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Citation	Osaka City Medical Journal. 69(1); 11-19
Issue Date	2023-06
Type	Journal Article
Textversion	Publisher
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Placed on: Osaka City University

Relationship between Work Life Balance and Temperament among Japanese Workers

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Abstract

Background

Work life balance is an important issue for working people. To understand the impact of work and family, both positive and negative influences should be considered. Although the relationship between individual differences and work life balance has been studied, no study has examined the relationship between temperament and work life balance. Therefore, this study aimed to clarify the relationship between temperament and work-family spillover.

Methods

This web-based, cross-sectional study was conducted among 839 eligible Japanese workers. We used the Japanese version of the Survey Work-Home Interaction -NijmeGen to measure the four aspects of work-family spillover (positive/negative, work to family/family to work). Furthermore, the full version of the Temperament Evaluation of Memphis, Pisa, Paris, and San Diego-auto questionnaire version was used to evaluate the five temperaments. Hierarchical multiple linear regression analysis was used.

Results

Cyclothymic, irritable, and anxious temperaments indicated significantly higher scores of work to family negative spillover. Cyclothymic and irritable temperaments also indicated significantly higher scores and depressive temperament indicated a significantly lower score of family to work negative spillover. Hyperthymic temperament indicated a significantly higher score, and irritable temperament indicated a significantly lower score of work to family and family to work positive spillover.

Conclusions

To promote better work life balance, it is important to recognize workers' temperament for themselves and workplace.

Key Words: Work life balance; Temperament; Work family spillover; Self-care; SWING

Received August 24, 2022; accepted November 29, 2022.

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Introduction

Recently, changes in the industrial structure and diversification of work styles have made it difficult to clearly distinguish between working and non-working time. Therefore, work life balance (WLB) has become an important issue¹. Workers are expected to spend time both at work and in family matters, such as housework, nursing and childcare. Because both are equally important, it is crucial to strike a balance between work and family. Concepts related to WLB and the impact of work and family life have been studied extensively. Work-family conflict (WFC) arises when the demands of work and family roles cannot be reconciled². WFC has been shown to be related with various health issues, such as higher burnout³, depression, poor physical health and heavy alcohol use⁴. In contrast, work-family enrichment (WFE), a concept with a positive view on the relationship, implies that experiences in one role enrich and strengthen the other⁵. WFE has shown to be related with positive health effects, such as lower depression⁶ and burnout and higher life satisfaction³.

It is necessary to consider the negative and positive aspects of spillover, as well as its direction (family to work, work to family) to understand their impact⁷. Negative spillover between work and family has been considered as a chronic stressor, and may cause a physiological stress response⁸. Previous studies showed that it was associated with poor physical and mental health, self-reported musculoskeletal pains⁹, possibility of obesity¹⁰, depression symptoms¹¹ and anxiety and emotional strain⁶. Positive spillover from work to family and family to work were associated with better physical and mental health and fewer chronic diseases and better mental health and well-being, respectively¹⁰.

Recently, as a factor affecting WLB, the relationship between individual differences and WLB has been studied. As antecedents of WFC, personality traits, such as negative affect and neuroticism, were found to have strong predictive validity than many work and non-work stressors and support factors¹². A meta-analysis examined the relationship between the Five-Factor Model of Personality (FFM) and negative and positive forms of work and non-work spillover and found that each personality variable was related to both directions of spillover for all personality variables and forms. Furthermore, extraversion, agreeableness, and conscientiousness were negatively related to and neuroticism was positively related to work to family negative spillover. Meanwhile, extraversion, agreeableness, conscientiousness and openness to experience were positively related to work to family positive spillover¹³. Personality is influenced by the environment and develops during the maturation process¹⁴, while temperaments are stable across one's lifespan¹⁵. Temperament is believed to be the biological basis for personality development¹⁴. Hagop Akiskal developed the concept of five emotional temperaments by adding anxiety type to the four basic states proposed by Kraepelin¹⁶. The five temperaments are depressive, irritable, anxious, hyperthymic, and cyclothymic. Temperament involves an inherent bias in how a person views and acts and causes the person to be more prone to certain behaviors¹⁷. Therefore, we considered that temperament impacted workers' WLB. However, limited research on the relationship between temperament, as an individual factor, and WLB has been conducted. This study clarified the relationship between temperament and work-family spillover.

