

PARENTAL HEALTH, PERSONALITY, AND LIFE-SATISFACTION

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INTRODUCTION

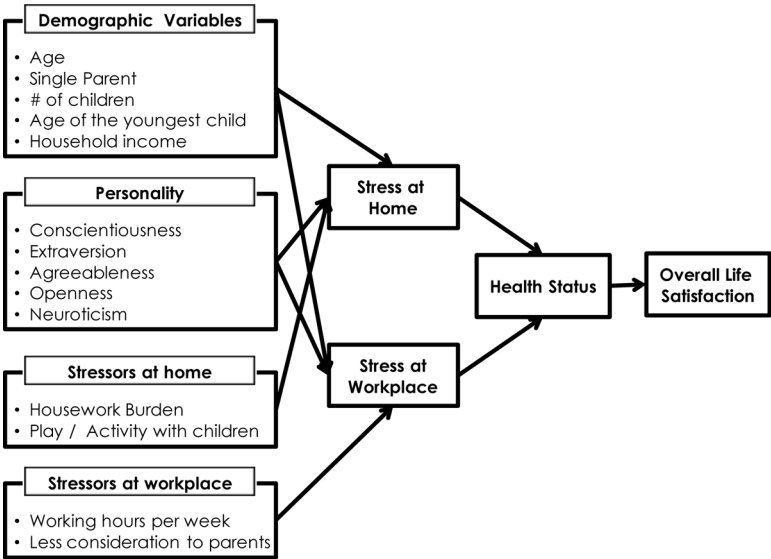
Becoming a parent may induce a sense of fulfillment that comes from raising the next generation and developing affectionate relationships with one's children, but may also damage parental health by increasing stress caused by carrying out childrearing practices. Conducting a large-scale meta-analysis on factors that affect the psychological well-being of parents, Nelson, Kushlev, and Lyubomirsky (2014) revealed that parents' lack of sleep and fatigue because of parenting and their frequent negative feelings cause a decrease in parental psychological well-being. Using a German national longitudinal economic survey (the German Socio-Economic Panel Study (SOEP)), Berger and Spieß (2011) found indication that lower maternal life satisfaction is related to lower verbal skills of the child and a higher incidence of socio-emotional problems during the period before school enrollment. In Japan, a nation-wide longitudinal study (The Longitudinal Survey of Newborns in the 21st Century) conducted by the Ministry of Health, Labour, and Welfare has been following 47,015 parents with babies born in 2001. According to this survey, when the children were between the ages of 0 to 5 years, more than 30 percent of parents felt that the "physical burden of childcare is quite big", and more than half of the parents were having difficulties finding time for themselves. The analysis of the 10-year longitudinal data (from birth to 10 years old) revealed that when mothers felt that their childcare-related burden and worries were too great when their first babies were 6 months old, they were less likely to have subsequent births, further lowering the birthrate (Ministry of Health, Labour and Welfare 2013). The low birthrate is a large concern both in Japan (total fertility rate: 1960 = 2.00, 2015 = 1.42) and Germany (total fertility rate: 1960 = 2.37, 2013 = 1.40, with a recent increase to 1.58 in the year 2016). Keeping parents in good physical and mental health in early parenthood is an important issue because it may influence both child development and the birthrate. The link between daily psychological stress and health has been investigated by many previous studies (e.g. Cohen et al. 2005; Charles et al. 2013). Having to fulfill multiple roles as a parent (household chores, parenting, and job) may heighten the daily stress level and cause deterioration of parents' physical

and psychological health. In this chapter, we examine the relations between some common forms of daily stress of German and Japanese parents, their self-reported health status, and their overall life satisfaction.

Not only the daily stress level but also parental personality, which relates to stressor-evaluation or stressor-related affect, influence parents' physical and psychological health. Leger et al. (2016) conducted research on 2,022 American adults (aged 30–84), and revealed that outgoing and cheerful personality (extraversion), competent and self-managing personality (conscientiousness), creative personality (openness), and emotionally stable personality (low neuroticism) are related to low levels of stressor-related negative affect (which would have a deteriorating effect on health status). Outgoing, hardworking, creative, and emotionally stable persons may have advantages in maintaining one's psychological and physical well-being during stressful parenthood. It is necessary to take into consideration both the amount of stressors parents experience and their personality when examining parents' health status during the early period of parenthood.

In this study, firstly, we show the levels of Japanese and German parents' stress and health status, followed by an investigation of related factors including personality as well as family- and workplace-stressors. As shown in Figure 1 below, we also investigate the relationship between parents' health status and overall life satisfaction.

Figure 1: Path model of parental personality, health, and life satisfaction



DATA AND METHODOLOGY

Data used here comes from the Parental Well-Being Survey, which was conducted in Germany and Japan among more than 2000 parents in each country with at least one child below elementary school age. For more information on the survey and the survey participants, see Huber (2018) in this volume.

As there are differences in related factors of health status and life satisfaction in regard to employment, we classified all participants by nationality, gender, and employment status (employed/not employed), forming a total of six groups (see Table 1).

Table 1: Six groups by nationality, gender, and employment status

	<i>n</i>	%
Japanese employed fathers	1009	24.1
German employed fathers	896	21.4
Japanese employed mothers	377	9.0
German employed mothers	598	14.3
Japanese non-employed mothers	716	17.1
German non-employed mothers	425	10.2
Subtotal	4021	96.1
N/A	165	3.9
Total	4186	100.0

Note: Non-employed fathers were very few in number in both countries (Japan: $n = 18 = 0.4\%$; Germany: $n = 89 = 2.1\%$); therefore they are excluded from the analysis (non-employed fathers were included in the N/A row in the table).

Descriptive statistics of variables used in the analysis are shown in Table 2 below.

Demographic variables: parental age; single parent family (0 = no/1 = yes); family income (1 = low/2 = middle/3 = high); number of children living with; age of the youngest child.

Personality: items from the five-factor model (Costa and McCrae 1992, 16 items: 3 items on extraversion, neuroticism, agreeableness, and conscientiousness; 4 items on openness; measured by 7-point Likert scale, ranging from 1 (completely untrue) to 7 (completely true); see Table 3 for complete list of items).

