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Job demands and work–family conflict in preschool teachers: The buffering effects of job resources and off-job recovery experiences

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Abstract
Drawing on the job demands-resources model and effort-recovery model, this two-wave study among preschool teachers explored whether job demands (i.e., workload and surface acting) increase work–family conflict over time. The authors further predicted that job resources (i.e., supervisor support and the perceived meaning of work) as well as recovery experiences during after-work hours (i.e., psychological detachment and relaxation) act as buffers and mitigate the detrimental effects of job demands on work–family conflict. This study was conducted among 337 preschool teachers in Chinese societies over the period of 1 year. In line with these hypotheses, results indicated that job demands (i.e., workload and surface acting) significantly increase work–family conflict over time and, more importantly, job resources and recovery experiences during after-work hours protect against increased work–family conflict over time despite high job demands. These findings contribute to work–family research and show how the detrimental impacts of job demands on the family domain can be prevented through enhancing job resources and fostering well-functioning recovery experiences during after-work hours.

Keywords Job demands · Job resources · Recovery experiences · Work–family conflict

Introduction

In modern times, employees face high levels of job demands, often accompanied by high work strain that maybe spillover into their family domains (Bulger et al. 2007). Employees who face work overload (Goh et al. 2015) and a variety of other job stressors such as job insecurity (Voydanoff 2004), interpersonal conflict (Martinez-Corts et al. 2015), and emotional dissonance (Cheung and Tang 2012) often suffer from elevated work–family conflict. There are now many studies testing the predictors of work–family conflict among adults employed in a broad range of occupations (Bakker et al. 2011; Beham et al. 2011; Byron 2005). However, very few studies very have been conducted with preschool teachers. Given the mental, emotionally, and physically demanding nature of their job (Denham et al. 2012; Hall-Kenyon et al. 2014), preschool teachers may be especially vulnerable to experiencing heightened work–family conflict (Bulger et al. 2007). Since job demands always cannot be cut down, the idea of increasing job resources instead of combating strain is compelling for present-day working life. However, prior research rarely tests the buffering role of job resources in predicting work–family relationship. The current study concentrates on the buffering hypothesis of the job demands–resources (JD–R) model (Demerouti et al. 2001), and aims to examine its generalizability to work–family conflict by controlling for cross-time changes.

In addition to job resources, there has been some good research noted that the process of recovery from work is equally important (Geurts and Sonnentag 2006; Sonnentag and Zijlstra 2006). Recovery refers to the psychophysiological processes in which one person's functioning returns to its pre-stressor level and during which strain is at least alleviated or even eliminated (Geurts and Sonnentag 2006). Theoretically, the detrimental effects of high job demands can be viewed as the result of a long-term imbalance between the effort invested in dealing with job demands and one's recovery, including internal recovery during the working day (e.g., by taking a break) and external recovery after working hours (Meijman and Mulder 1998; Sonnentag and Zijlstra

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2006; Taris et al. 2006). High job demands necessitate high effort investment during working hours, thereby constraining the possibilities for internal recovery—no time to have a good rest. Because after-work hours provide individuals with a longer break from work, the current study was mainly designed to investigate external recovery (i.e., recovery experiences during after-work hours). Based on the idea that recovery experiences during after-work hours as a type of individual strategies play a particularly salient role in the recovery process and is important for recovery (Sonnentag and Fritz 2007), we focus on the buffering effects of recovery experiences on work–family relationship. By doing so, we aimed to extend the JD-R model because recovery experiences have been rarely studied in the JD-R model but may be of great importance for work–family literature. The beneficial effects of recovery experiences are also theoretically based on the effort-recovery model (E-R; Meijman and Mulder 1998). Our study further highlights the combination of different theoretical views for getting insights into the existing work–family literature.

This research contributes to past research in several ways: First, this study contributes to the growing body of international work–family research. During the past few years, women's participation in the workforce has been growing in China (Halpern and Cheung 2008), which has led to changes in the roles of women in society. As a result of this trend, handle of massive family responsibilities and work obligations has been a great challenge for Chinese women (Lu et al. 2009). The current study tested work–family conflict among preschool teachers, a female-dominated profession largely neglected by work–family conflict researchers. As an ever rising economic power, China represents a unique cultural context to examine work–family conflict (Ling and Poweli 2001; Lu et al. 2009). The results of our study could enable the generalization of Western findings to Chinese population and therefore contribute to the development of work–family literature.

Second, early childhood education is the most basic education, and it offers the solid foundation for formal education. Preschool teachers are required to keep children physically and psychologically safe, provide instruction to satisfy learning outcomes, and pay attention to children's cognitive, emotional and social development (Coplan et al. 2015; Wells 2015). Much like parents, preschool teachers are expected to display more positive and pleasurable emotions during work to cultivate children's social–emotional competence and secure attachment (Denham et al. 2012). However, it is not so easy for preschool teachers to maintain the generally positive emotional expression if they are experiencing enormous job stress and subsequent work–family conflict, and it is hence important to investigate stressful conditions of preschool teachers.