Methods

An online, cross-sectional survey was conducted in Japan through an research company, Macromill, Inc. Japan, on 16-17 December 2020¹⁸. The inclusion criteria were: lived in Japan, were

employed, and aged between 20-65. The objective was to recruit approximately 1000 Japanese workers from various employment types from the approximately 10 million people registered with Macromill, Inc. Participants were informed their voluntary participation. An informed consent form was completed by all participants and were assured that the researcher would not have access to personal information (e.g., name, telephone number, address of house) from Macromill, Inc. All participants received Macromill Points. Macromill Point is an original point service of Macromill, Inc. and the participants can exchange these points for prizes or cash.

We gathered a total of 1070 workers and excluded participants with at least one missing entry. The final analytic sample included 839 eligible participants. This study was conducted in accordance with the Declaration of Helsinki and its future amendments. The study design was approved by the Ethical Committee of Osaka City University (Authorization Number 4245). All data were stored only in our database, and the participants' employers or institutions did not have access to the data or knew who had participated.

The Survey Work-Home Interaction-NijmeGen (SWING) was developed in 2005 and measured work-home interaction⁷. The reliability and validity of the Japanese version have been confirmed¹⁹. We used the Japanese version of the SWING (SWING-J) to measure four aspects of work-family spillover: (1) work to family negative spillover (WFNS): eight items, (2) family to work negative spillover (FWNS): four items, (3) work to family positive spillover (WFPS): five items, and (4) family to work positive spillover (FWPS): five items. The responses were rated on a 4-point Likert scale, which ranged from 0 (never) to 3 (always). The scores for each item were totalled, and a higher score indicated greater spillover. The Cronbach's α 's for the present sample were 0.874, 0.805, 0.756 and 0.740 for WFNS, FWNS, WFPS, and FWPS, respectively.

Temperaments were assessed by the full version of the Temperament Evaluation of Memphis, Pisa, Paris, and San Diego-auto questionnaire version (TEMPS-A) developed by Akiskal et al²⁰. The reliability and validity of the Japanese version have been confirmed²¹. The TEMPS-A was a yes-no self-reporting questionnaire that assessed temperaments. The instrument consisted 110 items and was divided into five types of temperaments: depressive, cyclothymic, hyperthymic, irritable, and anxious. Higher scores suggested a greater magnitude of the temperament. A stability of the temperaments by the TEMPS-A has already been shown, regardless of the temperament type, gender, or age¹⁵.

We collected their demographic information, which included age, gender, marital status, family income, number of children who lived together, and number of people who required care who lived together. Participants also reported information on work-related variables: position classification, type of employment, work pattern and frequency of working from home.

We conducted Spearman's correlation analysis of the TEMPS-A and SWING-J scores. To examine the independent influence of temperament on work-life balance, we performed a hierarchical multiple linear regression using the TEMPS-A and SWING-J scores, while adjusting for the effects of demographic variables and work-related variables. Statistical significance was set at $p < 0.05$. We used the SPSS version 28.0 software (SPSS Inc., Chicago, IL) for statistical analyses.

Results

Table 1 shows the subjects' characteristics and the TEMPS-A and SWING-J scores. The mean age was 46.5 ± 10.5 years. The participants consisted of 638 (76.0%) males and 201 (24.0%) females. Of

Table 1. Participants' characteristics. Total (N=839)