Stressors: family-related stressors are measured by two composite variables: housework burden and childrearing activities. Housework burden is a composite variable of 5 items, namely meal preparation, shop-

Table 2: Descriptive statistics of variables used in the analysis

	Employed fathers				Employed mothers				Non-employed mothers			
	Japan		Germany		Japan		Germany		Japan		Germany	
	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>	<i>M</i>	<i>n</i>
Demographic variables												
Age	37.7 ^c (5.10)	1008	36.4 ^d (6.38)	895	35.6 ^c (4.97)	377	34.8 ^b (5.60)	596	34.3 ^b (5.13)	717	33.6 ^a (5.97)	424
Single parent (%)	1.4%	1008	4.6%	896	9.5%	377	15.7%	598	1.5%	717	16.2%	425
Number of children	1.7 ^{b,c} (.78)	1008	1.6 ^a (.77)	896	1.8 ^{c,d} (.78)	377	1.7 ^{b,c} (.78)	598	1.7 ^{a,b} (.73)	717	1.9 ^d (.95)	425
Age of the youngest child	2.8 ^b (1.93)	1006	3.3 ^c (1.88)	896	3.8 ^d (1.78)	377	4.0 ^d (1.70)	598	2.8 ^{a,b} (2.07)	714	2.6 ^a (1.85)	425
Income (1=low / 2=medium / 3=high)	1.8 ^b (.55)	1008	1.7 ^b (.54)	765	1.4 ^a (.59)	377	1.8 ^b (.55)	475	1.4 ^a (.56)	717	1.8 ^b (.55)	332
Personality												
Conscientiousness	13.4 ^c (2.70)	1004	18.1 ^c (2.51)	888	13.0 ^b (3.16)	376	17.7 ^d (2.65)	596	12.3 ^a (2.97)	716	17.4 ^d (2.76)	423
Extraversion	11.5 ^a (3.42)	1003	15.3 ^c (3.10)	891	12.4 ^b (3.66)	376	15.8 ^d (3.16)	597	12.4 ^b (3.48)	716	15.7 ^d (3.30)	421
Agreeableness	14.1 ^a (2.50)	1002	16.0 ^b (2.70)	889	14.2 ^a (2.54)	376	16.3 ^c (2.69)	597	14.1 ^a (2.39)	717	16.5 ^c (2.85)	422
Openness	16.9 ^b (4.02)	1002	19.5 ^c (4.03)	888	16.9 ^b (4.31)	374	20.2 ^d (4.06)	591	16.2 ^a (4.27)	716	20.0 ^{c,d} (3.95)	421
Neuroticism	12.3 ^c (3.16)	1003	10.0 ^a (3.18)	894	13.9 ^d (3.33)	376	11.5 ^b (3.13)	596	13.9 ^d (3.33)	716	11.8 ^b (3.51)	424
Stressors												
Housework burden [*]	8.6 ^a (1.68)	1008	9.1 ^b (1.40)	896	12.6 ^c (1.61)	377	11.1 ^c (1.40)	598	12.9 ^f (1.27)	717	11.5 ^d (1.30)	425
Play/activity with children ^{**}	10.9 ^a (1.67)	1008	10.9 ^a (1.50)	896	14.1 ^d (2.12)	377	13.2 ^b (1.44)	598	14.4 ^c (1.89)	717	13.7 ^c (1.62)	425
Working hours per week	46.6 ^d (14.66)	984	44.0 ^c (9.77)	858	22.2 ^a (15.84)	367	24.1 ^b (12.39)	564				
Workplace being considerate of parents	3.9 ^c (1.66)	978	3.6 ^b (1.61)	724	3.3 ^a (1.71)	360	3.2 ^a (1.68)	510				
Subjective stress perception												
At home	2.54 ^a (.84)	1008	2.54 ^a (.82)	895	3.13 ^d (.94)	377	2.86 ^b (.82)	598	3.01 ^c (.86)	716	2.91 ^b (.90)	424
At workplace	3.30 ^c (1.02)	1007	3.28 ^c (.95)	891	2.77 ^a (1.10)	366	3.01 ^b (1.00)	582				
Health status												
Health status: past year	3.6 ^b (1.02)	1008	3.9 ^d (.79)	894	3.4 ^a (1.09)	377	3.7 ^c (.80)	596	3.4 ^a (1.06)	717	3.7 ^c (.90)	425
Health status: current physical condition	3.6 ^b (1.02)	1007	3.9 ^d (.80)	896	3.4 ^a (1.04)	377	3.7 ^c (.78)	597	3.4 ^a (1.04)	717	3.6 ^{b,c} (.87)	425
Health status: current psychological condition	3.4 ^b (1.07)	1007	4.0 ^d (.73)	896	3.2 ^a (1.12)	377	3.7 ^c (.81)	596	3.3 ^{a,b} (1.08)	717	3.7 ^c (.92)	425
Health status: overall ^{***}	10.5 ^b (2.82)	1007	11.7 ^d (2.03)	894	10.0 ^a (2.88)	377	11.1 ^c (2.04)	595	10.1 ^a (2.85)	717	11.0 ^c (2.38)	425
Overall life satisfaction	5.9 ^b (2.15)	1008	7.7 ^d (1.62)	894	5.4 ^a (2.39)	376	7.4 ^c (1.88)	597	5.8 ^b (2.33)	717	7.3 ^c (2.00)	424

Note: Standard deviations appear in parentheses below means. Means with differing superscripts within rows are significantly different at $p < .05$ based on Duncan's post hoc comparisons. ^{*}Housework burden: a higher score represents a bigger share of housework compared to partner; ^{**}Play/activity with children: a higher score represents more play/activity with children compared to partner; ^{***}Overall health status is the sum of the scores of the other three items on health status (past year, current physical condition, and current psychological condition).

ping for groceries and daily necessities, laundry, doing the dishes, and fixing things, evaluated by stating who is responsible for the household chores: 3: mainly myself, 2: share with other person, 1: mainly spouse (partner). The range of the score is 5 to 15 (see Table 2). Child-rearing is the composite variable of 6 items such as going outside, painting and singing, reading books, playing games, watching television, doing housework, and is evaluated in the same manner as housework burden. The range of the score is 6 to 18 (see Table 2). Workplace-related stressors are measured by two variables: working hours per week and an evaluation of how considerate respondents believe their workplace to be towards employees with children (7-point scale, from 1: very considerate, to 7: not at all considerate).