Finally, the current study focuses on the buffering hypothesis of JD-R model to test the stress-buffering role of job resources and recovery experiences in the association between job demands and work–family conflict. To our knowledge, so far there is little research to test the JD-R model, and especially its interaction hypothesis in predicting work–family conflict. On the one hand, testing JD-R model in a different cultural context (i.e., China) lends support to the generalizability of the JD-R model. On the other hand, this study is the first longitudinal study to examine the buffering role of recovery experiences in predicting work–family conflict.

In sum, by integrating the theoretical propositions from the JD–R model (Demerouti et al. 2001) and the E-R model (Meijman and Mulder 1998), the overarching goal of this study was to get a deeper understanding of work–family relationship with a comprehensive survey of job demands, job resources, and recovery experiences as key antecedents of preschool teachers' work–family conflict. Because most of the work-family relationship studies have utilized cross-sectional designs, there are needs for more strict investigations to clarify the nature of the relationship. Utilizing a two-wave longitudinal design, the study investigates the degree to which job demands, job resources and recovery experiences, and specifically their interactions are associated with preschool teachers' work–family conflict over time.

Theoretical Background

The JD–R model (Demerouti et al. 2001; Voydanoff 2004) and E-R model (Meijman and Mulder 1998) can be considered as complementary theoretical framework to explain the work–family relationship. The JD–R model is a heuristic model in which work characteristics can be organized in two major categories: job demands and job resources. Job demands (e.g., cognitive and emotional demands) refer to those aspects of the job that require sustained mental and/or physical effort (Demerouti et al. 2001). Job resources (e.g., supervisor and coworker support) refer to the aspects of the job that help reduce demands, achieve work goals, and/or stimulate personal growth (Bakker and Demerouti 2007). The JD–R model proposes that a range of detrimental outcomes can result from high job demands, which is defined as the health impairment process (Hu et al. 2011). Moreover, the JD-R model suggests a buffering effect, namely that job resources may help to reduce the health-impairing effects of job demands on employee outcomes (Bakker and Demerouti 2007; Hu et al. 2011).

The E-R model proposes that expending effort to cope with job demands results in physiological and psychological load reactions such as acute fatigue, and when an individual recovers themselves from job demands by some individual strategies (e.g., psychological detachment) both during the working day and outside working hours, their functional systems return to pre-stressor levels and load reactions are released (Meijman and Mulder 1998). However, if no sufficient recovery takes place,

negative load reactions may accumulate over time, which ultimately lead to a series of detrimental consequences (Geurts and Sonnentag 2006). According to E-R model, work–family conflict can be viewed as an experience that is involved in the process whereby ones' functioning in one domain is affected by negative load effects that have built up in the other domain (Bakker and Geurts 2004). If recovery is successful, the individual returns to his/her optimal state and it is easier for him/her to better devote energy resources when going home.

While the JD-R model focuses on the health impairment process of job demands as well as the buffering effects of job resources, the E-R model utilizes a recovery perspective to elaborate work–family relationship. We believe that the health impairment process can explain why high job demands lead to elevated work–family conflict and that the buffering hypothesis can clarify the moderating role of job resources in the work–family relationship. Furthermore, the idea of job demands that require continuous effort and the "spillover" of negative load effects from work to family makes the theory viewpoint provided by the E-R model relevant for studying work–family conflict.

Job Demands as Key Predictors of WFC

Work–family conflict is an interrole conflict in which performing the work (family) role impairs one's ability to fulfill the family (work) role (Greenhaus and Beutell 1985). Work–family conflict is defined as a bidirectional construct in which demands from the work domain interfere with participation of the family role (i.e., work-to-family conflict; WFC) or family responsibilities clash with adequate performance in the work role (i.e., family-to-work conflict; FWC) (Carlson et al. 2000; Netemeyer et al. 1996). Because most results indicate that job demands more heavily influence WFC rather than FWC (e.g., Byron 2005; Netemeyer et al. 1996; Voydanoff 2004), we only focus on unidirectional WFC.

According to the JD-R model, job demands evoke the health impairment process in which employees' physical and psychological resources are depleted and thus limit employees' abilities to deal with family responsibilities (Bakker and Geurts 2004; Voydanoff 2004). Specifically, of job demands, we focus on workload and surface acting. As Hall-Kenyon et al. (2014) point out, working in early childhood education exposes preschool teachers to a growing pressure. Preschool teachers involve dealing with a wide range of requirements, including common child care tasks (e.g., lunch and toileting), the time demands of teaching, non-teaching tasks (e.g., buying materials and paperwork), and the efforts to maintain an early childhood philosophy (Hall-Kenyon et al. 2014). Workload refers to having high amounts of work to do during a limited time (Frone et al. 1997). Because preschool teachers involve providing children with warmth and safe, training children's language and vocabulary skills, and communicating effectively with parents, they must accomplish numerous tasks within a fixed time (Coplan et al. 2015; Wells 2015). Thus, work overload may be one of the most cited job demands by preschool teachers.

