Swimming against the stream. Non-normative family transitions and loneliness in later life across 12 nations

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INTRODUCTION

During the last half century we witnessed sizeable changes in the older age population. In Europe, in most countries, life expectancy has moved from 70 years in 1960 to 80 years in 2014 (Eurostat June 2016). Proportions of population aged 65 or more are now registering highest levels, and increased from about 9% in 1960 to 19% in 2015 (The World Bank June 2016, Eurostat June 2016). In an ageing society, understanding the conditions of older individuals related to their health, economic situation and psycho-social quality of life is essential.

Among the components defining well-being of older individuals, loneliness has been identified as an element of concern. Loneliness is considered to be the result of a discrepancy between desired and existing quality or quantity of social relationships (Perlman and Peplau 1982). Many scholars have tried to understand the risk factors of old age loneliness and some of those factors stood out: lack/loss of partner, economic limitations and a poor health (Fokkema, De Jong Gierveld and Dykstra 2012) (Hansen and Slagsvold 2015) (de Jong Gierveld, Dykstra and Schenk 2012) (Yang and Victor 2011) (Sundström et al. 2009). However, the risk factors described refer to conditions of individuals at older ages thus investigating more short term associations with loneliness. Life-course scholars argue that experiences gained at earlier stages in life continue to mark individuals' experiences (Mirowsky and Ross 2002) (Wrosch and Heckhausen 1999) (O'Flaherty et al. 2016). Such long-term effects await to be revealed.

Some of the adult events with major impact on individuals' lives are the establishment of intimacy and parenthood (Neugarten 1979). To date, we have a great deal of knowledge on how biological, cultural and contextual factors shape family-life events (Happel, Hill and Low 1984) (Mills et al. 2011). But before individuals actually experience partner or parent roles, they develop an anticipative timetable containing expectancies for *when*, *how often* and *in what order* these events should occur (Neugarten 1979) (Zerubavel 1985). Detours from this timetable can create an imbalance (Elder 1975) (Heckhausen and Schulz 1995), and its negative effects may be perpetuated into old ages (O'Flaherty et al. 2016) (Kravdal et al. 2012). Comparative to research on the determinants of family life events, much less is known about the long-term consequences of deviating from the ideal timetable. Some argue that the timing of engaging in transitions is important as individuals may be less or more emotionally and economically prepared for the roles they engage in, and this in turn may affect their level of well-being when older (Alexander and Reilly 1981) (Marini 1984) (Mirowsky and Ross 2002) (Zerubavel 1985) (Dykstra and Keizer 2009) (Koropeckyj-Cox, Pienta and Brown 2007) (Fokkema, De Jong Gierveld and Dykstra 2012). Next to understanding whether detours from an ideal timing has negative consequences, it is also important to inform on the consequences of crossing developmental deadlines and never experiencing a family transition. Some empirical findings have shown that childless and never married individuals are more lonely at older ages compared to individuals who experienced these events (Koropeckyj-Cox 1998) (Dykstra and Keizer 2009) (Fokkema, De Jong Gierveld and Dykstra 2012). Others argue that non-transitions have no consequences on well-being (Glenn and McLanahan 1981) (Goldberg et al. 1986) (Kohler, Behrman and Skytthe 2005). To date it is unclear how the relationship between nonconformity to pre-established scripts and negative outcomes should be interpreted.

The manner in which individuals experience family life events is highly influenced by contextual factors. European countries vary in their wealth and welfare state support, but also in how cultural norms play a role in family transitions and well-being. Macro-economic and social indicators may explain the relationship between (non-normative) family transitions and loneliness. The stronger traditional family norms and values, and emphasis on conformity observed in Eastern and Southern Europe (Inglehart and Baker 2000) may play an important role in how individuals experience life events in both adulthood and old age. In such cultures, the pressure of experiencing normative family transitions might be intense, and transgression of norms may be reflected in more severe social and emotional penalties at old ages (de Jong Gierveld and Tesch-Römer 2012). Also, higher levels of economic hardship in these countries

may amplify the negative emotional consequences of off-timed transitions, in particular early transitions, as individuals might not have been able to achieve their financial independence yet (Balestrino and Ciardi 2008). Reversed, in Western societies in which individual's self-expression is central and economic instability is less problematic (Inglehart 2006), norm non-compliance might have less negative consequences. Prominent studies advanced knowledge on cross-national differences in the relationship between family transitions and loneliness (Yang and Victor 2011) (Hansen and Slagsvold 2015) (Fokkema, De Jong Gierveld and Dykstra 2012). However, detailed aspects regarding long-term consequences of non-normative family transitions discussed above remained under-explored across nations.