Subjective stress evaluation: Both stress at home and at the workplace are evaluated by 5-point scales, ranging from never (1) to all the time (5).

Health status: 3 items, namely health status during the past year, current physical condition, and current psychological condition, are evaluated by use of 5-point Likert scales that range from bad (1) to good (5).

Life satisfaction: Overall evaluation of the current living condition. Evaluated by an 11-point scale, ranging from 0 (dissatisfied) to 10 (satisfied).

PERSONALITY STRUCTURES OF GERMAN AND JAPANESE PARENTS

Recent advancements in the field of psychology of personality have revealed that personality has a biological basis, such as individual differences in genes and the cerebral nervous system. This allows making stable predictions of individual behavior under various circumstances (e.g. Nettle 2007; Kandler et al. 2011; McAdams and Olson 2010). To measure personality in the present study, we have used items based on the five-factor model of personality theory, which has been the most widely used measure in recent years (McCrae and Costa 2010). The five traits of personality are extraversion, neuroticism, conscientiousness, agreeableness, and openness.

In the following, we provide a brief summary of each personality trait based on Nettle (2007). A person who has a high score in extraversion is outgoing, enthusiastic, active, and loves being among people. On the other hand, a person who has a low score in extraversion is reserved, cool, and quiet. Those who have a high neuroticism score are emotionally unstable and more susceptible to stress; those who have a low neuroticism score are emotionally stable, relaxed, and able to handle highly stressful situations without being upset. A person who has a high score in conscientiousness is highly disciplined, competent, and is being trusted by others, a person who is low in conscientiousness score, however, is characterized by impulsiveness, in-

attentiveness, and lack of commitment. A person scoring high in agreeableness is empathetic, altruistic, and can trust others. A low score in agreeableness indicates an attitude of uncooperativeness, frequent conflict with others, selfishness, and suspiciousness. People with a high openness score are creative but sensitive and eccentric at the same time. They do not stick to tradition and are flexible to incorporate new values. On the other hand, those with a low openness score are conservative and realist. They prefer the familiar over the new while also being firm and having limited interests.

In this study, personality was measured with shared items between the German and Japanese questionnaire (three items on extraversion, neuroticism, agreeableness, and conscientiousness; four items on openness; measured by 7-point Likert Scales, ranging from 1 (completely untrue) to 7 (completely true); see Table 3 for a complete list of items). Factor analyses by nationality and gender were conducted to confirm the structure of the scale. As shown in Table 3, except one item of agreeableness in Japanese mothers (Agreeableness2: I can forgive, factor loading = .23), the value of all other factor loadings for each trait is above .30, which suggests German and Japanese share a common structure in line with the big five personality theory (Costa and McCrae 1992). Items from each trait are summed up to yield trait scores, and the mean value of each trait by six groups (Japanese employed fathers, German employed fathers, Japanese employed mothers, German employed mothers, Japanese non-employed mothers, German non-employed mothers) are shown in Table 2.

The fact that the surveys were conducted in different years (Germany: 2009; Japan: 2012) and the survey methods differed (Germany: interview survey; Japan: mail-in questionnaire), should be taken into consideration when looking at the results. German parents (both fathers and mothers) showed a lower score in neuroticism compared to Japanese, but the scores of the other four traits were higher in Germany. The study by Schimmack et al. (2002) which examined neuroticism and extraversion among college students in the United States, Germany, Japan, Mexico, and Ghana also showed that the score of neuroticism was highest for Japanese students, German students were second. The score of extraversion for Japanese students was the lowest among those five countries. It is unclear whether the present results are reflections of the ethnic differences in personality traits or linguistic or cultural differences in the interpretation of and reaction to each question and response option, but it is interesting to note that the significant differences between Japan and Germany are similar to those found in preceding studies. Additionally, there are mutual gender differences in Japan and Germany. The score of conscientiousness was higher in fathers, and the scores of extraversion and neuroticism were higher in mothers. There was no significant gender difference in the scores of openness and agreeableness.

Table 3: Summary of items and factor loadings for Promax rotated five-factor solution for the personality items by nationality and gender

	JPN:Fa1	JPN:Mo1	GER:Fa1	GER:Mo1	JPN:Fa2	JPN:Mo2	GER:Fa3	GER:Mo2
Openness								
Openness1: I am creative in my way of thinking and I come up with new ideas	.813	.753	.596	.659				
Openness2: Artistic, aesthetic experiences are important to me	.499	.641	.673	.601				
Openness3: I have rich power of imagination	.857	.777	.604	.696				
Openness4: I am brimming with curiosity	.506	.490	.553	.585				
Extraversion								
Extraversion1: I like talking and am pretty talkative					.795	.857	.590	.667
Extraversion2: I am sociable					.788	.696	.673	.792
Extraversion3: I am well-behaved (-)					.562	.592	.697	.668
Neuroticism								
Neuroticism1: I have a propensity to worry	.606	.525	.585	.530				
Neuroticism2: I get quickly irritated	.591	.711	.689	.733				
Neuroticism3: I can cope well with stress (-)	.544	.560	.389	.359				
Agreeableness								
Agreeableness1: I don't pay much attention how I act towards others or if I use bad words (-)					.397	.458	.316	.521
Agreeableness2: I can forgive					.339	.229	.537	.367
Agreeableness3: I treat other people with consideration					.770	.743	.745	.759
Conscientiousness								
Conscientiousness1: I work thoroughly	.358	.309	.843	.819				
Conscientiousness2: I am a lazy person (-)	.738	.845	.627	.594				
Conscientiousness3: I clean up/ get my work (done) with efficiency	.317	.402	.589	.539				

Note: JPN:Fa represents Japanese fathers; JPN:Mo represents Japanese mothers; GER:Fa represents German fathers; GER:Mo represents German mothers. Following numbers represent factors (e.g. JPN:Fa1 represents Japanese fathers, Factor 1).