Workload has been identified as a key predictor of WFC (Bakker et al. 2011; Beham et al. 2011; Byron 2005). High workload can increase WFC via a variety of strain-related mechanisms (Edwards and Rothbard 2000; Voydanoff 2004), such as negative mood spillover and resource drain (Edwards and Rothbard 2000; Ilies et al. 2015). Negative mood spillover occurs when negative emotional states (e.g., anxiety, tension, and worry) originating from one domain is transferred to another domain, thereby interfering with performance and relationships in that domain (Edwards and Rothbard 2000). For example, when an individual worries about work when at home, he/she is unable to meet family demands whole-heartedly. Accordingly, high workload may link to high levels of WFC through a process of negative mood spillover in which dealing with high workload tends to evoke negative moods (e.g., anxiety) that negatively influence social interactions and role performance in the family. From the resource drain perspective, resources (energies) are finite and allocating resources to the work domain will reduce the number available in the family domain (Edwards and Rothbard 2000). A high workload requires that sustained effort is invested in the work domain, and this depletes individuals' energy resources (Ilies et al. 2015). This loss of energy resources may negatively influence the family domain, as individuals have inadequate resources with which to fulfill family-related tasks and demands. Thus, preschool teachers should experience heightened WFC when their workload is higher.

Emotional labor has been an inherent part of teaching and teachers' lives, and teachers are strongly encouraged to self-regulate their displayed emotions as a way of complying with the professional norms (Yin and Lee 2012; Sutton and Wheatley 2003). The psychological process of regulating both feelings and expressions for displaying organizationally desirable emotions is called emotional labor (Grandey 2000). Hochschild (1983) initially defined emotional labor as the process by which service employees create and express a specific facial and bodily display when interacting with the customers. In the context of teaching, students are similar to customers (Lee and Brotheridge 2012; Yin and Lee 2012). The emotional labor of teachers involves expressing organizationally desired emotion and using proper body and verbal language during their interactions with students and others in classroom and school settings (Yin and Lee 2012). In order to conduct emotional labor effectively, teachers can handle two typical emotional labor strategies (i.e., surface and deep acting) to regulate their feelings and expressions when working. Although both deep and surface acting enable teachers to

express the organizationally required emotion, the essence of these two strategies is different. Deep acting, in the form of regulating the actual feeling to match required displays (Grandey 2000; Hochschild 1983), can result in resource gains such as personal accomplishment (Brotheridge and Grandey 2002) and genuine affective experience (Brotheridge and Lee 2002). In contrast, surface acting involves regulating only the expression of emotions without changing the inner emotions, and it often tends to elicit more adverse effects that deserve attention (Hülsheger and Schewe 2011). Thus, this study focuses only on the emotion regulation strategy of surface acting.

In early childhood education context, surface acting can be defined as a strategy by which preschool teachers fake unfelt emotions or suppress felt emotions to comply with the normative beliefs and expectations of early childhood education (Lee and Brotheridge 2012). Preschool teachers are expected to suppress their frustration, unhappiness, disappointment, or anger and go on teaching passionately and livelily in spite of all negative aspects. For instance, in the face of those children who continually misbehave during instructional time, a preschool teacher might feel frustrated inside but superficially act as if he or she was calm so that class may be continued. According to the JD-R theory (Demerouti et al. 2001), surface acting constitutes a strain-based job demand because it requires continuous efforts to monitor actual and desired emotions as well as to change their emotional expression and makes people feel drained and exhausted (i.e., physiological and psychological costs) (Hülsheger and Schewe 2011). Despite sufficient empirical evidence indicating that surface acting has adverse effects on work-related well-being (for a review, see Hülsheger and Schewe 2011), its implications for the nonwork domain are greatly overlooked.

While there is abundantly cross-sectional evidence that high job demands are associated with work–family conflict, this relation is less clear from a longitudinal perspective. The E-R model implies that high job demands are likely to create high levels of WFC over time. When facing high job demands, individuals invest extra effort and mobilize energy via psycho-physiological activation to meet the demands. Increased effort investment and activation in turn overtax physiological and psychological systems, and inevitably generate behavioural, psychological, and physiological load reactions, such as accelerated heart rate, irritability, acute fatigue, and social withdrawal (Geurts and Sonnentag 2006; Sonnentag and Fritz 2015; Sonnentag and Zijlstra 2006). These negative load effects may accumulate over time and generate higher negative spillover, which would ultimately lead to an increase of WFC after longer periods of time.

Hypothesis 1: The two job demands, namely workload (H1a) and surface acting (H1b) predict an increase of WFC over time.

The Stress-Buffering Roles of Job Resources and Recovery Experiences

Despite the demanding nature of early childhood education, preschool teachers feel their work is meaningful and rewarding, and the core of pedagogical work–interactions with children–is considered to contribute to job satisfaction (Hall-Kenyon et al. 2014). In another word, working with children provides preschool teachers with sufficient resources to resist pressure and challenges. The buffering hypothesis proposed by the JD-R model (Bakker and Demerouti 2007) is that adequate job resources are critical to prevent detrimental effects of job demands on employees' well-being, including employees' WFC (Bakker et al. 2011). According to Voydanoff (2004), such job resources might be found on both enabling resources and psychological rewards. Enabling resources involve skills, abilities, and support generated at work that enable individuals to perform better by improving individuals' capacity and competence. Psychological rewards, such as the perceived meaning of work and work pride, can produce a series of beneficial outcomes including ego gratification, personal accomplishment, and positive emotional expression (Beham et al. 2011; Voydanoff 2004). We studied supervisor support, which is a key enabling resource, and the perceived meaning of work, which is an important psychological reward.