Starting from the above-mentioned premises, we formulate several research questions: 1) *Do deviations from group-defined family behavior have consequences on experiencing loneliness at older ages?* 2) *Are there cross-national differences in the association between off-script family patterns and old-age loneliness?* 3) *Do cultural indicators (traditional and survival values) moderate the relationship between off-script family behaviors and old-age loneliness?*

METHOD

Sample

For this study we use nationally representative data from the Generations and Gender Survey (GGS) consisting of resident population of individuals aged 18 to 85 in each of the participating countries. The data from Wave 1, collected between 2004 and 2009, allows for the analysis of childbearing and relationship histories through the harmonized histories file (Perelli-Harris, Kreyenfeld and Kubisch 2010). In addition, the cross-sectional data in Wave 1 provides individual level information on multiple life domains, including socio-emotional, educational and familial aspects. Given our focus on individual's lives at older ages, we selected only respondents aged 50 or older. Further, due to some data limitations on crucial variables for the current study, from the 19 countries available in the GGS we were able to use information on 12 European countries: Bulgaria (BG), Belgium (BE), Czech Republic (CZ), France (FR), Georgia (GE), Germany (DE), Lithuania (LT), Norway (NO), Poland (PL), Romania (RO), Russia (RU), Sweden (SE). The final sample for this study included 61,104 individuals.

Analytical approach

To analyze the effects of family transitions on old age loneliness, cross-national variations in these effects and moderation effects, we used a multi-step analysis approach. *First*, we estimated the influence of diverse family transitions on old age loneliness separately for each country using *linear regression models - OLS*. To control for possible selection bias, the OLS models accounted for a set of carefully chosen confounders. *In the second step* we aimed to understand variations in observed effects across countries, and made use of *random effects meta-analysis models*. Rather than estimating a single effect (as in fixed effects meta-analysis), a random effects meta-analysis considers that the true effect varies between studies around the mean effect. Such models allow for a weighted analysis of variance, accounting for both within-country and between-country variation (Huizenga, Visser and Dolan 2011). In addition, as differences in size between countries exist, such an approach is advantageous as it allocates greater weights to smaller studies. *In the final step* we aimed to understand whether heterogeneity between country effects can be accounted by specified macro-level moderators. We did so by means of *multivariable meta-regression models* using the permutation test (with 10000 random permutations), suited for a small number of country effects and multiple covariates in a single model (Harbord and Higgins 2008). Such a test has the advantage of not depending on distributional assumptions (Viechtbauer et al. 2015). All models were fitted in STATA 14, using the *metan* command for meta-analyses and the *metareg* command for meta-regressions. To deal with missing data[1] we performed multiple imputation by chained estimates using the *mi impute* command. The final estimations are provided using results from 10 repeated analyses.

With multi-country data and information on micro- and macro-level, one may argue that the more popular multilevel regression analyses fitted on pulled data might be more suitable. We argue that in our study multilevel models are inadequate given the small number of countries available ($N_{country}$=12). As (Bryan and Jenkins 2015) noted, the reliability of country level estimates can be questioned when the number of countries is so low (even if group sizes are large), as estimates of the variance components and their standard errors tend to be biased downwards. In addition, the estimates of the standard errors of the country-level regressors may be also downwards biased. A different technique we considered was the more standard regression model for the pooled data using country-specific clustered standard errors.

[1] Missing data was recorded in several variables: 2.65% for loneliness variable, 22.96% for father's occupational level, 0.66% for respondent's educational level, 1.28% for all partner related variables, and 1.66% for all parenthood related variables.

However, such an approach does not explicitly model country-level effects (which we were interested in), and the number of studies could be problematic as well (Bryan and Jenkins 2015). For these reasons we argue that the stepwise approach we implemented suits best in answering our research questions.