PARENTAL STRESSORS AND STRESS LEVEL AT HOME AND AT THE WORKPLACE

Parental stressors and stress level at home

The degree of responsibility for household chores and childrearing is evaluated by five and six tasks, respectively. There are large differences comparing gender and countries (see Table 4 for details). Both Japanese

Table 4: Involvement in household chores and childrearing items by six groups

Housework				Childrearing			
		Mainly myself %	Others or sharing %			Mainly myself %	Others or sharing %
Meal preparation				Going outside with children			
Employed fathers	Japan	2.2	97.8	Employed fathers	Japan	3.4	96.6
	Germany	5.6	94.4		Germany	1.3	98.7
Employed mothers	Japan	88.0	12.0	Employed mothers	Japan	29.3	70.7
	Germany	62.8	37.2		Germany	15.7	84.3
Non-employed mothers	Japan	92.5	7.5	Non-employed mothers	Japan	34.2	65.8
	Germany	70.9	29.1		Germany	24.1	75.9
Groceries/daily necessities shopping				Painting/singing with children			
Employed fathers	Japan	4.2	95.8	Employed fathers	Japan	2.0	98.0
	Germany	6.0	94.0		Germany	1.7	98.3
Employed mothers	Japan	79.5	20.5	Employed mothers	Japan	56.4	43.6
	Germany	44.3	55.7		Germany	56.5	43.5
Non-employed mothers	Japan	76.1	23.9	Non-employed mothers	Japan	59.8	40.2
	Germany	47.5	52.5		Germany	66.8	33.2
Laundry				Reading books with children			
Employed fathers	Japan	7.2	92.8	Employed fathers	Japan	4.3	95.7
	Germany	1.4	98.6		Germany	3.6	96.4
Employed mothers	Japan	84.5	15.5	Employed mothers	Japan	62.0	38.0
	Germany	81.7	18.3		Germany	29.1	70.9
Non-employed mothers	Japan	93.2	6.8	Non-employed mothers	Japan	61.7	38.3
	Germany	89.8	10.2		Germany	39.5	60.5
Dishwashing				Playing games with children			
Employed fathers	Japan	10.5	89.5	Employed fathers	Japan	12.2	87.8
	Germany	7.5	92.5		Germany	2.1	97.9
Employed mothers	Japan	76.9	23.1	Employed mothers	Japan	26.1	73.9
	Germany	29.9	70.1		Germany	18.5	81.5
Non-employed mothers	Japan	85.4	14.6	Non-employed mothers	Japan	30.6	69.4
	Germany	41.6	58.4		Germany	27.2	72.8
Repairs/DIY				Watching television with children			
Employed fathers	Japan	81.6	18.4	Employed fathers	Japan	6.4	93.6
	Germany	84.9	15.1		Germany	4.5	95.5
Employed mothers	Japan	17.0	83.0	Employed mothers	Japan	22.5	77.5
	Germany	4.4	95.6		Germany	6.8	93.2
Non-employed mothers	Japan	15.1	84.9	Non-employed mothers	Japan	27.5	72.5
	Germany	6.0	94.0		Germany	15.9	84.1
				Doing housework with children			
Employed fathers	Japan	2.7	97.3	Employed fathers	Japan	2.7	97.3
	Germany	2.1	97.9		Germany	2.1	97.9
Employed mothers	Japan	70.3	29.7	Employed mothers	Japan	70.3	29.7
	Germany	32.8	67.2		Germany	32.8	67.2
Non-employed mothers	Japan	76.1	23.9	Non-employed mothers	Japan	76.1	23.9
	Germany	47.3	52.7		Germany	47.3	52.7

and German fathers take responsibility for fixing things, but for most of other household chores, Japanese and German mothers carry the main responsibility regardless of their employment status. This tendency is more significant in Japan; more than 75 percent of Japanese employed mothers are in charge of meal preparation, shopping, laundry, and dishwashing. The gap between Japan and Germany is remarkably big in shopping for groceries and daily necessities, as well as dishwashing. 79.5 percent of Japanese employed mothers and 76.1 percent of Japanese non-employed mothers mainly handle shopping, but only 44.3 percent of German employed mothers and 47.5 percent of German non-employed mothers. Dishwashing shows the same tendency as shopping: 76.9 percent of Japanese employed mothers and 85.4 percent of Japanese non-employed mothers are responsible for doing the dishes, whereas in Germany, only 29.9 percent of employed-mothers and 41.6 percent of non-employed mothers are in charge of doing the dishes. The same results are obtained for childrearing. Mothers bear a significantly greater burden compared to fathers, and comparing Japanese and German mothers, apart from one activity (painting/singing with children), again Japanese mothers bear a higher burden than German mothers. More than 70 percent of mothers are mainly responsible for doing housework with their children in Japan, irrespective of their employment status, but only 32.8 percent of employed mothers and 47.3 percent of non-employed mothers are solely responsible for this childrearing activities in Germany.

Cross-national statistics show that Japanese fathers with children below age 6 spend an average of 40 minutes a day on household chores and childrearing (Cabinet Office 2011). In Germany, fathers spend 60 minutes a day on these tasks, which is similar to other Western countries. Japanese fathers in contrast spend 28 minutes a day on household chores, not counting the time for childrearing. This is far less time compared to German fathers, who spend 121 minutes, so literally two hours, on household chores. In total, Japanese fathers spend one hour and seven minutes doing household chores and childrearing; on the other hand, German fathers spend three hours, which is three times as long as Japanese fathers.

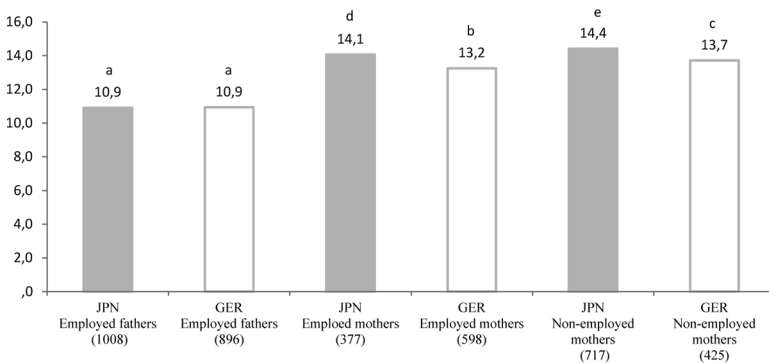
Table 2 shows that Japanese fathers' average working time (46.6 hours per week) is over two hours longer than their German counterparts' (44.0 hours per week), and this may be a big barrier which makes it difficult for Japanese fathers to participate in household chores and childrearing. If we would add commuting times for fathers to this, we would get an even more drastic view on the reason for the structural barriers for Japanese fathers to participate. In the case of Japan, it should be pointed out that husbands' working hours are linked to the birthrate of the second child (Cabinet Office 2011); only 9.9 percent of fathers who never participate in