The moderating role of supervisor support in the stressor-strain relationship has been well documented. Perceived supervisory support reflects the extent to which employees believe that their supervisors are able to provide caring, guidance, assistance, and feedback in times of need (Eisenberger et al. 2002). Because supervisors act as agents of the organization, who are in charge of employee performance and evaluation, employees tend to consider supervisors' behavior toward them as indicative of the degree to which the organization concerns for their well-being and values their contributions (Eisenberger et al. 2002; Ng and Sorensen 2008). Supervisor support can alter the appraisal process in which potential stressors are not appraised as being stressful (Cohen and Wills 1985; Pluut et al. 2018). Even if stressors are appraised as being stressful, supervisors can help employees to better cope with high job demands by informational and instrumental forms of support (e.g., giving useful advice), or to psychologically overcome the stressful nature of high job demands by emotional support (i.e., providing care and understanding). Thus, we believe that supervisor support can help individuals lower the level of strain that they bring home in the face of high job demands by the appraisal of high job demands as nonstressful or by providing both instrumental and emotional support (Cohen and Wills 1985; Pluut et al. 2018).

Although supervisor support is generally studied in the work–family literature, the perceived meaning of work

received little attention. What does "work" mean to preschool teachers? Although preschool teachers play an important role in early childhood education, they have poor working conditions, such as low salary and benefits, and low social status (Hall-Kenyon et al. 2014; Wells 2015). To overcome such conditions, it is crucial that preschool teachers consider that their job is meaningful and attach a high value to their job. According to the JD-R model, we propose that the perceived meaning of work will offer preschool teachers with energy to effectively tackle high job demands, thereby buffering the effect on WFC. Thus, we predicted:

> Hypothesis 2: Supervisor support (H2a) and the perceived meaning of work (H2b) buffer against the detrimental effects of job demands on WFC over time.

Sonnentag and Fritz (2007) introduce "recovery experiences" as a mechanism to help recovery. They proposed four recovery experiences, i.e., psychological detachment, relaxation, mastery, and control; the first two have received most research attention, and their recovery effect has been widely demonstrated. Thus, we decided to choose the two recovery experiences. Psychological detachment refers to an "individual's sense of being away from the work situation" (Etzion et al. 1998, p. 579). It implies disengaging mentally from work and work-related affairs during nonwork time (Sonnentag and Fritz 2007). Relaxation refers to a state in which the individual experiences low activation and increase positive affect. This state can be considered as a result of a series of beneficial activities, such as listening to music or reading a book (Sonnentag and Fritz 2007). Psychological detachment and relaxation are addressed by the E-R model (Meijman and Mulder 1998). Thus, we use the model as a theoretically framework to explore the buffering role of the two recovery experiences in the relationship between job demands and WFC.

Through applying the E-R model to work–family interface, the core assumption here is that continuous exposure to high job demands in combination with inadequate recovery result in an accumulation of negative load effects that may generate higher negative spillover, eventually leading to an increase of WFC after a longer period of time (Bakker and Geurts 2004). Psychological detachment and relaxation may be particularly helpful, because they enable employees to withdraw from high job demands and cease the further taxation of functional systems during work (Meijman and Mulder 1998). In other words, psychological detachment and relaxation offer the opportunities for employees to calm down and to recharge their cognitive and emotional resources that are used up when dealing with high job demands. When individuals feel that high job demands are interfering with their family life, successful detachment and relaxation help them to fully free up energy and time for participation in family activities. Thus, we propose the following hypothesis:

> Hypothesis 3: Psychological detachment (H3a) and relaxation (H3b) buffer against the detrimental effects of job demands on WFC over time.

Method

Procedure and Participants

This study utilized a two-wave study design with a one-year time lag. This period guarantees that seasonal influence is stable and potential changes are detected (Hagenaars 1990; Leiter and Durup 1996). All participants were full-time Chinese preschool teachers residing in the People Republic of China (PRC). Invitation letters were sent to the kindergarten leader of 22 preschools in Xi'an, a major provincial capital located in the west of China. The kindergarten leader recruited their teachers to participate in this survey on a voluntary basis and a summary of findings would be provided as a token of appreciation. On the cover page of the questionnaire, we explained clearly to the participants that their responses were confidential. The questionnaires contained a code to match participants at two time points.

At T1, 553 preschool teachers returned a completed questionnaire (response rate of 72.9%) and at T2, 582 preschool teachers responded (response rate of 73.1%). Note that T2 questionnaires were distributed to all preschool teachers, regardless of whether they had completed T1 questionnaires. Respondents to both panels include of 337 female preschool teachers. The mean job tenure was 6.84 years ($SD = 4.62$). 30.6% of preschool teachers had completed vocational education or high school, 41.5% had completed college or higher vocational education, 25.5% had completed undergraduate or graduate education, whereas 2.4% did not report the level of education. In terms of marital status, 34.4% were single or never married, 62.6% teachers were married, whereas 3.0% did not provide any information on their marital status. In addition, 48.7% of preschool teachers had no children at home, 46.9% had children of any age at home, whereas 4.5% did not report whether they have children. In terms of the classroom characteristics, the average class size was 28.53 ($SD = 5.43$), and the average child-adult ratio was 9.59 ($SD = 1.70$). Most classes have no children with special educational needs, whereas a small number of classes have one or two.