	Range	Mean (SD)	n (%)
Age (years)		46.5 (10.5)	
20-29			59 (7.0)
30-39			163 (19.4)
40-49			264 (31.5)
50-59			255 (30.4)
≥ 60			98 (11.7)
Gender			
Male			638 (76.0)
Female			201 (24.0)
Marital status			
Unmarried			292 (34.8)
Married			547 (65.2)
Family income (million yen)			
<4			184 (21.9)
≥ 4			655 (78.1)
Children living together			
No			439 (52.3)
Yes			400 (47.7)
People requiring care living together			
No			800 (95.4)
Yes			39 (4.6)
Position classification			
Non-manager			465 (55.4)
Manager			374 (44.6)
Type of employment			
Regular			689 (82.1)
Temporary			150 (17.9)
Work pattern			
Daytime			705 (84.0)
Shift			134 (16.0)
Working at home			
No			608 (72.5)
Yes			231 (27.5)
Temperaments			
Depressive	0-20	9.0 (4.1)	
Cyclothymic	0-21	6.8 (5.0)	
Hyperthymic	0-20	6.7 (4.4)	
Irritable	0-21	5.8 (4.3)	
Anxious	0-26	7.5 (6.2)	
Spillover			
WFNS	0-24	6.4 (4.8)	
FWNS	0-12	2.3 (2.4)	
WFPS	0-15	5.7 (3.1)	
FWPS	0-15	6.1 (3.1)	

SD, standard deviation; WFNS, work to family negative spillover; FWNS, family to work negative spillover; WFPS, work to family positive spillover; and FWPS, family to work positive spillover.

Table 2. Correlation between the temperaments and spillovers

	WFNS	FWNS	WFPS	FWPS
Depressive	0.289**	0.270**	-0.022	-0.024
Cyclothymic	0.430**	0.461**	0.080*	0.079*
Hyperthymic	0.204**	0.146**	0.343**	0.381**
Irritable	0.396**	0.450**	-0.043	-0.012
Anxious	0.384**	0.408**	-0.034	-0.039

** p<0.01, *p<0.05.

WFNS, work to family negative spillover; FWNS, family to work negative spillover; WFPS, work to family positive spillover; and FWPS, family to work positive spillover.

Table 3. The temperament effects for WFNS, FWNS, WFPS, and FWPS

	WFNS		FWNS		WFPS		FWPS	
	Step 1 β	Step 2 β	Step 1 β	Step 2 β	Step 1 β	Step 2 β	Step 1 β	Step 2 β
Age (years)	-0.183***	-0.109**	-0.171***	-0.087*	0.031	0.011	0.053	0.034
Gender	-0.023	-0.044	-0.081*	-0.067	0.114**	0.072	0.100*	0.062
Marital status	0.007	-0.005	-0.019	-0.038	0.097*	0.081	0.107*	0.088*
Family income (million yen)	0.009	0.02	-0.023	-0.012	-0.022	-0.057	0.006	-0.033
Presence of children living together	0.145**	0.12**	0.126**	0.104**	0.081	0.05	0.088*	0.054
Living with a person who required care	0.006	-0.017	0.068*	0.046	0.067	0.059	0.022	0.013
Position classification	0.059	0.061	-0.003	0.001	0.078	0.048	0.057	0.025
Type of employment	-0.039	-0.069*	-0.001	-0.034	0.031	0.036	0.024	0.027
Work pattern	0.063	0.052	0.051	0.042	0.004	-0.008	0.025	0.011
Working at home	0.038	0.04	0.027	0.032	0.049	0.038	0.004	-0.007
Depressive		0.01		-0.085*		-0.031		-0.01
Cyclothymic		0.195***		0.286***		-0.01		-0.007
Hyperthymic		0.032		-0.033		0.371***		0.393***
Irritable		0.105*		0.269***		-0.148**		-0.111*
Anxious		0.155**		0.045		0.046		0.005
R	0.257a	0.485b	0.225a	0.517b	0.206a	0.398b	0.197a	0.413b
R2	0.066	0.235	0.051	0.268	0.042	0.158	0.039	0.171
R2 Change score	0.066	0.169	0.051	0.217	0.042	0.116	0.039	0.132
F	5.839***	16.868***	4.424***	20.044***	3.667***	10.305***	3.34***	11.289***
Adjusted R2	0.55	0.221	0.039	0.254	0.031	0.143	0.027	0.156

* p<0.05, ** p<0.01, *** p<0.001.

WFNS, work to family negative spillover; FWNS, family to work negative spillover; WFPS, work to family positive spillover; and FWPS, family to work positive spillover.

these, 292 (34.8%) were unmarried and 547 (65.2%) were married. The number of participants with family incomes over 4 million yen was 655 (78.1%). Furthermore, 400 (47.7%) participants lived with children and 39 (4.6%) lived with people who required nursing care. The participants consisted of 465 non-managers (55.4%) and 374 (44.6%) managers, 689 (82.1%) regular and 150 (17.9%) temporary workers, and 705 (84.0%) daytime and 134 (16.0%) shift workers. Of these, 608 (72.5%) did not work at home or telecommute at all.