Figure 2: Mean stressor scores and group differences of composite scores of housework burden



Note: The score of housework burden is a composite score of five items such as meal preparation, shopping for groceries and daily necessities, laundry, doing the dishes, and fixing things, evaluated by asking who is responsible for these chores: 3: mainly myself, 2: share with other person, 1: mainly spouse (partner). The range of the score is 5 to 15. A higher score indicates that the respondent has more responsibility for the chores. Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

Figure 3: Mean stressor scores and group differences of composite scores of play/activity with children



Note: The score of childrearing is a composite score of six items such as going outside, painting and singing, reading books, playing games, watching television, and doing housework, and was evaluated in the same manner as housework burden. The range of the score is 6 to 18. A higher score indicates that the respondent has more responsibility for the play/activity with children. Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

household chores and childrearing have a second child, but 55.3 percent of fathers who participate more than 4 hours but less than 6 hours have a second child, and when fathers participate more than 6 hours in household chores and childrearing, 67.4 percent of them have a second child.

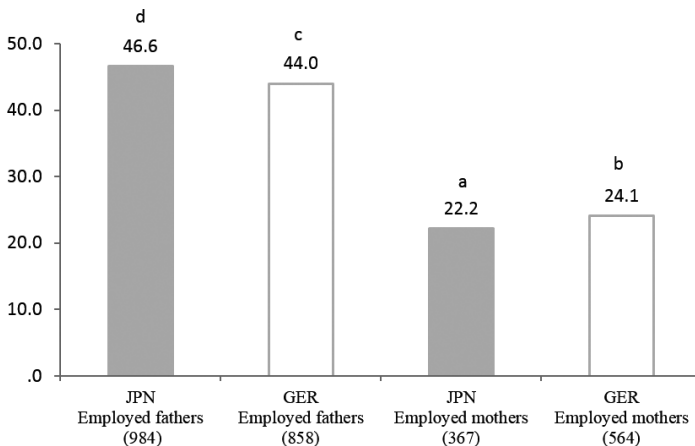
Figures 2 and 3 show group comparisons of the score of household chores and childrearing tasks. It is quite obvious that the mothers bear a higher burden than the fathers. Therefore, mothers experience more family-related stress and among them, Japanese non-employed mothers show the highest average score.

Parental stressors and stress level at workplace

Figures 4 and 5 show the comparison of working hours and the lack of consideration for parents at the workplace among employed fathers and mothers. Mothers spend fewer than half as many hours at work than fathers, both in Japan and Germany. Fathers work, on average, 8 to 9 hours a day, mothers work 4 to 5 hours a day (working hours per week are divided by five workdays). Japanese fathers work 2 hours more per week than German fathers, but Japanese mothers work 2 hours less than German mothers. In both countries, the fathers find their workplace to be less considerate of employees with children compared to the impressions mothers have of their workplace (Figure 5).

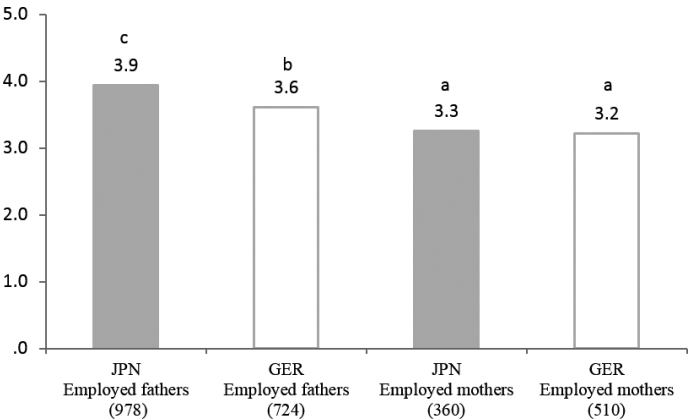
In Japan, parental leave systems are equal for mothers and fathers (maternity and paternity leave), but in the year 2014, only 2.3 percent of

Figure 4: Means and group differences of working hours per week



Note: Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

Figure 5: Means and group differences of scores of “lack of consideration to parents in the workplace”

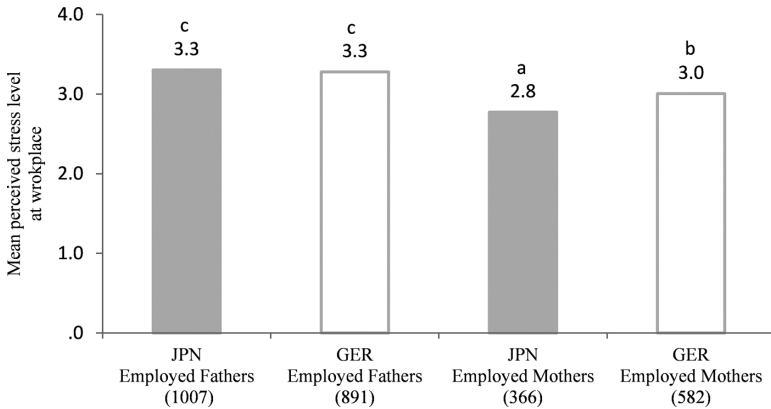


Note: The score of “Lack of consideration to parents in the workplace” was evaluated by using a 7-point scale ranging from very considerate of employees with children (1) to severe lack of consideration of employees with children (7). Thus, higher means represent a less considerate work environment. Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

fathers took paternity leave according to official statistics (Basic Survey of Gender Equality in Employment Management; Ministry of Health, Labour and Welfare 2014). On the other hand, 86.6 percent of Japanese mothers took maternity leave that same year. The national goal is for 13 percent of fathers to take parental leave, a number still way out of reach. A huge obstacle continues to be the fact that despite numerous governmental efforts directed towards the improvement of work-life balance, workplaces continue to not actively encourage their male employees to engage in household tasks and childrearing (see Nagase 2018 in this volume for more detail). This results in many working husbands and fathers experiencing difficulties in achieving work-life balance. As shown in Figure 6, employed fathers in this survey experience more work-related stress than employed mothers. This is not surprising considering the longer work hours and the pressure that comes with a career-track position. Surprising, however, is the fact that there seems to be no difference in perceived stress-levels between Japanese and German fathers, despite the fact that German fathers work fewer hours.