Measures

The measures we used were translated into Chinese from English and the conventional procedure of translation and

back-translation was used to guarantee accuracy and equivalence of meaning. Further, these scales were reviewed by the English speaker for their accuracy and the specialist in the field of preschool education for its content validity after the English–Chinese translation and Chinese–English retranslation. All predictor and moderator measures were collected at T1. WFC was assessed at both time points.

Job Demands Workload was assessed using five items developed by Spector and Jex (1998). An example item is "How often does your job require you to work very hard?" Response options were set on a 5-point scale that ranged from less than once per month or never to several times per day. The internal consistency reliability for the scale was .85 at T1.

Surface acting was measured with the most commonly used seven-item scale (Diefendorff et al. 2005). In the author's translation, amend the expression "customers" into "children". An example item is "I put on an act in order to deal with children in an appropriate way." Response options ranged from 1 = strongly disagree to 5 = strongly agree. The internal consistency reliability for the scale was .89 at T1.

Job Resources Job resources consisted of supervisor support and the perceived meaning of work, which were assessed using the respective three-item scales from the second version of Copenhagen Psychosocial Questionnaire (COPSOQ II; Pejtersen et al. 2010). A sample question for supervisor support is: "How often is your nearest superior willing to listen to your problems at work?" Response options ranged from 1 = always to 5 = never. A sample question regarding the perceived meaning of work is "Do you feel that the work you do is important? Response options ranged from 1 = a very large extent to 5 = a very small extent. Internal consistency was .79 for T1 supervisor support and .82 for T1 perceived meaning of work.

Recovery Experiences Psychological detachment and relaxation were assessed utilizing the respective four-item scales developed by Sonnentag and Fritz (2007). A sample item for psychological detachment is "During after-work hours, I forget about work." A sample item regarding relaxation is "During time after work, I do relaxing things." The response categories were rated on a five-point scale ranging from 1 (fully agree) to 5 (fully disagree). Internal consistency was .88 for T1 psychological detachment and .87 for T1 relaxation.

Work-to-Family Conflict WFC at T1 and T2 was assessed utilizing the 5-item WFC scale developed by Netemeyer et al. (1996). Response options ranged from 1 (strongly agree) to 5 (strongly disagree). A sample item for WFC is "My job produces strain that makes it difficult to fulfill family duties". The internal consistency reliability for the scale was .85 at T1 and .88 at T2.

Control Variables Job tenure, education, marital status, children at home, and work hours were used as control variables in all of the analyses. Job tenure is coded in years. Education is categorized as follows: 1 = vocational school or high school education, 2 = college or higher vocational education, and 3 = university education or postgraduate education. Marital status is dummy-coded 0 = single or not married versus 1 = married. Children at home is dummy-coded as 0 = no children at home versus 1 = have children of any age at home.

Analytical Approach

The analysis of data was conducted utilizing SPSS 19.0 and Amos 21.0. First, we conducted a preliminary analysis which consists of three parts: (a) Confirmatory factor analysis was utilized to confirm the construct validity; (b) Dropout analyses were used to rule out selection problems; (c) Descriptive statistics and bivariate correlations of key variables were presented. Second, two sets of moderated regression analyses were conducted to test our hypotheses. Procedures are as following: At Step1, WFC at T1, work hours and demographic variables were entered into the regression model. At Step 2, job demands (workload and surface acting) were entered into the model to test their main effects, and at Step 3, job resources or recovery experiences were included. At Step 4, interaction terms were entered to test the interactive effects. Prior to the analyses, the predictors (i.e., workload and surface acting) and moderators (i.e., job resources and recovery experiences) were mean-centered (Aiken and West 1991). The significant interactions were depicted using the regression lines for individuals with high (1 *SD* above the mean) and low (1 *SD* below the mean) scores on the moderator variable (Aiken and West 1991).

Results

Preliminary Analysis

Confirmatory Factor Analyses

Confirmatory factor analysis was conducted to address the independence of our measures at T1. The results showed that the hypothesized 7-factor model (workload, surface acting, supervisor support, the perceived meaning of work, psychological detachment, relaxation, and WFC) provided a good fit to the data (χ^2/df (726.856/413) = 1.760; CFI = .961; IFI = .961; SRMR = .037; RMSEA = .037). Importantly, this 7-factor model fit the data better than the 6-factor model with psychological detachment and relaxation loading on one common factor (χ^2/df (1697.608/419) = 4.052; CFI = .839; IFI = .840; SRMR = .071; RMSEA = .074), the 6-factor model with supervisor support and the perceived meaning of work

loading on one common factor (χ^2/df (1225.034/419) = 2.924; CFI = .899; IFI = .899; SRMR = .058; RMSEA = .059), the 6-factor model with workload and surface acting loading on one common factor (χ^2/df (1839.996/419) = 4.391; CFI = .821; IFI = .822; SRMR = .096; RMSEA = .078), the 4-factor model with workload and surface acting loading on a first factor, and supervisor support and the perceived meaning of work loading on a second factor, psychological detachment and relaxation loading on a third factor, and WFC loading on a fourth factor (χ^2/df (3301.355/428) = 7.713; CFI = .639; IFI = .640; SRMR = .121; RMSEA = .110), and one-factor model (χ^2/df (6189.622/434) = 14.262; CFI = .276; IFI = .279; SRMR = .154; RMSEA = .155). Overall, these model comparison results demonstrated that the seven variables measured at T1 did represent distinct constructs.

