



Depletion Effect of Work-Leisure Conflict: A Daily Diary Study

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Abstract

The negative effect of work-leisure conflict has attracted the attention of researchers. However, no previous research has determined the relationship between work-leisure conflict and ego depletion. Therefore, this study explores the relationship between daily work-leisure conflict and ego depletion, as well as the role of individuals' negative emotions and core self-evaluations in this process based on ego depletion theory. Through the method of daily diary research, 77 employees were tracked for 7 consecutive work days. The results show that work-leisure conflict is positively related to employee ego depletion, that the negative emotions play a mediating role in this relationship and that core self-evaluations moderate the indirect effect of work-leisure conflict on ego depletion through negative emotions. In this study, daily diary method is used to verify the dynamic characteristics of work-leisure conflict, negative emotions and ego depletion, and some new insights into how to reduce employee ego depletion are provided.

Keywords Work-leisure conflict · Negative emotion · Ego depletion · Core self-evaluation · Daily diary method

1 Introduction

Material resources can meet the needs of human survival and development. In the social context of increasing access to material resources, people pay attention to not only their work progress but also their leisure activities (Lee et al., 2014; Tsaor et al., 2012). Leisure activities usually occur in discretionary times in which individuals have the freedom to choose activities that provide experiences that are intrinsically satisfying, pleasurable and pursued for their own rewards (Lobo, 2006). Leisure is helpful not only for the development of an individual's body and mind but also for the maintenance of interpersonal relationships (Chang et al., 2014; Smale & Dupuis, 1993). The improvement of material resources can ensure that individuals have more time and energy to participate in leisure activities (Tsaor et al., 2012). However, even though material resources have been greatly improved, competition among enterprises is becoming increasingly intense, and managers

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often extend their subordinates' work hours for the development of their enterprises (Lin et al., 2015; Tsaor et al., 2012). Therefore, employees who are unable to fulfil their leisure roles due to work requirements will experience work-leisure conflict.

Work-leisure conflict, as a kind of work-nonwork role conflict, is different from work-family conflict (Tsaor et al., 2012; Wong & Lin, 2007). Work-family conflict is the conflict that occurs when an individual's work role and family role are incompatible (Greenhaus & Beutell, 1985). The requirements of family roles often come from family members, such as spouses and children. Work-leisure conflict is the conflict between work and leisure roles. When individuals cannot balance work roles and leisure roles because of work tasks, work-leisure conflict will occur (Gao et al., 2019; Wong & Lin, 2007). The requirements of leisure roles often come from individuals themselves. Studies have shown that work-leisure conflict can have a number of negative effects, such as reducing well-being (Lin et al., 2014b) and increasing turnover intention and job burnout (Mansour & Tremblay, 2016). Previous studies have provided some enlightenment for researchers in the study of work-leisure conflict and individual psychology. However, it is not clear whether employees who encounter work-leisure conflict will incur a depletion of psychological resources. Ego depletion is a state in which an individual's ability to self-control declines after taking actions that require the investment of self-control resources (Hagger et al., 2010). Self-control resources are limited psychological resource that allow individuals to self-control. If psychological resources are consumed in an activity, the actual available resources to be used in another activity will be reduced (Baumeister & Vohs, 2007; Baumeister et al., 1998). The depletion of employees' self-control resources not only hinders enterprise performance (Muraven & Baumeister, 2000) but also affects the physical and mental health of these employees (Diestel & Schmidt, 2011). Some studies have found that ego depletion can reduce the work engagement of organizational members (Schmeichel et al., 2003), reduce their organizational citizenship behaviour (Troughakos et al., 2015), and increase their aggressive behaviour (Stucke & Baumeister, 2006), as well as increase negative health behaviours such as smoking (Shmueli & Prochaska, 2009), and alcoholism (Farris et al., 2010). Thus, for the sake of employee health and behaviour performance, it is necessary to explore the depletion effect of work-leisure conflict.

Based on the theory of ego depletion, individuals consume their cognitive resources, resulting in ego depletion, when dealing with role conflicts (Hofmann et al., 2012). When an individual encounters work-leisure conflict, the individual needs to invest cognitive resources to balance the inner conflict, and the exertion of cognitive control will consume the individual's psychological resources (Baumeister et al., 1998; Muraven et al., 1998). Moreover, when individuals lack leisure, their depletion of self-control resources cannot be recovered in a timely manner. Employees who suffer from work-leisure conflict undoubtedly face challenges in terms of both physical and psychological depletion. In addition, the theory of ego depletion holds that individual ego depletion is characterized by internal dynamic changes, so dynamic research methods are increasingly used to measure the influence of individual ego depletion on organizational behaviour (Barnes et al., 2015). Daily diary sampling is often used to explore work-nonwork role conflicts (Ilies et al., 2007; Pluut et al., 2018). Work-leisure conflict, as a kind of work-nonwork conflict, may also have the characteristics of daily change due to varied daily work tasks and individual leisure needs. However, previous studies have often used a cross-sectional method to explore work-leisure conflict (Gao et al., 2019; Lin et al., 2015; Mansour & Tremblay, 2016). The cross-sectional method cannot reveal the changing characteristics of work-leisure conflict with the change of daily work tasks and individual leisure needs. By sampling at multiple time points, the daily diary method can reveal dynamic changes in variables (Ohly et al.,

2010). Therefore, this study uses daily diary method to explore the relationship between work-leisure conflict and ego depletion.