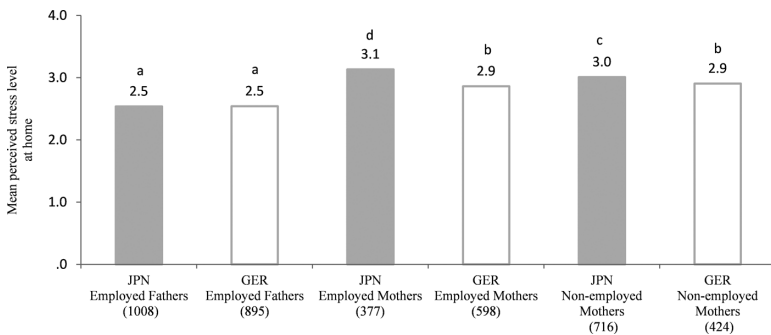
On the other hand, fathers in both countries experience a lower stress level in regards to their home life in comparison to mothers both in Japan and Germany (see Figure 7). Japanese employed mothers’ perceived

Figure 6: Mean perceived stress scores and group differences of stress level at workplace



Note: The score of stress at workplace was evaluated by the use of 5-point scales, ranging from never (1) to all the time (5) Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

Figure 7: Mean perceived stress scores and group differences of stress level at home



Note: The score of stress at home was evaluated by the use of 5-point scales, ranging from never (1) to all the time (5) Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

stress-level at home is the highest and differs significantly from that of German employed mothers. As shown in Table 4, there are large differences in the degree of sharing household chores and childrearing between German and Japanese employed mothers: more Japanese mothers bear sole responsibility compared to German employed mothers. In Ja-

pan, the gendered division of roles, as typified by the “three-year-old myth”, meaning the belief that mothers should stay at home and commit to household chores and childrearing particularly during the first three years of their child’s life (Sugawara 2005), remains persistently strong. Even in the case of dual-income couples, the majority of Japanese mothers take on the main responsibility for household chores and childrearing, which we believe to contribute to elevating their stress level to a higher degree than the non-employed Japanese mothers or the German mothers.

PARENTAL HEALTH STATUS IN JAPAN AND GERMANY

Table 2 shows the comparison of past year’s health status, current physical health status, and current psychological status among the six groups of employed and non-employed mothers and fathers. Inter-item correlations of these three items are quite high ($r = .604\text{--}.843$), therefore the sum of these three items is used as the index of health status. Figure 8 below shows the group comparison of this composite health status score. As can be seen, Germans overall evaluate their health more positively than Japanese. The mothers in both countries deem their health status to be worse than the fathers do. Japanese mothers showed the lowest score irrespective of their employment status.

Figure 8: Mean health status scores and group differences



Note: The score of health status is the composite score of three items such as health status during the past year, current physical condition, and current psychological condition are evaluated by the use of 5-point Likert scales that range from bad (1) to good (5). The range of the score is 3 to 15. A higher score indicates better health status. Group differences were identified by ANOVA post-hoc test (Duncan). Same letters indicate that there were no statistically significant differences at $p < .05$.

RELATED FACTORS OF PARENTAL HEALTH IN JAPAN AND GERMANY

Related factors of stress at home and at workplace: Analysis 1 & Analysis 2

In a next step, we conducted path analyses in order to predict parents' physical and psychological condition, including their stress levels (subjective stress perception) at home and at the workplace as mediators. The hypothetical model for this procedure can be seen in Figure 1 above. Findings from the path analyses are shown in Table 5 (employed fathers in Japan and Germany), Table 6 (employed mothers in Japan and Germany), and Table 7 (non-employed mothers in Japan and Germany). The columns of "Analysis 1" in these tables present the results from multiple regression analyses predicting the stress level at home of each group. Regarding the demographic variables, for Japanese employed fathers and mothers, no significant predictor of the stress level at home was found. For German employed fathers and mothers, however, being a single parent and the number of children were significant predictors of stress at home. In Japan, single parenthood is still rare and to a certain degree remains stigmatized, so that even though this representative survey oversampled that population, there are only 35 single parents in total and therefore too few to allow for statistical analysis. We know however, that single mothers in Japan show high stress levels (see Raymo 2017 for more details).

An additional predictor of stress levels at home can be found for the group of German employed women in regard to the age of their youngest child: the younger the youngest child, the higher the stress level at home. For non-employed mothers in both countries, being older as well as having younger children (measured by age of their youngest child) were significantly predictive of a higher stress level at home. Further, single parenthood and number of children were also significant predictors of the stress level at home among German non-working mothers.

Regarding the personality factors, consistent with many previous studies (e.g. Leger et al. 2016), neuroticism showed a relatively strong and significant association with stress level at home among all six groups (β s = .223-.413, $p < .01$). Those who showed a high score in neuroticism might be prone to negative emotions toward stressors and react more sensibly to them particularly during parenthood when they experience more stressors compared to other stages of the life course. There were several other significant predictors of greater stress at home, although their significance varied among the groups: low conscientiousness (for German employed fathers and non-employed mothers) and low agreeableness (employed fathers in Japan and employed mothers in Germany). Individ-

uals who are not good at working diligently and working cooperatively with others feel stressed at home where they have to engage in parenting which requires a lot of cooperation among parents and family members. Individuals with a high openness-score seek freedom and novel stimulation; for Japanese employed fathers and German employed mothers, this openness was significantly predictive of a higher stress level at home. This suggests that routine household chores could be stressors for people with this character trait. This result is partially different from the mentioned study conducted by Leger et al. (2016). They pointed out that an outgoing and cheerful personality (high extraversion), a competent and self-managing personality (high conscientiousness), a creative personality (high openness), and an emotionally stable personality (low neuroticism) are related to low levels of stressor-related negative affect, which would be linked to a deterioration of later health, as stated above as well. This could suggest that the health-personality link during parenthood may differ from other periods of the life course and should be analyzed in more detail.