Dropout Analyses

In order to examine whether sample dropout (i.e., attrition) was in systematic ways, we compared the individuals who participated at two time points with those who participated only at T1. The results indicated no significant differences in workload, $t(551) = .839$, $p = .402$, surface acting, $t(551) = -1.042$, $p = .298$, supervisor support, $t(551) = .908$, $p = .364$, the perceived meaning of work, $t(551) = .251$, $p = .802$, psychological detachment, $t(551) = .974$, $p = .330$, and WFC, $t(551) = -.803$, $p = .423$. However, our participants reported a slightly low level of relaxation ($M = 3.09$; $SD = .86$) than those who did not participate at two time points ($M = 3.22$; $SD = .81$), $t(551) = -1.697$, $p = .09$. Thus, sample dropout in our study was not a serious problem that might influence our results.

Descriptive Statistics and Correlation

The means, standard deviations, and correlations are shown in Table 1. The moderate correlation between the two points for WFC may be considered as test–retest reliability measures. As expected, job demands (i.e., workload and surface acting) at T1 were all positively associated with WFC at two time points.

Hypotheses Testing

Tables 2 and 3 present the hierarchical regression results.

Direct Effects of Job Demands on WFC

Hypothesis 1 proposed that job demands predict an increase in WFC of preschool teachers over time. In line with our Hypothesis, both T1 workload and T1 surface acting were significantly and positively associated with T2 WFC. Thus, Hypotheses 1a and 1b were supported.

Buffering Effects of Job Resources on Job Demands-WFC Relationship

Hypothesis 2 proposed that job resources would buffer against the detrimental effects of job demands on WFC over time. The interaction terms between T1 workload and T1 supervisor support, and T1 workload and T1 perceived meaning of work on T2 WFC were significant. The two interactions are graphed in Figs. 1 and 2, respectively. As we expected, Fig. 1 shows that the association between T1 workload and T2 WFC is weaker when preschool teachers have higher supervisor support at T1 than when they have lower supervisor support at T1. In addition, Fig. 2 indicates that the association between T1 workload and T2 WFC is weaker when preschool teachers perceive higher meaning of work at T1 than when they perceive lower meaning of work at T1.

Buffering Effects of Recovery Experiences on Job Demands-WFC Relationship

Hypothesis 3 proposed that recovery experiences would buffer against the detrimental effects of job demands on WFC over time. The interaction terms between T1 workload and T1 psychological detachment, and T1 surface acting and T1 psychological detachment on T2 WFC were significant. The two interactions are graphed in Figs. 3 and 4, respectively. As we expected, Fig. 3 shows that the association between T1 workload and T2 WFC is weaker when preschool teachers have higher psychological detachment at T1 than when they have lower psychological detachment at T1. In addition, Fig. 4 indicates that the association between T1 surface acting and T2 WFC is weaker when preschool teachers report higher psychological detachment at T1 than when they report lower detachment at T1.

Discussion

The purpose of this study was to examine job demands, job resources and recovery experiences, and their interactions as antecedents of WFC by utilizing two-wave data collected among Chinese preschool teachers. The results provide support for our hypotheses that both workload and surface acting need to be considered when identifying sources of preschool teachers' WFC. However, results show that job demands do not necessarily result in increased WFC when preschool teachers have adequate job resources and well-functioning recovery experiences. The following sections discuss the theoretical and practical implications for researchers, individuals, and organizations who serve preschool teachers.

Table 1 Means (M), standard deviations (SD), and bivariate correlations of variables; $N = 337$

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Job tenure	6.84	4.62												
2. Education	–	–	−.21**											
3.Marital status	–	–	.53**	−.12*										
4.Children at home	–	–	.63**	−.12*	.73**									
5. Work hours	41.18	3.77	.01	−.01	.02	.06								
6. Workload	2.80	0.97	−.08	−.01	.07	−.04	−.03							
7. Surface acting	2.87	0.85	.04	−.08	.06	−.03	−.01	.33**						
8. Supervisor support	3.14	0.79	−.01	−.05	.06	.09	−.09	.02	−.01					
9. Perceived meaning of work	3.41	1.03	−.03	.05	−.03	.01	−.01	−.27**	−.17**	.13*				
10. Psychological detachment	3.30	0.94	.07	.02	.05	.10	−.08	−.42**	−.28**	.17**	.36**		–	
11. Relaxation	3.09	0.86	.09	−.01	.08	.17**	.11*	−.16**	−.18**	.17**	.22**	.23**		
12. WFC (T1)	2.77	0.77	.01	−.04	−.01	.02	.10	.28**	.20**	−.10	−.24**	−.28**	−.08	
13.WFC (T2)	2.67	0.87	.10	−.04	−.10	.17**	.19**	.36**	.31**	−.12*	−.29**	−.42**	−.03	.49**

* $p < .05$. ** $p < .01$

Theoretical Implications

This study has several theoretical implications. First, they contribute to the relevant theoretic development of work–family literature. As we elaborated above, the majority of work–family studies were investigated in western cultural context. However, it remains unclear if these findings are applicable to the Asian cultural context. This study adopted a Chinese sample to verify the associations between job demands, job resources and recovery experiences, and their interactions, specifically buffering effects, in relation to preschool teachers' WFC over time. The findings support the validity of the JD-