Individuals may experience ego depletion when they encounter work-leisure conflict (Hofmann et al., 2012), as discussed above, but to better understand the depletion process, we need to explore the internal mechanism of this relationship. Individuals tend to preserve and protect psychological resources (Hobfoll, 2002; Hobfoll et al., 2018). When individuals are threatened by the loss of resources and fail to recover in a timely manner, a series of stress reactions may occur (Halbesleben & Bowler, 2007; Sonnentag et al., 2010). Emotion is a relatively instant or direct reaction, and negative emotions may occur when individuals perceive that psychological resources are threatened by work-leisure conflict (Bolger et al., 1989; Rafaeli & Sutton, 1987). Previous studies have found that exerting emotional control related to ego depletion (Baumeister et al., 2007; Diestel & Schmidt, 2011). The influence of work-leisure conflict on employee ego depletion may be a result of cognitive depletion or negative emotions when they cope with work-leisure conflict (Lin et al., 2014b; Mansour & Tremblay, 2016). Employees' negative emotions may play a mediating role in the impact of work-leisure conflict on their ego depletion. In addition, negative emotions are characterized by dynamic changes, and the cross-sectional approaches used in previous studies cannot effectively assess the pervasive and persistent destructiveness of negative emotions (Pond et al., 2012). This study can effectively compensate for the shortcomings of previous studies using a daily diary research design.

In the past, research on the boundary conditions of the negative outcomes of work-leisure conflict has mainly focused on organizational factors and individual needs, and few studies have focused on individual trait differences (Lin et al., 2013; Lin et al., 2014a; Mansour & Tremblay, 2016). When experiencing work-leisure conflict, individuals with different traits may have different emotional and psychological reactions. For example, when individuals who believe in their abilities and have good emotional stability encounter work-leisure conflict, they may regard this conflict as a positive challenge and adjust their cognitive strategies to cope with the problem, thus generating lower levels of negative emotions and ego depletion (Erez & Judge, 2001; Halbesleben, 2006). This foundational trait, which combines self-esteem, self-efficacy and emotional stability, is the core self-evaluation of the individual (Judge & Bono, 2001). Individuals with different levels of core self-evaluation may have different degrees of negative emotions and ego depletion due to work-leisure conflict (Chang et al., 2012). In view of the shortcomings of previous studies, this study explores the moderating role of individual core self-evaluations in the effect of work-leisure conflict on ego depletion through negative emotion.

Overall, the innovative aspects and research content of this paper are as follows. Based on the theory of ego depletion, the relationship between work-leisure conflict and ego depletion was investigated using the daily diary method. The mediating effect of negative emotions in this relationship can reveal the internal process of work-leisure conflict on ego depletion. This study explores the role of core self-evaluation in work-leisure conflict, which provides information on how to reduce the depletion effect of work-leisure conflict.

2 Literature Review and Hypotheses

2.1 Work-Leisure Conflict and Ego Depletion

Baumeister et al. (1998) defined ego depletion as a temporary decline in the ability and willingness of individuals to perform subsequent volitional activities due to the implementation of previous volitional activities. Hagger et al. (2010) also provided the following descriptive definition of ego depletion: “after taking actions that require the input of self-control resources, the individual’s self-control ability will be exhausted, and this exhaustion of self-control ability is ego depletion” (p.495–497). Ego depletion explains the failure of willpower activities such as self-control and regulation (Baumeister et al., 2007). Self-control is the effortful capacity of the individual to regulate his or her emotions, thoughts, impulses, or other well-learned or automatic behavioural responses (Vohs, 2006). Studies have shown that individual ego depletion can lead to a series of negative results. In terms of individual psychology and cognition, ego depletion inhibits an individual’s refined thinking ability, making him or her rely more on an intuitive heuristic system for decision-making, which will lead to increased risk-taking behaviour; ego depletion also increases impulsive decision-making (Fischer et al., 2012; Jimura et al., 2013) and tends to decrease one’s orientation towards the future (Rawn & Vohs, 2010). In terms of organizational behaviour, ego depletion increases individual anti-productive behaviour (Marcus & Schuler, 2004), abusive behaviour (Lin et al., 2016) and aggressive behaviour (Stucke & Baumeister, 2006). Due to the various negative consequences of ego depletion, some studies have begun to explore the causes of ego depletion. In terms of organizational antecedents, job autonomy can reduce ego depletion (Moller et al., 2006), and work hours and work pressure can increase individual resource depletion (Tyler & Burns, 2008). In terms of individual antecedents, studies have found that sleep deprivation reduces available energy (Vohs et al., 2011). However, there is a lack of research on the influence of work-leisure conflict that combines leisure and work factors on individual ego depletion.