For employed fathers and mothers, with the exception of German employed fathers, we found a significant relationship between household burden and stress level at home. In contrast, among non-employed women in both countries, it is instead the burden of playing and engaging in activities with their children, which significantly predicts stress levels at home in Japan and Germany. In dual-earner families, adults other than parents (e.g. caregivers, grandparents, etc.) engage in childcare, but non-employed mothers (i.e. full-time mothers) are, in many families, the only persons who take care of children during daytime, and thus their elevated involvement in their children's activity might have more effect on their stress level at home, regardless of culture.

In the columns of "Analysis 2" for those groups of employed, the results from multiple regression analyses predicting stress at the workplace are presented. None of the demographic factors showed a significant association except age of the youngest child, which showed a weak positive relationship in the case of German employed fathers. In regard to personality factors, as in the case of stress levels at home, neuroticism contributed significantly to the prediction of the level of stress at the workplace in all four groups (β s = .216 ~ .298, $p < .01$). Conscientiousness and openness have a significant but weak effect solely for Japanese working fathers. Long working hours show a significant relationship in three groups (Japanese working mothers, German working fathers and mothers), and the coefficients are larger among the mothers (Japanese working mothers: $\beta = .239$, German working mothers: $\beta = .419$, $p < .01$). Lack of consideration for employees with children shows a significant relationship with the

stress level at the workplace in all four employed groups. This suggests that support at the workplace is a very important factor for parents regardless of culture.

Related factors of parental health: Analysis 3

The columns of "Analysis 3" in Table 5, Table 6, and Table 7 show the findings for the analysis of the relationship between subjective stress perception (at home and at the workplace) and health status. In both countries, as hypothesized in our model (Figure 1), both stress at home and at the workplace are predictive of health status for the group of employed fathers and mothers; for non-employed mothers, it is only the stress at home that serves as a predictor.

As in Analysis 1 and 2, the personality trait of neuroticism was a direct predictor of health status in every group. It is noteworthy that even after controlling for demographic indicators, personality traits, and stressors, the levels of stress at home and at the workplace remain predictive of the health of fathers and mothers during parenthood, regardless of which culture they live in. In both Japan and Germany, even if personal background and personality traits differ, individuals who feels stressed at home or at the workplace are at increased risk of damaging their health. Therefore, working in particular on improving parents' health at the early stage of parenthood is necessary. To improve the situation for full-time mothers, a focus on strategies to reduce their burden in involvement with their children (through means such as using temporary childcare, e. g., babysitters, husbands, or grandparents) may be effective to reduce their stress levels. For employed fathers and mothers in both countries, however, giving more consideration to employees with young children can be effective, as well as reducing working hours will also be effective means for lowering stress levels. For employed mothers in both countries, reducing the housework burden will be effective in reducing their stress. Reducing the household burden may be an effective stress relief for Japanese fathers as well, but as previously discussed, average time spent on household chores is very short among Japanese fathers to begin with. As mentioned above citing official data, Japanese fathers engage in household chores less than a quarter of the time spent by German fathers. There is more than one possible explanation why Japanese fathers feel psychologically stressed at home despite their limited engagement in housework. For one, it could be that they are stressed by engaging in household chores for even just a short period of time – less so because this involvement represents a burden in terms of time, but rather a) because of their lack of experience and skill when it comes to household chores or b) their

Table 5: Path analyses of the effects of parental personality, stress, and health on life satisfaction; employed fathers

[illegible]

Note: **p < .01; *p < .05. ^aHousework burden: a higher score represents a bigger share of housework compared to partner; ^bPlay/activity with children: a higher score represents more play/activity with children compared to partner; ^cHealth status is the sum of the scores for health status during the past year, current physical condition, and current psychological condition.

Table 6: Path analyses of the effects of parental personality, stress, and health on life satisfaction; employed mothers

	Employed mothers											
	Japanese						German					
	Analysis 1 (N = 374) DV: Stress at home		Analysis 2 (N = 374) DV: Stress at workplace		Analysis 3 (N = 344) DV: Life satisfaction		Analysis 1 (N = 467) DV: Stress at home		Analysis 2 (N = 372) DV: Stress at workplace		Analysis 3 (N = 371) DV: Health status	
	B	se	B	se	B	se	B	se	B	se	B	se
Demographic variables												
Age	.001 .010 .003		.007 .012 .030		.003 .029 .005		.007 .007 .047		.002 .009 .009		.021 .020 .054	
Family structure (1 = single parent / 2 = two parents)	-.129 .167 .040		-.356 .188 .100		.766 .473 .081		-.426 .105 .184 **		-.193 .126 .071		.215 .290 .037	
Family income (1 = low / 2 = medium / 3 = high)	.095 .076 .060		.068 .094 .037		-.117 .226 .024		-.030 .066 .020		-.017 .080 .009		-.367 .177 .097 *	
Number of children	.100 .059 .083		.049 .072 .035		.354 .174 .096 *		.194 .049 .185 **		.081 .061 .065		-.190 .135 .073	
Age of the youngest child	.030 .027 .057		.054 .034 .088		.048 .081 .030		-.047 .022 .096 *		.005 .028 .009		-.024 .063 .019	
Personality												
Conscientiousness	-.005 .015 .018		-.004 .019 .011		.021 .044 .023		.064 .037 .085		.018 .019 .047		.104 .043 .127 *	
Extraversion	-.005 .014 .021		-.028 .016 .097		.004 .039 .006		.041 .032 .063		.023 .016 .072		-.068 .036 .098	
Agreeableness	-.003 .018 .009		.037 .022 .087		.024 .054 .022		-.017 .044 .018		.023 .018 .060		.007 .041 .009	
Openness	.011 .012 .051		.019 .014 .077		-.008 .034 .012		.031 .028 .055		.021 .013 .084		.025 .028 .047	
Neuroticism	.114 .014 .404 **		.072 .018 .216 **		-.274 .047 .312 **		-.060 .040 .081		.073 .014 .236 **		-.223 .033 .341 **	
Stressors												
Housework burden ^a	.094 .033 .160 **				-.084 .096 .049		.093 .080 .064		.069 .029 .113 *		.013 .078 .009	
Play/activity with children ^b	.013 .023 .030				.033 .069 .024		-.091 .057 .080		.031 .026 .055		-.011 .079 .007	
Working hours per week			.016 .003 .239 **		-.003 .009 .017		.002 .007 .015		.035 .004 .419 **		-.002 .009 .014	
Less consideration of parents at the workplace			.115 .032 .181 **		-.188 .078 .112 *		-.147 .065 .104 *		.087 .027 .149 **		-.088 .061 .071	
Subjective stress perception												
At home					.845 .157 .274 **		.767 .135 .296 **				.341 .129 .136 **	
At workplace					-.336 .134 .127 *		-.188 .112 .085				-.222 .116 .105	
Health status^c												
	.217 **		.181 **		.347 **		.371 **		.299 **		.257 **	
<i>R</i> ²												