RESULTS

Family transitions and old age loneliness – a meta-analysis

As previously mentioned, we analyze the relationship between family transitions and loneliness at older ages in steps. We first estimated whether never experiencing a family transition (living with partner or parenthood) relate to levels of loneliness, and did so separately for each country (linear regression results are presented in the Appendix, Table 2). We also estimated whether early and late family transitions relate to loneliness levels at older ages (Table 3 in the Appendix). Because these effects will be approached in the meta-analyses, we shortly discuss how the chosen control variables relate to loneliness. We see that loneliness levels tend to change with age and follow a U-shaped trend in most countries: they are stable or declining after age 50 followed by un upwards turn as individuals are older (the exception is Germany for which the decline is after age 50 and it stabilizes at older ages). We also find that individuals born before the 1940s are significantly less lonely compared to their younger counterparts in Germany and Belgium, and more lonely in Lithuania. Regarding gender differences, females show significantly lower levels of loneliness in Bulgaria and France, and higher loneliness levels in Germany and Sweden. Higher levels of education are associated with significantly less loneliness in all the countries in this study. Next to this, a higher occupational level of the father relates to lower levels of loneliness but only in Georgia and Germany. Finally, in half of the countries under study (Bulgaria, Lithuania, Poland, Czech Republic, France and Norway), individuals who experienced family disruption before age 15 showed higher levels of loneliness at older ages.

To understand whether cross-national differences exist in the relationship between family-related events and seniors' loneliness, we conducted meta-analyses for each of the family (non-)transitions. First, in Figures 1 and 2, we analyze non-occurrences and find that overall, both never living with a partner and childlessness are associated with higher levels of loneliness (I-V overall fixed effects). More important, random effects meta-analyses show substantial between-coefficients heterogeneity (I^2 = 75.1% for never living with partner and I^2

= 80.5% for childlessness)[2]. Although in all the 12 countries never living with partner was significantly associated with higher levels of loneliness, the strongest effects were observed in Bulgaria followed by Germany and Belgium, and the weakest effects were observed in Romania and France. Also childlessness was associated with higher levels of loneliness in all countries, and here a clearer separation between geographic regions can be distinguished. Specifically, Eastern European countries (in particular Poland, Georgia and Romania) showed stronger effects compared to Western and Northern nations (in particular Belgium, France, Norway and Sweden).

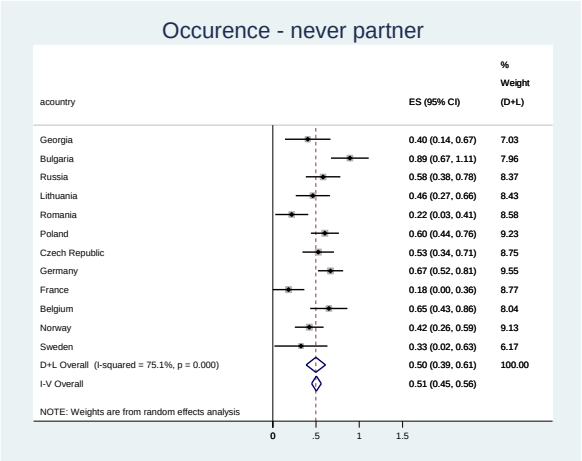

Figure 1. Forest plot never partner

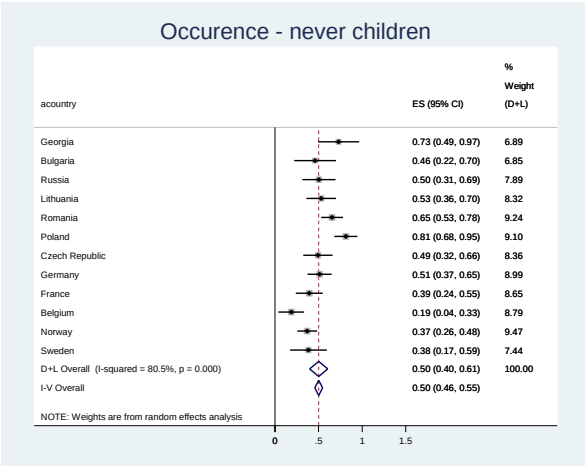

Figure 2. Forest plot never children

We also investigated whether off-timed family transitions are associated with loneliness at older ages, and whether these effects differ across nations. Figures 3 and 4 show that overall, both early and late living with first partner are associated with higher levels of loneliness (I-V overall fixed effects). However, heterogeneity across country estimates is minimal (0% for early living with partner and 39% for late living with partner). At country level, early living with partner was significantly associated with higher levels of loneliness only in Poland and late living with partner showed higher levels of loneliness only in Germany, France Norway and Lithuania. Analysis focusing on the timing of parenthood showed no overall effect of early parenthood on loneliness (Figure 5) and only little between-country coefficients heterogeneity (I^2 = 15.3%). However, late parenthood was significantly associated with higher levels of loneliness overall (Figure 6), and a low towards moderate

[2] (I^2) values are classified according to Higgins, Julian P. T., Simon G. Thompson, Jonathan J. Deeks, and Douglas G. Altman. 2003. "Measuring inconsistency in meta-analyses." *Bmj* 327(7414):557-60. into: low = 25%–49%, moderate = 50%–74%, and high = 75% or more.

heterogeneity between coefficients (I^2 = 45.6%). Significant effects of late parenthood on loneliness were recorded in Russia, Romania, Belgium, Poland and Sweden.

