPPR0504_3
Twenge, J. M., and Foster, J. D. (2010). Birth cohort increases in narcissistic personality traits among American college students, 1982–2009. *Soc. Psychol. Pers. Sci.* 1, 99–106. doi: 10.1177/1948550609355719

Twenge, J. M., and Im, C. (2007). Changes in the need for social approval, 1938–2001. *J. Res. Pers.* 41, 171–189. doi: 10.1016/j.jrp.2006.03.006

Wang, H. F. (2009). *A study of the relationship among entrepreneur’s work-family conflict, coping strategies and entrepreneurial performance* (Unpublished master’s thesis). Zhejiang University, Hangzhou, China.

Wang, H. Y. (2013). *The relationship between work-family conflict, organizational support and job burnout* (Unpublished master’s thesis). Zhejiang University of Technology, Hangzhou, China.

Wang, J. (2005). *Work stress as a risk factor for major depressive episode(s).* *Psychol. Med.* 35, 865–872. doi: 10.1017/S0140525X05000324

Wang, T. T. (2015). *Research on the relationship of work family conflict and subjective well-being of female professors: the moderating effect of social support* (Unpublished master’s thesis). Jilin University, Changchun, China.

Wang, Y. L., Huang, L. H., and Liu, Y. (2013). A study of the impact of role salience on the work-family conflict model. *Soft Sci.* 27, 23–35. doi: 10.3969/j.issn.1001-8409.2013.12.005

Xie, J. L., Ma, H. Y., Tang, H. Y., and Shen, C. G. (2015). Effects mechanism of gender on work-family conflict: an empirical study based on the role social theory. *J. Psychol. Sci.* 38, 191–195. doi: 10.16719/j.cnki.1671-6981.2015.01.024

Xin, S. F., and Xin, Z. Q. (2016). Birth cohort changes in Chinese college students’ loneliness and social support: one up, as another down. *Int. J. Behav. Dev.* 40, 398–407. doi: 10.17770/ijbd.v40i5.77547

Xin, Z. Q., and Xin, S. F. (2017). Marketization process predicts trust decline in China. *J. Econ. Psychol.* 62, 120–129. doi: 10.1016/j.jeppo.2017.07.001

Xin, Z. Q., Zhang, L., and Liu, D. (2010). Birth cohort changes of Chinese Adolescents’ anxiety: a cross-temporal meta-analysis, 1992–2005. *Pers. Indiv. Diff.* 48, 208–212. doi: 10.1016/j.paid.2009.10.010

Xin, Z. Q., and Zhang, M. (2009). Changes in Chinese middle school students’ mental health (1992–2005): a cross-temporal meta-analysis. *Acta Psychol. Sin.* 41, 69–78. doi: 10.3724/SP.J.1041.2009.00069

Xing, M. (2015). *Study on the relationship among work pressure, social support and work family conflict of college counselors* (Unpublished master’s thesis). Nanchang University, Nanchang, China.

Xu, Z. E. (2015). *Study on the relationship among work-family conflict, job involvement and turnover intention of insurance salesmen* (Unpublished master’s thesis). Nanchang University, Nanchang, China.

Yan, L. X. (2012). *Investigation of the empathy ability of obstetric nurses* (Unpublished master’s thesis). University of South China, Hengyang, China.

Yan, L. X., Zhang, P., and Shen, H. Y. (2011). A study of the correlation between empathy attitude and work interference with family in obstetric nurses. *Chin. Nurs. Manag.* 11, 39–42. doi: 10.3969/j.issn.1672-1756.2011.09.013

Yang, J. (2014). *Dual-earner couples work centrality and work-family conflict research: intermediary role of psychological detachment* (Unpublished master’s thesis). Central China Normal University, Wuhan, China.

Yang, Q. (2016). *A study of the relationship between work family conflict and subjective well-being in Changsha grass-roots police: the moderation effect of social support* (Unpublished master’s thesis). Hunan Normal University, Changsha, China.

Yang, Q. (2017). *The relationship research between knowledge staff’s work conflict and turnover intention-based on the organizational commitment mediating role* (Unpublished master’s thesis). Shenzhen University, Shenzhen, China.