Work-leisure conflict is a kind of conflict that occurs when an individual’s work role and leisure role are incompatible (Wong & Lin, 2007). Work-leisure conflict is a two-direction conflict that includes not only the interference of work with leisure but also the interference of leisure with work. This two-direction conflict is asymmetric; that is, the influence of work on leisure is different from that of leisure on work (Tsaur et al., 2012). Referring to previous studies, this study mainly discusses the interference of work with leisure (Gao et al., 2019; Mansour & Tremblay, 2016). Therefore, in this paper, work-leisure conflict is the interference of work with leisure. Based on ego depletion theory, an individual’s experience of work-leisure conflict causes a threat of psychological resource loss, and the individual will deal with the conflict through a series of emergency responses (Muraven et al., 1998). In this case, when individuals respond to conflicts through input self-control, ego depletion may occur (Baumeister et al., 2007; Inzlicht & Schmeichel, 2012). Leisure activities are conducive to individual psychological and physical relaxation. When individuals lack leisure, they cannot relax psychologically or physically, and they also experience negative impacts on their psychological resources (Brady et al., 2008). Studies have shown that work-leisure conflict can lead to a number of negative outcomes; for example, individuals with high work-leisure conflict experience high emotional exhaustion and may consider leaving their current jobs to look for a new one (Mansour & Tremblay, 2016). Individuals face various work tasks every day, and their daily needs for leisure may differ. Individual work-leisure conflict

may change daily. In addition, some scholars suggest that dynamic research methods should be used to explore ego depletion (Barnes et al., 2015). Therefore, this study explores the effect of work-leisure conflict on employee ego depletion based on daily diary methods and proposes the following hypothesis:

Hypothesis 1 Increases in work-leisure conflict are associated with increases in employee ego depletion.

2.2 The Mediating of Negative Emotion

Emotional experience is an important part of organizational life. Watson et al., (1988) described negative emotion as a subjective experience of depression that includes anxiety, sadness, anger and other unpleasant emotional feelings. Some scholars have realized that external factors often affect individual behaviour through their emotions (Wang et al., 2012). Barsade and Gibson, (2007) even regarded the beginning of the twenty-first century as “the era of revolution in the study of emotion in organizational behaviour”, and research on emotion has permeated many aspects of organizational research (Zapf & Holz, 2006). When employees encounter work-leisure conflict, their needs to participate in leisure activities cannot be satisfied, and they are faced with the possibility of loss of psychological resources (Wong & Lin, 2007). Individuals tend to preserve and protect psychological resources (Hobfoll, 2002; Hobfoll et al., 2018). When an individual’s needs cannot be satisfied and there is a possible loss of resources, the individual may have an urgent response to the situation (Rispen & Demerouti, 2016; Sharma et al., 2016). Emotion is a relatively instant or direct reaction, and negative emotions (for example, irritability and distress) may occur when individuals perceive that psychological resources are threatened by work-leisure conflict (Rafaeli & Sutton, 1987).

According to the theory of ego depletion, emotion control related to individual ego depletion (Baumeister & Vohs, 2007). However, there is a lack of empirical research on the relationship between negative emotions and ego depletion. On the one hand, negative emotions are difficult to manage, which leads to the depletion of psychological resources as individuals work to control their emotions (Vandekerckhove et al., 2011). On the other hand, negative emotions also lead to individuals treating problems negatively and increasing their cognitive load, resulting in the depletion of psychological resources (Nabi, 1999). Therefore, work-leisure conflict may have not only a direct effect on ego depletion but also an indirect effect through negative emotions. Negative emotions may play a mediating role in the influence of work-leisure conflict on ego depletion. The measurement of negative emotions through cross-sectional research may involve retrospective bias, which can be effectively avoided by daily diary research (Csikszentmihalyi & Larson, 1987; Fraley & Hudson, 2014). Therefore, this study uses a daily diary method to explore the role of negative emotions in the process of work-leisure conflict and ego depletion. The following research hypotheses are proposed:

Hypothesis 2 Employees’ negative emotions are positively related to their ego depletion.

Hypothesis 3 Employees’ negative emotions play a mediating role in the impact of work-leisure conflict on ego depletion.

2.3 The Moderating Role of Core Self-Evaluations

Core self-evaluation is the basic evaluation of an individual's ability, competency and value (Judge et al., 1997). A core self-evaluation reflects an individual's cognition about his or her own abilities and emotional stability (Judge et al., 1998). Individuals with high core self-evaluations have relatively positive attitudes and behavioural reactions because they often have strong internal motivation, positive coping styles and strong abilities (Judge & Bono, 2001; Judge et al., 2005). When they encounter difficulties in their work, they tend not to hold back but to take positive actions to change their situations. In addition, core self-evaluations are also related to the activation of self-monitoring. People with high core self-evaluations maintain positive cognition by reacting positively to their environments, especially to stimuli related to the self, so they perceive less unfavourable information and more favourable information (Kacmar et al., 2009). Regarding such reactions at work, employees with high core self-evaluations believe that their work is more challenging and meaningful (even when it is not), form more positive evaluations of their work and complete their work better (Judge & Kammeyer-Mueller, 2011; Kacmar et al., 2009).

Based on the above, individuals with different levels of core self-evaluations may have different responses to work-leisure conflict. Work-leisure conflict is a challenge that may be viewed positively by individuals with high core self-evaluations. These individuals believe that they can respond better to work requirements; positively seek problem-solving strategies to deal with work interference in their leisure, such as gaining more opportunities for leisure by improving their work efficiency; positively cope with problems; have fewer negative emotions; and thus, their ego depletion is reduced (Lim & Tai, 2014; Liu et al., 2015). In contrast, those individuals with low core self-evaluations who experience work-leisure conflicts address their problems negatively, doubt their ability to solve problems, avoid solving problems and experience higher negative emotions, and thus, their ego depletion is increased. In addition, individuals with high core self-evaluations not only have good emotional stability but also can control their own emotions (Lim & Tai, 2014). When they encounter work-leisure conflict, they may have lower levels of negative emotions and ego depletion due to their strong emotional stability and control ability (Dou et al., 2016). In contrast, individuals with a low core self-evaluation have more negative emotions and experience ego depletion in response to work-leisure conflict due to their low emotional stability and control abilities. Therefore, the following hypothesis is proposed:

Hypothesis 4 Employees' core self-evaluations moderate the impact of work-leisure conflict on negative emotions. That is, when individuals have higher core self-evaluations, they have lower levels of negative emotions when experiencing work-leisure conflict than individuals with lower core self-evaluations.