Note: **p < .01; *p < .05; ^a Housework burden: a higher score represents a bigger share of housework compared to partner; ^b Play/activity with children: a higher score represents more play/activity with children compared to partner; ^c Health status is the sum of the scores for health status during the past year, current physical condition, and current psychological condition.

Note: **p < .01; *p < .05; ^a Housework burden: a higher score represents a bigger share of housework compared to partner; ^b Play/activity with children: a higher score represents more play/activity with children compared to partner; ^c Health status is the sum of the scores for health status during the past year, current physical condition, and current psychological condition.

[illegible]

persistently strong gender role stereotyping of believing that doing household chores and childcare are after all women's work (Sugawara 2005). It is particularly this group of employed Japanese fathers that makes a further investigation into the reasons for their lack of participation in household activities necessary. For more details on fathers' participation in housework, see the chapter by Olbrich (2018) in this volume and for the impact of the distribution of housework and childrearing on fathers (as well as mothers) satisfaction, see the chapter by Fankhauser, Holthus, and Hundsdoerfer (2018).

Related factors of overall life satisfaction: Analysis 4

The columns of "Analysis 4" feature the results from multiple regression analyses predicting overall life satisfaction of parents with all independent variables included. The analysis clearly shows how both physical and psychological condition are related to parents' overall life satisfaction. We find health status to show a positive relationship to overall life satisfaction for all six groups (β s = .217 ~ .299, $p < .01$). All coefficients of determination (R^2) are also significant (R^2 s = .236 ~ .388, $p < .01$). Regarding coefficients of determination, the values are around the .20-level among Japanese and German working fathers, but for mothers these values are considerably higher, on a level of more than .30. It can be concluded that parental health status, which itself is thought in this study to be hierarchically affected by personal background factors (demographic factors, personality traits, stressors, and stress levels), is one of the important factors that determine the overall life satisfaction of parents. In that respect, parents most likely do not differ much from the general population.

DISCUSSION

Multiple stressors are found to be related to the physical and mental health of parents and their feelings of subjective stress during the period of childrearing – a time when parents are in the position of having to juggle their performance of multiple roles. As preceding studies (e. g. Lahey 2009) reported for the general population, the personality trait of neuroticism is a risk factor and detrimental to parental health in both countries. During the early stage of parenthood, the timeframe in the focus of the present study and the entire volume, special attention should be paid to parents who are highly neurotic in personality, as appropriate support or intervention is necessary before their health condition deteriorates.

In countries with low birth rates such as present-day Japan and Germany, both men and women have very limited experience of caring for infants before they become parents; therefore, they often have to enter parenthood with limited knowledge and skills regarding parenting. Additionally, because support from neighbors is limited especially in urban areas in Japan, coupled with a decline in three-generation households, many parents have to tackle parenting alone, without having the possibility of asking others for advice or help. In both countries, parenthood is a time when individuals in both countries, irrespective of their personality, experience a lot of anxiety and stress. Especially parents with a neurotic personality, who easily experience high anxiety and emotional instability, need special attention from pregnancy onwards. Additionally, there were some notable results in regard to other personality traits, such as the high openness of Japanese employed fathers, as well as the high stress levels at home for German employed mothers. More research is needed to understand the association between parental personality and parenting stress as well as the cultural differences we found in the data, but were not able to be elaborated upon further in the framework of this paper.

In addition, we found that support at the workplace had a significant effect on the maintenance of employed parents' physical and psychological health, no matter their gender and nationality. This suggests the importance of both, namely implementing effective policies to support parenting as well as creating safe and supportive work environments, irrespective of the existing differences in each of the two countries. From the results of our analysis, we conclude that chronically long working hours are a significant stressor among Japanese and German working parents. Thus, a different management of working hours to achieve better work-life balance is of utmost necessity. See the chapter by Nagase (2018) in this volume for a more detailed discussion on parental employment in both countries. For the case of Japan, work-life balance has been a central focus of government already since 2008, yet so far, it has not been effectively improved. On the other hand, parental leave policies are much more generous and more often utilized by parents in Germany – despite long working hours also contributing to parental stress in Germany, not just in Japan.

Additionally, for non-employed mothers, so called full-time mothers, playing or doing activities with their children is one of the stressors, irrespective of country and personality. To help out mothers who are taking care of young children alone, on the one hand it is important to encourage others (husbands, relatives, friends, or neighbors) to help participate in childrearing more actively, and on the other hand it is necessary to provide institutionalized childcare at affordable prices and places where

mothers and children can play together and be able to meet other parents. In Japan, for example, there are regional childcare support programs for all families including families with full-time mothers led by the Ministry of Health, Labour and Welfare (2017). By giving isolated full-time mothers the chance to share their parenting with others in their community, not only is mothers' stress reduced, but through interaction with various people children's social development may be positively influenced as well (for the positive effect of these localities on maternal well-being, see the qualitative study by Kawano 2013).

Demographic and socio-economic factors as well as personality traits are extremely difficult to change in a short period of time – if at all. Yet it is comparatively possible to change the intensity of stressors and social support and one can move into a more desirable direction through a joint effort of family, extended community, workplace, and through social policies. From the results of the present study, even after controlling for demographic variables and personality traits, stressors and social support have significant main effects on parents' health status and life satisfaction. This is a very important finding, showing that reducing stress levels and strengthening social support may help parents to lead healthy lives, regardless of their demographic background, their personality, and their nationality.

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