Yuan, Y. L. (2016). *The relations between job-family conflict, job satisfaction and turnover intention* (Unpublished master’s thesis). Guangdong University of Foreign Studies, Guangzhou, China.

Zeng, L. P., Lu, L., and Sui, G. C. (2008). Relationship between work-family conflict and job burnout of IT staffs. *Prog. Modern Biomed.* 8, 731–733. doi: 10.1324/fn.pmb.2009.20.060

*Zhang, D. D., and Sun, X. P. (2017). An empirical study on the work-family conflict of medical representatives. *Valse Eng.* 36, 76–78.

Zhang, F. F., and Qian, S. (2014). An empirical study on work and family conflict of college counselors in Wenzhou. *J. Wenzhou Vocat. Tech. Coll.* 14, 76–80. doi: 10.13669/j.cnki.33-1276/j.2014.003

Zhang, J. W., and Liu, Y. X. (2011). The influence of work-family confliction employee Withdrawal: The moderating effects of family-friendly practices and the meaning of work. *Forecasting* 30, 1–9. doi: 10.3969/j.issn.1003-5192.2011.01.001

Zhang, Y. (2011). *A study on the relationship between work-family conflict and turnover intention of female bus driver* (Unpublished master’s thesis). Nanchang University, Nanchang, China.

Zhang, Y. X. (2013). *Teachers' job characteristics, perceived control and work time for the relationship between family conflict: In the case of teachers in Hengshui two middle school* (Unpublished master’s thesis). Hebei Normal University, Shijiazhuang, China.

Zhang, Z. F. (2013). *Study on the relationship between work-family conflict and turnover intention of insurance salesmen: the mediating role of self-efficacy* (Unpublished master’s thesis). Jilin University, Changchun, China.

Zhang, Z. N. (2009). *The relationship between perceived organizational support, work-family conflict and job satisfaction: Illustrated by the case of large-scale state-owned enterprise* (Unpublished master’s thesis). Zhejiang University, Hangzhou, China.

Zhao, J. (2015). *The influence of family requirement, family work conflict and psychological separation on cognitive failure of primary and secondary school teachers* (Unpublished master’s thesis). Shaanxi Normal University, Xian, China.

Zhao, X. (2011). *The relationship between work-family conflict and job satisfaction of staff nurses* (Unpublished master’s thesis). Yanbian University, Yanji, China.

Zhao, X. (2013). *The relationship among work-family conflict, coping styles and job satisfaction of staff nurses.* *Chin. Nurs. Manag.* 13, 28–32. doi: 10.3969/j.issn.1672-1756.2013.04.009

Zhou, C. M., and Hao, X. C. (2009). *The relationship between work-family conflict and life satisfaction: big five personality as a mediator variable.* *J. Psychol. Sci.* 32, 1057–1060. doi: 10.16719/j.cnki.1671-6981.2009.05.034

Zhou, H. Y., Chang, H., Liu, D., and Guo, J. J. (2011a). Correlation analysis of work-family conflict, social support and job satisfaction of nurses. *Chin. Nurs. Manag.* 11, 57–60. doi: 10.3969/j.issn.1672-1756.2011.10.019

Zhou, H. Y., Chang, H., Liu, D., and Guo, J. J. (2011b). Survey and analysis of social support and organizational commitment for nurses work-family conflict, *J. Nurs. Treat.* 26, 2255–2258. doi: 10.3969/j.issn.1002-6975.2011.24.021

Zhu, F. L. (2014). *The empirical research between enterprise employees’ work family conflict, perceived organizational support and job performance in the context of China* (Unpublished master’s thesis). Nanjing University, Nanjing, China.

Zhu, H. M., Yang, H., and Liu, Q. C. (2011). The status quo of work-family conflict of emergency nurses and its balancing strategies. *Chin. Gen. Pract. Nurs.* 9, 571–573. doi: 10.3969/j.issn.1674-4748.2011.07.003

*References marked with an asterisk indicate studies included in the meta-analysis.

**Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2020 Xin, Zheng and Xin. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

**Frontiers in Psychology** | [www.frontiersin.org](http://www.frontiersin.org)