Hypothesis 5 Employees' core self-evaluations moderate the indirect effect of work-leisure conflict on ego depletion through negative emotions. That is, for individuals with high core self-evaluations, this indirect effect is weakened.

In view of the shortcomings of previous studies, this study mainly explores the following problems. (1) Is there a relationship between work-leisure conflict and ego depletion? (2) What is the role of negative emotion in the relationship between work-leisure conflict and ego depletion? (3) How is the moderating effect of core self-evaluation on the depletion effect of work-leisure conflict? The conceptual model is illustrated in Fig. 1. This

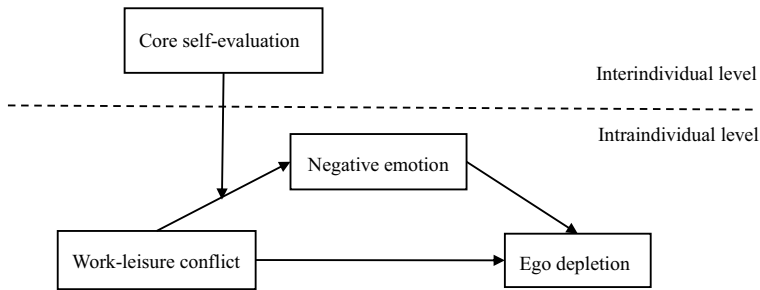


Fig. 1 Hypothetical model

model is a multilevel structural equation model. Core self-evaluation is an individual trait variable at the interindividual level, and work-leisure conflict, negative emotions and ego depletion are measured via daily diary sampling data at the intraindividual level.

3 Method

3.1 Procedure

The participants in this study were employees from Shanghai, Jinan and Zaozhuang in China. Our subjects came from four companies in the service, manufacturing and hospital industries. Because this study adopts daily diary research, participants need to be investigated every day. To reduce the work-leisure conflict that may be caused by the survey itself, we adopted an online survey to collect data. Volunteer participants were selected via recruitment information posted on an online network. We contacted the HR departments of the enterprises to determine the appropriate method and time for administering the survey. Then, the HR departments sent recruitment information to enterprise employees through online tools (WeChat). Participants were required to be full-time employees of the enterprises or institutions, to have worked at the company for more than three months, and to work on normal work days (Monday to Friday). Before the distribution of questionnaires, the research team identified the subjects who had volunteered to participate in the survey and assigned them independent numbers for tracking. The survey was divided into a one-time survey and daily surveys. The participants were given a one-time questionnaire, which collected information on core self-evaluations and demographics, the day before the first daily survey. According to the research of Ilies et al. (2007) and based on the characteristics of this study, for example, work-leisure conflict means that the leisure time of an individual is affected by work, and the measurement will be more accurate after work, we distributed the work-leisure conflict, negative emotion and ego depletion questionnaires to the participants after work, and the participants were asked to complete questionnaires before 10 p.m. Daily diary sampling was conducted for 7 consecutive work days. We paid the participants 50 CNY as remuneration. Before the questionnaires were distributed, the participants were told how to complete them. The questionnaires were sent to the participants through a questionnaire link. We monitored the completion of the questionnaires via the questionnaire distribution platform and messaged the participants who had not completed them on

time to remind them to complete the questionnaire to ensure the validity and recovery rate of the data.

3.2 Measures

3.2.1 Work-Leisure Conflict

This study adopted the work-leisure conflict scale developed by Wong and Lin (2007). This scale is a one-dimensional scale with five items. A sample item is “Today, I do not have enough time to participate in leisure activities with my family/friends because of my job”. The scale was scored with a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The average internal consistency reliability of the work-leisure conflict scale across days in our sample was 0.86.

3.2.2 Ego Depletion

In this study, the five-item scale originally developed by Twenge et al. (2004) and recently adapted by Lanaj et al. (2016) was used to measure ego depletion. A sample item is “At this moment, my mental energy is running low”. Each item was scored with a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The average internal consistency reliability of the ego depletion scale across days in our sample was 0.80.

3.2.3 Negative Emotion

The negative emotion scale we used in this study was developed by Watson et al. (1988). This scale is a one-dimensional scale with five items. A sample item is “At this moment, I feel distressed at work”. Each item was scored with a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The average internal consistency reliability of the negative emotion scale across days in our sample was 0.89.

3.2.4 Core Self-Evaluations

This study adopted the core self-evaluation scale developed by Judge et al. (2003). This scale has a single dimension with a total of 12 items. A sample item is “I have the ability to deal with most of my own problems”. Each item was scored with a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The internal consistency reliability of the core self-evaluation scale in our sample was 0.86.

3.2.5 Control Variables

Previous studies have shown that demographic characteristics, such as age, may affect perceptions of work-leisure conflict and ego depletion, and the younger generation is more vulnerable to work-leisure conflict than the older generation (Tsaur & Yen, 2018; Tsaur et al. 2012; Welsh et al. 2014; Wong & Lin, 2007). Therefore, these demographic variables are regarded as control variables in this study. Since varying work hours may also affect the results of the study, this study also used work hours as a control variable.