Spearman's correlations between the temperaments and work-home interaction according to the SWING-J is shown in Table 2. The results were interpreted based on Guilford's rule of thumb. Depressive, irritable and anxious temperaments scores were positively correlated with WFNS and FWNS. Cyclothymic and hyperthymic temperaments scores were positively correlated with WFNS, FWNS, WFPS, and FWPS.

Table 3 shows the results of the hierarchical multiple linear regression analysis of the TEMPS-A and SWING-J scores. Step 1 shows that age and the presence of children living together had significant associations with WFNS scores. Step 2 shows that the temperament variables explained the additional 16.9% of the variance ($F=16.87$, $p<0.001$). Cyclothymic, irritable and anxious temperaments indicated significantly high scores of WFNS. Step 1 shows that age, gender, the presence of children living together and living with a person who required care had significant associations with FWNS scores. Step 2 shows that the temperament variables explained the additional 21.7% of the variance ($F=20.04$, $p<0.001$). Cyclothymic and irritable temperaments indicated significantly higher scores and depressive temperament indicated a significant lower score of FWNS. Step 1 shows that gender and marital status had significant associations with WFPS scores. Step 2 shows that the temperament variables explained the additional 11.6% of the variance ($F=10.31$, $p<0.001$). Hyperthymic temperament indicated a significantly higher score, and irritable temperament indicated a significant lower score of WFPS. Step 1 shows that gender, marital status and the presence of children living together had significant associations with FWPS scores. Step 2 shows that the temperament variables explained the additional 13.2% of the variance ($F=11.29$, $p<0.001$). Hyperthymic temperament indicated a significantly higher score, and irritable temperament indicated a significantly lower scores of FWPS.

Discussion

We investigated the effects of temperament on work-family interaction after adjusting for sociodemographic and work-related factors. We used the TEMPS-A and SWING-J to evaluate the temperaments and consider the balance for both work and family life, respectively. The association between spillover and temperaments was discussed.

Temperaments and negative spillovers

Higher scores of cyclothymic and irritable temperaments were associated with higher WFNS and FWNS. Cyclothymic temperament was characterized by being unstable in mood, energy, socialization, and self-esteem and unevenly gifted and dilettante, whereas perceptive, compassionate, and romantic²⁰⁾. Cyclothymic temperament was associated with agitation following a stressful event²³⁾ and risk of depressive symptoms²⁴⁾. Irritable temperament was the darkest, characterized by being sceptical and critical (considered intellectual virtues), and individuals tended to be moody, complaining, jealous, angry and violent²⁰⁾. Previous study regarding the relationship between occupational stress and temperaments found that this temperament was associated with role and interpersonal conflict²⁵⁾. Furthermore, irritable temperament was noted to be vulnerable to occupational stress²⁵⁾. In addition, work stress was cited as an antecedent of WFNS⁸⁾. Workers with irritable temperament may be more likely to experience conflicts in various aspects. A previous study showed that cyclothymic and irritable temperaments were positively related to negative affect, risky behavior and restlessness, and negatively related to positive affect and preference for being with someone. Furthermore, individuals with high cyclothymic and irritable temperament were more