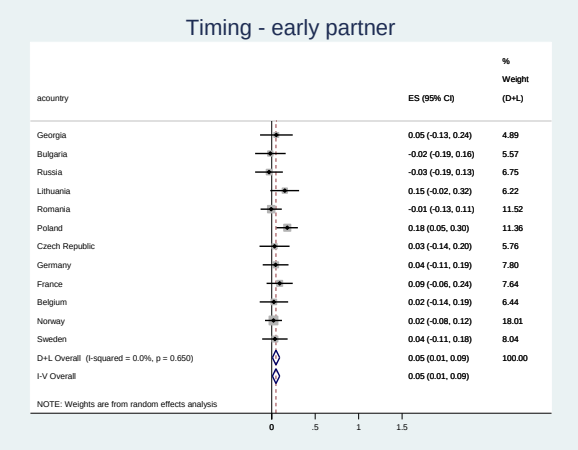

Figure 3. Forest plot early partner

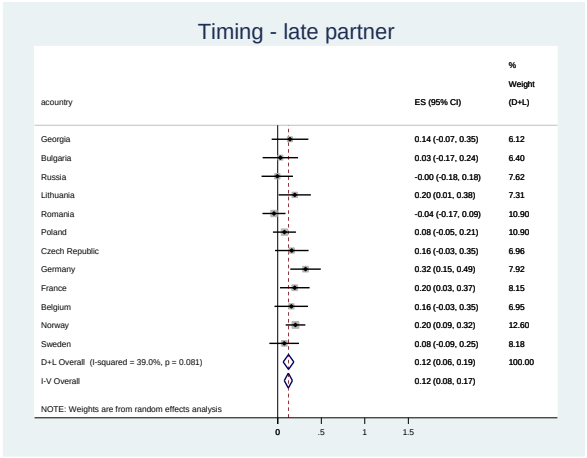

Figure 4. Forest plot late partner

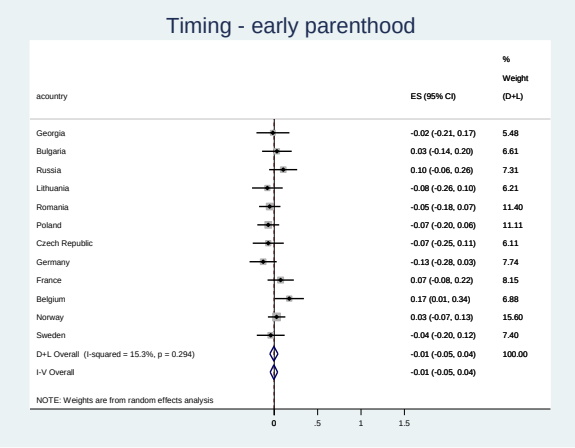

Figure 5. Forest plot early parenthood

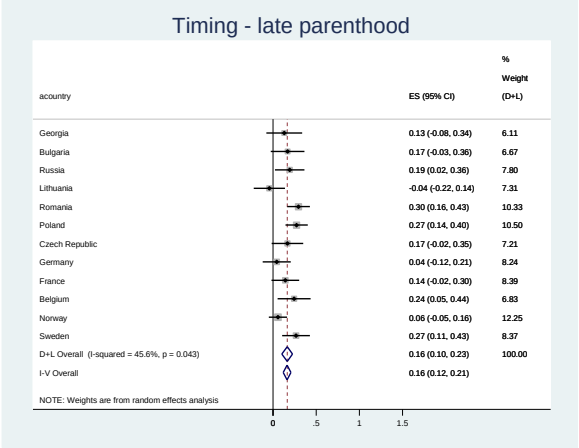

Figure 6. Forest plot late parenthood

To sum up, the meta-analyses conducted show that the never events (never living with partner and childlessness) are associated with higher levels of loneliness and considerable heterogeneity in the effects investigated exists between countries. Further, early events effects on loneliness show minimal effects and heterogeneity across countries, and late family events are associated with higher levels of loneliness overall and low-moderate heterogeneity levels.