3.3 Data Analytic Strategies

The data of this study are nested (each subject contains multiple days of measurement), and we used Mplus7.0 to test the study hypotheses using a multilevel model. This method can process the daily diary sampling data. The daily diary sampling data (work-leisure conflict, negative emotions, and ego depletion) are nested for individuals and can be processed at the intraindividual level, and the core self-evaluation between individuals can be processed at the interindividual level. The multilevel structural equation model can consider both intraindividual and interindividual variation, and there are intraindividual differences in the individual daily diary sampling data (work-leisure conflict, negative emotions, and ego depletion) and interindividual differences in the individual trait variables (core self-evaluation). Using a multilevel structural equation model can improve the accuracy of the results. According to Hofmann and Gavin (1998) and Snijders and Bosker (2013), group-mean centring of intraindividual level predictive variables can exclude the influence of interindividual differences in predictor variables. As a result, it is ensured that the analysis results reflect the relationships between the intraindividual differences. Grand-mean centring was applied to interindividual level continuous variables. In this study, a parametric bootstrap program (2000 Monte Carlo replication) was used to test the mediating effect at a 95% confidence interval (Preacher et al., 2010). Finally, the slope between work-leisure conflict and negative emotion was used as the dependent variable, and core self-evaluation was used as the independent variable to test the moderating effect.

4 Results

4.1 Participants

In the one-time survey stage, 100 questionnaires were issued, 88 questionnaires were collected, and 85 questionnaires were valid. In the daily survey stage, a total of 595 questionnaires were collected from 85 employees. Finally, 539 valid questionnaires were obtained for 77 participants. The effective questionnaire recovery rate was 90.59%. The descriptive statistics for the sample showed that 40 of the participants were males, accounting for 51.95% of the sample; the average age was 26.13 years ($SD=1.81$); the participants worked an average of 46.7 h a week ($SD=7.9$); the average number of work years was 3.07 years ($SD=1.85$); 12 of the participants were married; and 65 were unmarried. In terms of educational background, a total of 53 employees had bachelor's degrees, accounting for 68.83% of the sample. In terms of the nature of the company, a total of 36 employees worked in the service industry, accounting for 46.75% of the sample. See Table 1 for details.

4.2 Discrimination Test

To test whether there was a good degree of discrimination between the variables in the model, we used multilevel confirmatory factor analysis (Geldhof et al., 2014). First, we constructed four restricted models for various combinations of work-leisure conflict, negative emotion, and ego depletion (two-factor model a: work-leisure conflict and negative emotion were combined into one factor; two-factor model b: work-leisure conflict

Table 1 Profiles of the respondents ($n = 77$)

Variable	<i>n</i>	%
Gender		
Male	40	51.95
Female	37	48.05
Marriage		
Married	12	15.58
Unmarried	65	84.42
Educational level		
High school or below	4	5.19
College	13	16.88
University	53	68.83
Graduate school	7	9.09
Industrial type		
Service industry	36	46.75
Manufacturing	26	33.77
Hospital	15	19.48

and ego depletion were combined into one factor; two-factor model c: negative emotion and ego depletion were combined into one factor; and one-factor model: all daily diary sampling variables were combined into one factor). Then, the three-factor independent model was compared with the restricted model. Table 2 shows that the three-factor model (work-leisure conflict, negative emotion, and ego depletion) had a good fit ($\chi^2(87) = 213.15$, $\chi^2/df = 2.45$, $p < 0.001$, CFI = 0.93, TLI = 0.93, RMSEA = 0.06). Compared with the other restrictive models (two factors or three factors combined into one factor), the three-factor model had a better fit ($316.94 \leq \Delta\chi^2 \leq 1271.63$, $p < 0.001$). The above results indicate that the variables discussed in this study have good discriminant validity.

Table 2 Results of confirmatory factor analysis for the variables studied

Models	χ^2	<i>df</i>	χ^2/df	TLI	CFI	RMSEA
Three-factor model: Work-leisure conflict, negative emotion, and ego depletion	213.15	87	2.45	.93	.93	.06
Two-factor model a: Work-leisure conflict and negative emotion were combined into one factor	650.31	89	7.31	.62	.65	.12
Two-factor model b: Work-leisure conflict and ego depletion were combined into one factor	530.09	89	5.96	.71	.76	.10
Two-factor model c: Negative emotion and ego depletion were combined into one factor	622.82	89	7.00	.65	.70	.11
One-factor model: All variables were combined into one factor	1484.78	90	16.50	.44	.52	.13

4.3 Common Method Variance Test

In this study, multilevel confirmatory factor analysis was used to detect common method variance. In the multilevel confirmatory factor analysis, all intraindividual level factors were combined into a single factor, which resulted in a worse fit ($\chi^2(90)=1484.78$, $\chi^2/df=16.50$, $p<0.001$, CFI=0.52, TLI=0.44, RMSEA=0.13). The fit was compared with that of the three-factor model, and the difference was significant ($\Delta\chi^2(3)=1271.63$, $p<0.001$). The above results showed that there was no serious problem with common method variance in this study.