Table 2 Regression of T2 WFC on T1 Job demands and T1 job resources, $N = 337$

Variables	T 2 WFC (β)			
	Step 1	Step 2	Step 3	Step 4
Control variables				
T 1 WFC	.46**	.37**	.34**	.31**
Work hours	.14**	.16**	.16**	.14**
Job tenure	.03	.04	.02	.01
Education	.00	.02	.02	.01
Marital status	−.02	−.11	−.11	−.09
Children at home	.15	.22**	.24**	.21**
Job demands				
Workload		.20**	.18**	.16**
Surface acting		.19**	.18**	.19**
Job resources				
Supervisor support			−.07	−.06
Perceived meaning of work			−.11*	−.08
Interactions				
Workload × Supervisor support				−.13**
Workload × Perceived meaning of work				−.14**
Surface acting × Supervisor support				−.01
Surface acting × Perceived meaning of work				−.02
R^2	.27	.36	.38	.43
Adjusted R^2	.26	.35	.36	.40
ΔR^2	.27**	.09**	.02*	.05**

The β values in the table are standardized regression weights. * $p < .05$. ** $p < .01$

Table 3 Regression of T2 WFC on T1 Job demands and T1 recovery experiences, $N = 337$

Variables	T 2 WFC (β)			
	Step 1	Step 2	Step 3	Step 4
Control variables				
T 1 WFC	.46**	.37**	.33**	.31**
Work hours	.14**	.16**	.13**	.15**
Job tenure	.03	.04	.03	.02
Education	.00	.02	.02	.03
Marital status	−.02	−.11	−.10	−.08
Children at home	.15	.22**	.23**	.22**
Job demands				
Workload		.20**	.13*	.11**
Surface acting		.19**	.16**	.14**
Recovery experiences				
Psychological detachment			−.25**	−.22**
Relaxation			.04	.00
Interactions				
Workload × Psychological detachment				−.16**
Workload × Relaxation				−.09
Surface acting × Psychological detachment				−.15*
Surface acting × Relaxation				−.02
R^2	.27	.36	.41	.48
Adjusted R^2	.26	.35	.39	.46
ΔR^2	.27**	.09**	.05**	.07**

The β values in the table are standardized regression weights. * $p < .05$. ** $p < .01$

R model by showing that it can also be applied to the early childhood education settings. The robustness and strength of the JD-R model was further supported by the two-wave longitudinal design in which the sequence of the studied variables is presented clearly.

Second, the current findings have far-reaching implications for preschool education. Our results indicated that workload and surface acting can operate as salient job demands and can be viewed as chronically stressful experiences contributing to a rise in WFC over time. This implies that preschool teachers are going through serious challenges at work that has destroyed their family life. Our results also establish support for the stress-buffering role of job resources and recovery experiences in alleviating the detrimental effects of job demands on preschool teachers' WFC. Results show that certain job demands does not necessarily result in WFC over time when preschool teachers have adequate job resources and sufficient recovery experiences. Taken together these findings have offered a theory support for helping managers develop strategies that reduce employee stress and subsequent WFC.

Finally, this study offers unique implications to the emotional labor literature. This study is the first, however, to

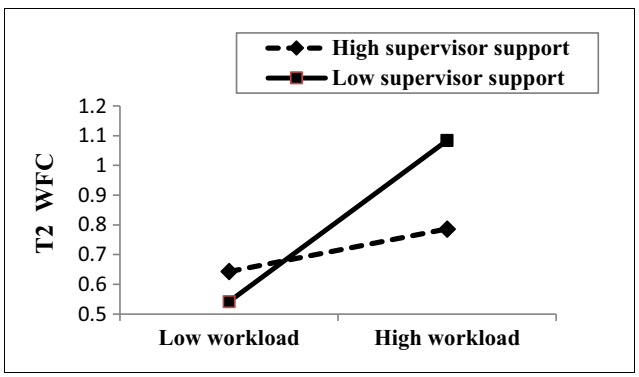

Fig. 1 Significant interaction effect bewteen T1 workload and T1 supervisor support on T2 WFC

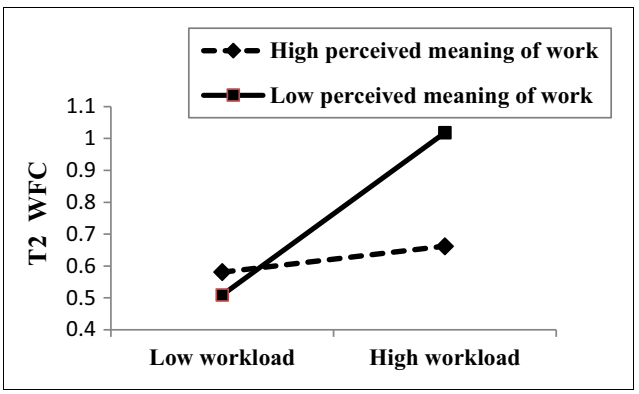

Fig. 2 Significant interaction effect bewteen T1 workload and T1 perceived meaning of work on T2 WFC