likely to perceive situations as stressful and experience higher levels of negative emotions toward stressful environments²²). Workers with these temperaments are easily irritated and stressed both at home and work, and may not be able to relieve their feelings, which may interfere with both sides. Therefore, workers with these temperaments may be more likely to experience high WFNS and FWNS. These could be associated with the higher WFNS and FWNS results in this study. Higher score of anxious temperament was associated with higher WFNS in this study. Anxious temperament was characterized by worry, vigilance and tension for external dangers²⁰). It was associated with the risk of depressive symptoms²⁴) and role and interpersonal conflict²⁵), noted to be vulnerable to occupational stress²⁵). Workers may be more likely to experience conflicts in various aspects and therefore workers with anxious temperament may be more likely to experience higher WFNS. In this study, although workers with anxious temperament were prone their family life being interrupted by work demand even when they were not at work, there was no indication that their work life was more likely to be affected by family demands. Family-related stressors such as family distress and family support have been identified as antecedents of FWNS²⁶). Anxious temperaments are vulnerable to occupational stress²⁵), but may not be vulnerable to family-related stress, therefore workers with anxious temperament may not be associated with higher WFNS. Higher score of depressive temperament was associated with lower FWNS. Depressive temperament was characterized by a tendency to be tied to daily life, self-blaming, shy, unassertive, sensitive to criticism, but self-denying, willing to work for someone else rather than be the boss²⁰). Even if they have some problems at home or with friends, they may tend to over-adapt and behave in the workplace.

Temperaments and positive spillovers

Higher score of irritable temperament was associated with lower WFPS and FWPS. It was associated with spillover in all four directions, with higher and lower levels for negative and positive spillover, respectively. Workers with irritable temperament may find it difficult to use developed work skills and roles at home and vice versa.

In contrast, higher score of hyperthymic temperament was not associated with negative spillover. However, it was associated with higher WFPS and FWPS. It is associated with many positive traits, such as cheerfulness, fun-loving, outgoing, joking, optimistic, self-confident, full of ideas, eloquent, active, no fatigue despite short sleep and leadership preference. However, it is also associated with a low likelihood of admitting to being single-minded, risk-taking and meddlesome²⁰). This was generally consistent with previous studies in which extraversion and experiential openness were particularly strong predictors of positive spillover¹³). Hyperthymic temperament has been shown to be protective against mental disorders and occupational stress^{10,25,27}). In previous study, cyclothymic, depressive, irritable and anxious temperaments showed significant correlations between cognitive complaints and depressive symptoms, while hyperthymic temperament did not²⁸). Hyperthymic temperament is positively correlated with happiness and elation, and individuals have a positive outlook on daily life²²). Workers may use their experiences and demands at work or home more effectively in another situation using their ideas.

The strengths and limitations are discussed. This was the first study on the relationship between temperament and work to family spillover using two measures with reliability and validity. Our findings help workers understand the effect of temperaments on work-family positive or negative spillover, which could lead to a better WLB. However, this study has some limitations. First, we could not determine the causal relationship between temperaments and work-family spillover due to the

cross-sectional design. However, considering the stability of temperament, we believe they affected spillovers. Second, we did not explore the interaction effects between positive and negative spillover and work to family and family to work spillover. Future studies should consider these effects. Third, this study was a small, short-term, web-based survey conducted in Japan. Hence, sample bias may have influenced the result and replicability cannot be confirmed. Furthermore, differences in the number of children and people who required care, and their ages were not examined. Furthermore, the survey was conducted during the COVID-19 pandemic, and it was possible that the participants' working conditions and family life were different from normal conditions. Future longitudinal studies with a larger sample and detailed questionnaire should be conducted.

Our study suggested that a hyperthymic temperament was more likely, while irritable and cyclothymic temperaments were less likely, to achieve better WLB for Japanese workers due to higher positive spillover. Our findings may help workers better manage their work and family life by understanding their own temperament and recognizing their susceptibility to negative and positive influences. A previous study showed that increased time in moderate leisure-time physical activity buffered the association between increased negative spillover and poorer health²⁹. Moreover, yoga and massage therapy have been demonstrated to reduce occupational stress in previous studies with healthcare workers³⁰ and stretching programs promoted health in desk workers³¹. Encouraging workers to have short exercise routines may benefit their health and job performance³². It may be desirable for workers with large negative spillover to have exercise habit and engage in moderate exercise to maintain their health, do yoga, get massage therapy, stretch during breaks and walk on the way to work. It may also be important for workers, especially with irritable and cyclothymic temperaments, to promote help-seeking behavior at the workplace and adjust workload if they have any family problems, and seek help for their family life when the workload is heavy or stressful. Recognition of workers' temperaments by supervisors, co-workers and family might lead to great support both at work and home.

Acknowledgements

All authors have no COI to declare regarding the present study.

We would like to thank all the participants for their contributions.

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