4.4 Descriptive Analysis

We used a null model (interindividual level and intraindividual level were not included in independent variables.) to detect intraindividual and interindividual variations to determine the effectiveness of the daily diary research. Table 3 shows that the intraindividual level variables (work-leisure conflict, negative emotion and ego depletion) in this study had significant differences at the daily level, with the intraindividual differences accounting for between 13 and 30% of the total variance. The results indicated that the work-leisure conflicts, negative emotions and ego depletion experienced by individuals differed by work days.

The means, standard deviations, and correlations of the variables are shown in Table 4. As expected, there were significant positive correlations of work-leisure conflict with ego depletion ($r=0.59$, $p<0.01$) and negative emotion ($r=0.50$, $p<0.01$). There was also a significant positive correlation between negative emotions and ego depletion ($r=0.52$, $p<0.01$). The variables in the study model were closely related. The relationships between the variables were further examined by building a multilevel model.

4.5 Model Test

Because the data in this study are nested (time is nested in individuals), we used Mplus7.0 to construct a multilevel model to test the hypotheses. Table 5 shows that work-leisure conflict was significantly related to negative emotions ($\gamma=0.38$, $p<0.001$). When work-leisure conflict and negative emotions predicted ego depletion, negative emotions were significantly related to individual ego depletion ($\gamma=0.30$, $p<0.001$), and work-leisure conflict was significantly related to ego depletion ($\gamma=0.36$, $p<0.001$). Based on the above results,

Table 3 Parameter estimates and variance components of the null models for the intraindividual level variables

Variable	Intercept	Intraindividual variance (e^2)	Interindividual variance (r^2)	Percent intraindividual variance (%)
Work-leisure conflict	2.67	.121 ***	.792	13.25
Negative emotion	2.60	.174 ***	.417	29.44
Ego depletion	2.88	.179 ***	.426	29.59

The percentage of intraindividual variance was computed as the ratio of $e^2/(e^2+r^2)$

*** $p<.001$

Table 4 Descriptive analysis

Variable	$M \pm SD$	1	2	3
Intraindividual level variable				
1. WLC	$2.67 \pm .96$			
2. ED	$2.88 \pm .78$	.59**		
3. NE	$2.60 \pm .77$	.50**	.52**	
Interindividual level variable				
4. CSE	$3.62 \pm .46$	-.12	-.31**	-.32**

$N_{\text{Intraindividual level}} = 539$, $N_{\text{Interindividual level}} = 77$. WLC = Work-leisure conflict, ED = Ego depletion, NE = Negative emotion, CSE = Core self-evaluations. The correlations of the intraindividual-level variables represent the correlation of variables within individuals, while the correlation of the interindividual-level variable represents the correlation of the variable between individuals

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

Table 5 Hypothetical model test results

Predictor	Negative Emotion			Ego depletion		
	γ	SE	t	γ	SE	t
Intercept	2.60***	.70	3.71	2.88***	.61	4.72
Interindividual level						
Age	.02	.02	1.45	.01	.01	.60
Gender	-.07	.06	-1.22	.06	.05	1.10
Married	.12	.08	1.46	-.33***	.07	-4.62
Company type	-.03	.02	-1.86	-.08***	.02	-4.54
CSE	-.41***	.06	-6.38			
Intraindividual level						
WLC	.38***	.03	12.91	.36***	.03	11.99
NE				.30***	.04	8.06
Work hours	.17*	.08	2.13	.19**	.07	2.71
Cross-level predictor						
WLC $\times$ CSE	-.15*	.06	-2.46			
Interindividual variance	.42			.43		
Intraindividual variance	.17			.18		

$N_{\text{Intraindividual level}} = 539$, $N_{\text{Interindividual level}} = 77$. WLC = Work-leisure conflict, ED = Ego depletion, NE = Negative emotion, CSE = Core self-evaluations. All intraindividual-level predictors were group-mean centred; core self-evaluation was grand-mean centred. * $p < .05$. ** $p < .01$. *** $p < .001$

it can be concluded that work-leisure conflict has an impact on employee ego depletion through the mediating effect of negative emotions. We applied the parametric bootstrap program recommended by Preacher et al. (2010) (Monte Carlo replication = 2000 times) to test the mediating effect. The results showed that the indirect effect of work-leisure conflict on ego depletion through negative emotions was 0.11, the 95% confidence interval was significant [0.08, 0.15], and the indirect effect value was 24.05%. In summary, H1, H2 and H3 were all supported.

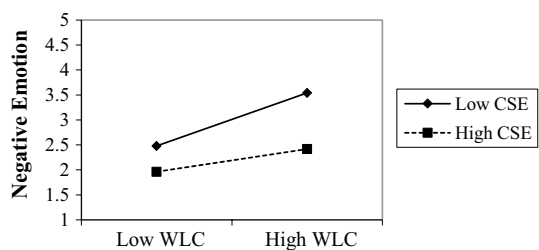
When testing the cross-level moderated mediation effect, we used the slope of the impact of work-leisure conflict on negative emotions as the outcome variable and core self-evaluations as the predictive variable. The results showed that the interaction term between work-leisure conflict and core self-evaluations was significantly related to negative emotions ($\gamma = -0.15$, $p < 0.05$), which indicated that core self-evaluations can cross-level moderate the relationship between work-leisure conflict and negative emotions. Therefore, H4 was supported. Individuals with higher core self-evaluations will have lower levels of negative emotions when experiencing work-leisure conflict than individuals with lower core self-evaluations. To present the moderating effect of core self-evaluations more intuitively, we created high and low groups that corresponded to plus or minus one standard deviation of the mean core self-evaluation value for a simple slope test (Preacher et al., 2006). Figure 2 shows the slope of the impact of work-leisure conflict on negative emotions in the high core self-evaluation group ($\gamma = 0.30$, $p < 0.01$) and in the low core self-evaluation group ($\gamma = 0.45$, $p < 0.001$).