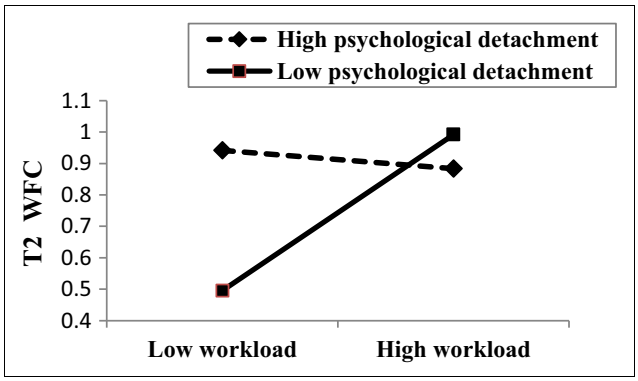

Fig. 3 Significant interaction effect bewteen T1 workload and T1 psychological detachment on T2 WFC

longitudinally link emotional labor with work–family conflict among preschool teachers. Results showed that surface acting is indeed harmful to the family domain through enhancing feelings of WFC over time. It is important because the finding proves that surface acting influences work–family interface in the longer term, a conclusion that previous studies have only inferred from cross-sectional findings (Cheung and Tang 2009; Montgomery et al. 2005). In addition, the results showed that recovery experiences protected against elevated WFC in the face of high levels of surface acting. As we have seen, no prior study has explored whether emotional labor interacts with recovery experiences in influencing WFC over time. The use of a longitudinal design allows us to gain deeper insight into the association of emotional labor with work–family conflict.

Practical Implications

Given the results that preschool teachers are facing with high job demands that disrupt their family life, the exploration of the stress-buffering role of job resources and recovery experiences appears to be of great practical implications. Since supervisor support and the perceived meaning of work consistently attenuated the harmful effect of workload on WFC over time, the kindergarten managers should try to create a friendly

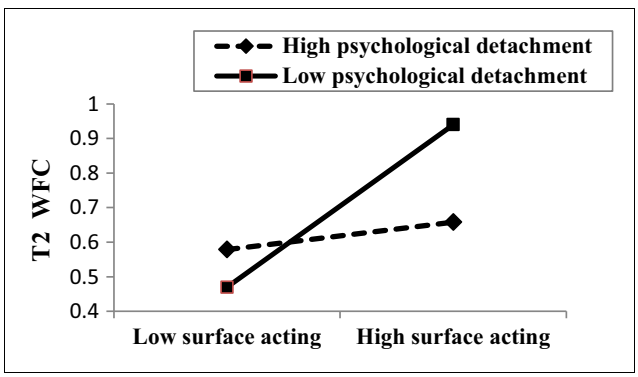

Fig. 4 Significant interaction effect bewteen T1 surface acting and T1 psychological detachment on T2 WFC

support climate in the workplace, and help preschool teachers find the meaning of their work. At first, the kindergarten managers also should pay more attention to investing time and effort in training for supervisors on how to listen to the preschool teachers' work issues and needs, and how to provide work service and constructively solve work-related problems for preschool teachers. In addition, the kindergarten managers should help preschool teachers identify with their work, and show them the meaning that they place on their work and how it helps them in their growth.

Concerning recovery experiences, psychological detachment served as a buffer, weakening the detrimental effects of job demands (i.e., workload and surface acting) on WFC. Thus, preschool teachers who seek to reduce WFC in the face of high job demands should focus on promoting psychological detachment during after-work hours. According to recent studies, preschool teachers are well recommended to train themselves adopting several programs, such as restricting job-related technology use at home (Barber and Jenkins 2014), engaging in physical exercise (Feuerhahn et al. 2014), and keeping mindful during daily activities (Hülsheger et al. 2014), and then facilitate their psychological detachment from work.

Limitations and Suggestions for Future Research

Some limitations of our study should be noted. First of all, although the two-wave longitudinal design provides better estimates of study variables, our data relied on self-report measure and thus at least part of relationships among variables might be accounted by common-method bias. Future studies on WFC should collect multilevel data from the different source. For example, researchers could use colleague- or supervisor-ratings of interpersonal conflict at work, and parent- or partner-ratings of WFC.

It would also be worthwhile to investigate other components of recovery experiences (i.e., mastery and control experiences) (Sonnentag and Fritz 2007). The two experiences have their roots in the COR theory (Hobfoll 1989). According to the theory, employees who have sufficient mastery and control experiences are likely to restore threatened resources and build up new resources, which in turn help them to better cope with job demands. Consequently, they might experience fewer WFC in the presence of higher job demands. Future studies may further explore whether the two experiences act as buffers and mitigate the detrimental effect of job demands on work–family conflict.

In conclusion, this two-wave study among preschool teachers examines the extent to which job demands, job resources and recovery experiences, and specifically their interactions are associated with WFC over time. Results show that preschool teachers who have high job demands tend to report increased WFC over time. Moreover, this negative effect is

weaker among preschool teachers who have higher job resources and adequate recovery experiences after work. Given that the role of time appears to be of great significance, future longitudinal studies should be designed with multiple time points that span different temporal lags to get more insights into the potential period of WFC development.

Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Statement All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent All included subjects voluntary participated in our study and signed informed consents.

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