Explaining cross-national heterogeneity through national values

Given that previously conducted meta-analyses revealed some cross-national variations in the effects investigated, we further aimed to understand whether existing heterogeneity can be explained by cross-cultural differences. To do so we regressed the estimated coefficients on two cultural dimensions: traditional/secular-rational and

survival/self-expression. Results of the random-effects meta-regressions using permutation-based *p*-values with an adjustment for multiplicity are presented in Table 4. Given that early transitions models showed no cross-national heterogeneity, we did not estimate models for these effects. When comparing individuals who never experience the family transitions (living with partner or parenthood) with individuals who experience the events, we find that existing cross-national differences remain unexplained by differences in cultural values. Also, cultural values remain unable to explain cross-national heterogeneity in the effects of late events on loneliness.

Table 4. Meta-regressions using cultural values as predictors

	Tradition/Secular-Rational		Survival/Self-Expression	
Outcomes	Estimate	*p*-adj.	Estimate	*p*-adj.
Never living with partner vs ever	0.084	0.653	-0.052	0.693
Never parent vs ever	-0.128	0.125	-0.088	0.121
Late living with partner	0.019	0.880	0.060	0.148
Late parenthood	-0.067	0.361	-0.002	0.999

APENDIX

Table 1. Socio-demographic profile of individuals within countries (mean and prevalence)

Variables	**BG**	**RU**	**GE**	**DE**	**FR**	**RO**	**NO**	**BE**	**LT**	**PL**	**CZ**	**SE**	**Total**
Loneliness	3.0	2.5	3.5	1.7	1.7	3.2	1.0	1.6	3.0	1.9	2.6	2.0	**2.3**
Age at interview	62.6	63.1	63.3	63.4	62.7	62.9	62.4	62.5	63.9	63.0	62.8	63.1	**63.0**
Females (%)	50.1	67.4	59.4	51.3	55.4	52.6	50.0	50.5	51.5	59.9	53.6	51.1	**54.9**
Father's occupation [ISEI]	27.1	36.4	34.2	39.7	35.5	26.1	36.6	38.8	27.9	31.0	35.3	38.7	**33.5**
Disrupted family <15 (%)	6.1	30.7	20.1	15.2	12.8	9.9	8.2	7.9	18.4	10.6	10.5	9.0	**13.0**
Education [ISLED]	41.3	52.3	49.5	51.2	40.4	37.5	52.9	48.7	46.4	51.8	48.7	55.1	**48.3**
Never living with partner (%)	8.6	7.5	7.7	18.0	9.8	5.3	5.6	8.9	11.8	7.8	14.3	4.5	**8.8**
Age 1st living with partner	22.6	23.5	24.9	25.4	23.6	22.9	24.6	23.4	25.0	23.5	23.9	23.6	**23.8**
Early partnership 3 years (%)	19.6	21.1	27.9	27.4	20.9	20.3	26.8	21.1	24.7	19.9	20.7	25.7	**22.7**
Late partnership 3 years (%)	14.5	15.4	20.4	15.3	14.1	16.0	17.2	14.7	16.6	15.1	14.3	17.0	**15.9**
Never parent (%)	6.4	7.4	8.8	21.4	13.7	13.1	11.7	21.9	16.5	11.5	17.0	9.3	**12.8**
Age 1st child	24.3	24.8	26.4	26.4	25.0	24.7	25.7	26.4	26.3	24.5	25.1	26.5	**25.4**
Early parenthood 3 years (%)	22.6	20.8	27.4	24.6	21.3	21.4	23.9	21.4	21.7	19.0	21.3	26.1	**22.3**
Late parenthood 3 years (%)	17.3	16.7	21.0	18.6	16.5	17.3	18.6	15.8	17.8	15.9	16.9	20.6	**17.6**
N	**4,264**	**4,817**	**3,969**	**4,374**	**4,471**	**5,985**	**6,436**	**3,191**	**4,403**	**10,529**	**4,171**	**4,494**	***61,104***