We also examined whether core self-evaluations moderated the indirect effects of work-leisure conflict on ego depletion via negative emotion. We estimated the indirect effect of work-leisure conflict on ego depletion via negative emotion for those with high (+1 *SD*) and low (−1 *SD*) core self-evaluations. With regard to work-leisure conflict, we found that in the high core self-evaluation group (+1 *SD*), the indirect effect (0.09) of work-leisure conflict on ego depletion through negative emotions was significant (95% CI [0.06, 0.14]), and for the low core self-evaluation group (−1 *SD*), the indirect effect (0.13) was also significant (95% CI [0.09, 0.18]). The difference between the two indirect effects was 0.04, 95% CI [0.003, 0.10]. Core self-evaluation moderated the indirect effect of work-leisure conflict on ego depletion via negative emotion. Therefore, H5 was supported.

5 Discussion

The negative effect of work-leisure conflict has attracted the attention of scholars. However, it is unknown whether work-leisure conflict results in the depletion of individuals' psychological resources. Based on the daily diary method, this research investigates the influence of work-leisure conflict on ego depletion, as well as the internal mechanism and boundary conditions of this process. The results show that employee work-leisure conflict is significantly related to ego depletion. The negative emotions play a mediating role in the above relationship. Core self-evaluations regarding an individual's important traits moderate the influence of work-leisure conflict on ego depletion through negative emotion.

Fig. 2 Core self-evaluation (CSE) moderates the effect of work-leisure conflict (WLC) on negative emotion



5.1 Theoretical Implications

Previous studies on work-leisure conflict have mainly adopted cross-sectional approaches (Lin et al., 2015; Tsaur & Yen, 2018; Tsaur et al., 2012). However, for individuals, daily job tasks may vary, which may lead to various degrees of work-leisure conflict. This study uses a daily diary research design to explore possible changes in work-leisure conflict. The results show that work-leisure conflict varies throughout day; that is, the work-leisure conflict perceived by an individual varies during the work day. This is consistent with the findings of previous studies on work-nonwork role conflict (Ilies et al., 2018; Spieler et al., 2017). In terms of ego depletion, scholars have pointed out that future research should adopt the daily diary method (Germeys & De Gieter, 2017; Job et al., 2010). This study used this method to confirm the dynamic characteristics of ego depletion. It is found that daily work-leisure conflict is positively related to individual ego depletion, which is consistent with previous findings on the negative outcomes caused by work-leisure conflict (Lin et al., 2014b; Mansour & Tremblay, 2016). This is the first study to reveal the relationship between work-leisure conflict and ego depletion, and it makes up for a lack of previous research. Individuals need to invest cognitive control to deal with conflicts they face, and cognitive control leads to resource depletion. The ego depletion theory holds that individuals suffer from ego depletion in the face of conflict, and this paper increases the understanding of this theory through the study of work-leisure conflict. In addition, ego depletion theory holds that resources are subject to dynamic change, which underlies the dynamic nature of the theory (Lin et al., 2017; Trougakos et al., 2015). This study found that individuals face various work-leisure conflicts every day, and their resource depletion also varies. This result confirms the dynamic nature of resources in ego depletion theory once. The results of this study undoubtedly provide a new perspective for reducing individual ego depletion.

In this study, we found that negative emotions play a partially mediating role in the influence of work-leisure conflict on the ego depletion of employees. According to the theory of ego depletion, cognitive control and emotional control are associated with individual ego depletion (Baumeister & Vohs, 2007; Baumeister et al., 1998). However, previous studies have rarely explored the effect of cognitive and emotional control on ego depletion through empirical methods, which undoubtedly hinders our understanding of ego depletion. The results of this study are consistent with those of previous studies on the negative effects of negative emotions (Reisel et al., 2010; Verdejo-García et al., 2007). On the one hand, individuals experience ego depletion as a result of controlling negative emotions; on the other hand, negative emotions increase individuals' cognitive processing loads, which leads to the depletion of individuals' cognitive control resources. Previous studies on work-leisure conflict have rarely been carried out from the perspective of emotion, and the discovery of the mediating effect of negative emotion is also conducive to understanding the mechanism of work-leisure conflict. In addition, negative emotions are characterized by dynamic and rapid changes (Goetz et al., 2010). This study measures the characteristics of individual emotional changes from a dynamic perspective, and the results show that individual emotions change dynamic by day.

Previous studies on the boundary conditions of the impact of work-leisure conflict on individual psychology are mostly based on organizational factors (for example, leisure benefit systems and social support) (Lin et al., 2013; Lin et al., 2014a; Mansour & Tremblay, 2016). Few studies have explored the boundary conditions of work-leisure

conflict on individual psychology from the perspective of individual core traits. This study explores the boundary conditions of work-leisure conflict on ego depletion by focusing on the core self-evaluations of individual traits that reflect individual ability and stability of emotional control (Erez & Judge, 2001). Individuals with higher core self-evaluations have fewer negative emotions and less ego depletion due to work-leisure conflict than those with lower core self-evaluations. High core self-evaluations are a positive psychological quality that helps individuals better deal with work-leisure conflict and control negative emotions (Johnson et al., 2008). The results of this study are consistent with those of previous studies on the positive role of core self-evaluation (Judge & Bono, 2001; Judge & Kammeyer-Mueller, 2011). It is helpful to understand reactions to work-leisure conflict from the individual perspective. The cross-level moderated mediation and the indirect effects for the two groups were significant. This finding indicates that although individual core self-evaluations have a certain effect in protecting individuals from ego depletion, work-leisure conflict has a great impact on individuals' ego depletion, and it is difficult to completely buffer by core self-evaluations; it also shows that work-leisure conflict leads to a large degree of ego depletion and should attract the attention of managers.

5.2 Practical Implications

The results of this research show that work-leisure conflict is significantly related to ego depletion in employees. Previous studies have shown that long work hours are associated with individual work-leisure conflicts (Lin et al., 2013; Wong & Lin, 2007). Enterprise managers should reasonably arrange the work hours of employees rather than haphazardly extending the work hours of employees to ensure enterprise development, give employees full respect and provide employees with opportunities to participate in leisure activities (Gao et al., 2019; Lin et al., 2015).

Through the study, it is found that work-leisure conflict has an effect on ego depletion through the mediating effect of negative emotions. The harm of negative emotion on individuals cannot be ignored. Managers can encourage employees to resolve workplace conflicts through face-to-face communication, debate, listening and other ways, so as to reduce the negative emotions of employees (Todorova et al., 2014). Enterprises can also help employees master and regulate their emotions through relevant training (Grandey, 2000). Employees should be aware that negative emotions will consume their own psychological resources, should take the initiative to learn emotional regulation methods, and change their cognitive concepts to minimize the negative impact of work-leisure conflict.

As a positive psychological quality, core self-evaluations help individuals respond to conflicts. Individuals with high core self-evaluations have low levels of negative emotion and ego depletion in response to work-leisure conflict, which is of great importance to individuals' core self-evaluations. Some studies have suggested that core self-evaluations are affected by feedback (Jiang et al., 2017). Positive feedback is conducive to the improvement of core self-evaluations, while negative feedback is detrimental to core self-evaluations. Both managers and employees should pay attention to the improvement of core self-evaluation.

5.3 Limitations and Directions for Future Research

In this study, the research model is discussed based on an interval-contingent daily diary method, but interval-contingent sampling may have its own shortcomings; for example, the time interval can be too large to allow important events to be recorded (Fisher & To, 2012). In the future, other types of daily diary methods can be used to continue to study relevant variables. In this paper, 7 work days were selected to investigate work-leisure conflict. Increasing the number of days of daily diary surveys to two weeks may lead to more stable results. Future studies of work-leisure conflict should increase the number of daily diary days. Previous studies have found that individuals of different age groups have different responses to work-leisure conflict, and that younger generations have more demand for leisure than older generations and are more vulnerable to work-leisure conflicts (Tsaour & Yen, 2018). However, the participants of this study were mainly young adults. In addition, the principle of voluntary participation was adopted in the selection of subjects in this study, which was not completely random. Future studies should increase the age diversity of the sample, for example, increasing the number of older generation employees and selecting subjects randomly. This study found that negative emotions play a partial mediating role in the impact of work-leisure conflict on ego depletion, suggesting that there may be other mediators in the relationship between work-leisure conflict and ego depletion, which should be further explored in future studies. Leisure activities play an important role in the recovery of an individual's psychological resources, and employees who fail to recover may experience ego depletion (Germeys & De Gieter, 2017). Future research can explore the mediating role of psychological detachment in the process of work-leisure conflict on ego depletion from the perspective of recovery. In this study, the boundary conditions for the impact of work-leisure conflict on ego depletion were discussed from the perspective of individual factors. In the future, the boundary conditions of the impact of work-leisure conflict on ego depletion could be discussed by combining organizational factors.

6 Conclusions

This study investigates the ego depletion from the perspective of leisure for the first time and analyses the internal mechanism of ego depletion and the moderating role of core-self evaluations in the relationship between work-leisure conflict and ego depletion. The results show that there is a significant positive correlation between work-leisure conflict and ego depletion, and core self-evaluation can moderate the depletion effect of work-leisure conflict. This study provides some guidance for reducing the ego depletion of employees and provides insight into the dynamic characteristics of each variable through the daily diary research method.

Appendix

See Table 6.

Table 6 Daily diary sampling scale

Measures

Work-leisure conflict

Today, I do not have enough time for leisure activities because of my job

Today, I do not have enough time to participate in leisure activities with my family/friends because of my job

Today, I do not have energy to participate in leisure activities because of my job

Today, I am not able to participate in leisure activities because of my job

Today, I have never been in a suitable frame of mind to participate in leisure activities because of my job

Negative emotion

At this moment, I feel distressed at work

At this moment, I feel upset at work

At this moment, I feel irritable at work

At this moment, I feel nervous at work

At this moment, I feel jittery at work

Ego depletion

At this moment, my mental energy is running low

Right now, it would take a lot of effort for me to concentrate on something

My mind feels unfocused right now

I feel drained right now

If I were given a difficult task right now, I would give up easily

Data Availability Our data has not been used in previous studies and is not currently submitted elsewhere.

Declarations

Conflict of interest No potential conflict of interest was reported by the authors.

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