Table 2. Country specific estimates of OLS regressions - OCCURENCE

Variables	**BG**	**RU**	**GE**	**DE**	**FR**	**RO**	**NO**	**BE**	**LT**	**PL**	**CZ**	**SE**
Intercept	2.959***	2.899***	3.746***	2.465***	2.029***	3.417***	1.191***	1.914***	3.846***	2.401***	2.829***	3.00***
Age	-0.003	-0.006	0.039**	-0.017	-0.020#	-0.008	0.008	-0.034**	-0.047***	-0.029**	-0.034**	0.011
Age2	0.001**	0.001*	0.000	0.001*	0.001	0.001*	0.000	0.001*	0.001**	0.001**	0.002***	-0.001
Cohort ≥ 1940	0.070	-0.040	-0.016	0.255*	-0.014	0.001	-0.043	0.335*	-0.230*	-0.062	0.068	-0.286
Female	0.230***	0.106#	0.084	-0.155**	0.211***	-0.015	-0.014	0.099	0.009	0.025	-0.015	-0.290***
Father's occuption [ISEI]	-0.004	-0.003	-0.004*	-0.008**	-0.002	-0.002	0.000	-0.001	-0.002	-0.002	-0.002	-0.002
Disrupted family <15	0.308**	0.021	0.075	0.057	0.323***	0.111	0.247***	0.216#	0.170*	0.209***	0.389***	0.083
Education [ISLED]	-0.008***	-0.010***	-0.014***	-0.016***	-0.009***	-0.011***	-0.006***	-0.011***	-0.011***	-0.009***	-0.008***	-0.009***
Never living with partner	0.891***	0.582***	0.405**	0.668***	0.183*	0.219*	0.422***	0.648***	0.463***	0.603***	0.526***	0.326*
Never children	0.459***	0.504***	0.729***	0.511***	0.394***	0.655***	0.37***	0.187*	0.53***	0.813***	0.492***	0.384***
p-values: ***<.001; .001≤**<.01; .01≤*<.05; .05≤#<.10												

Table 3. Country specific estimates of OLS regressions - TIMING

Variables	**BG**	**RU**	**GE**	**DE**	**FR**	**RO**	**NO**	**BE**	**LT**	**PL**	**CZ**	**SE**
Intercept	2.956***	2.828***	3.686***	2.465***	1.921***	3.398***	1.130***	1.781***	3.798***	2.347***	2.798***	2.958***
Age	-0.004	-0.005	0.040**	-0.016	-0.018	-0.009	0.007	-0.032*	-0.046***	-0.027**	-0.032*	0.014
Age2	0.001**	0.001*	0.000	0.001*	0.001	0.001*	0.000	0.001*	0.001**	0.001**	0.002***	-0.001
Cohort ≥ 1940	0.063	-0.024	-0.019	0.258*	-0.009	-0.001	-0.031	0.318*	-0.234*	-0.074	0.056	-0.295#
Female	0.234***	0.106#	0.090	-0.150**	0.217***	-0.010	0.001	0.111#	0.011	0.033	-0.015	-0.290***
Father's occuption [ISEI]	-0.004#	-0.003	-0.004*	-0.008**	-0.002	-0.003	-0.001	-0.001	-0.002	-0.003#	-0.002	-0.003
Disrupted family <15	0.304**	0.024	0.073	0.053	0.312***	0.120#	0.246***	0.220#	0.169*	0.219***	0.383***	0.088
Education [ISLED]	-0.009***	-0.010***	-0.014***	-0.016***	-0.009***	-0.011***	-0.006***	-0.011***	-0.011***	-0.009***	-0.009***	-0.009***
Never living with partner	0.890***	0.557***	0.467**	0.738***	0.246*	0.201*	0.490***	0.673***	0.558***	0.643***	0.557***	0.357*
Never children	0.524***	0.559***	0.730***	0.449***	0.410***	0.713***	0.339***	0.269**	0.479***	0.843***	0.489***	0.393**
Early living with partner	-0.016	-0.031	0.053	0.043	0.091	-0.007	0.020	0.025	0.149#	0.178**	0.031	0.037
Late living with partner	0.031	-0.004	0.142	0.320***	0.197*	-0.042	0.205***	0.157	0.196*	0.078	0.162#	0.075
Early parenthood	0.030	0.103	-0.017	-0.128	0.073	-0.053	0.026	0.173*	-0.080	-0.070	-0.070	-0.041
Late parenthood	0.169#	0.193*	0.130	0.042	0.142#	0.295***	0.057	0.245*	-0.042	0.273***	0.167#	0.266**
p-values: ***<.001; .001≤**<.01; .01≤*<.05; .05≤#<.10												

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