

Supplement

S.1 Mental health dimensions

We employed three distinct measures of mental health, a decision grounded in methodological considerations essential for addressing our research question. We specifically opted for a repeated measurement of identical items, tapping into different dimensions of mental health.

Each of these measures is rooted in established and validated scales (see pp. 16 and 17). Notably, the three items measuring ‘stress’ exhibit a high Cronbach’s alpha of 0.86, with a Spearman correlation coefficient of approximately 0.70 between the items. Similarly, the two items assessing the dimension ‘lack of energy’ demonstrate a Spearman correlation coefficient of 0.50, while the two items gauging ‘loneliness’ have a correlation coefficient of 0.70 in our sample.

We refrain from consolidating these three dimensions into a singular overall mental health scale for two primary reasons. First, our decision aligns with our aim to delve into the nuanced mechanisms within and across genders. Our findings suggest that mental health disparities by gender may not be uniform across the mental health outcomes. Second, attempting to consolidate all items into one overall scale led to a decrease in Cronbach’s alpha, indicating reduced internal consistency. Additionally, the pairwise correlation in Table S1 shows that item correlations across the three dimensions are lower than item correlations within each dimension. This indicates that these items do not reliably measure the same construct and cannot be summarily consolidated into a single scale. Based on this, we conclude that while ‘stress,’ ‘exhaustion,’ and ‘loneliness’ are reliable as individual measures, they cannot be consolidated into an overarching mental health construct.

Table S1: Pairwise correlation of mental health items

	stressed	over-burdened	under pressure	active	full of energy	feeling alone	feeling lonely
stressed	1						
overburdened	0.75	1					
under pressure	0.62	0.67	1				
active	0.45	0.43	0.35	1			
full of energy	0.14	0.13	0.08	0.49	1		
feeling alone	0.25	0.31	0.28	0.28	0.22	1	
feeling lonely	0.27	0.33	0.27	0.26	0.23	0.71	1

Moreover, our approach is consistent with other references in the field that have chosen to focus on these specific dimensions; for instance, when examining stress (Erschens et al. 2018), loneliness (Ernst et al. 2022), and exhaustion (Van den Eynde, Claessens and Mortelmans 2020). Additionally, adopting a multidimensional approach to investigating mental health is not uncommon in the literature, as evidenced by several references (Elbogen et al. 2021; Röhr, Reininghaus and Riedel-Heller 2020; Werner et al. 2021).

Table S2: Results from gender-specific linear regression models for partnered fathers and mothers estimating changes in levels of stress, exhaustion, and loneliness by change in the division of childcare

Variable	Stress				Exhaustion				Loneliness			
	Fathers		Mothers		Fathers		Mothers		Fathers		Mothers	
	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI
Base mean	-.597 (.000)	(-.69, -.50)	-.526 (.000)	(-.60, -.45)	-.747 (.000)	(-.85, -.64)	-.670 (.000)	(-.76, -.58)	-.710 (.000)	(-.81, -.61)	-.637 (.000)	(-.72, -.56)
Division of childcare												
Female to non-female	-.117 (.443)	(-.42, .18)	.104 (.475)	(-.18, .39)	-.027 (.847)	(-.30, .25)	-.097 (.505)	(-.38, .19)	.061 (.658)	(-.21, 0.33)	.013 (.928)	(-.27, .30)
Stable non-female (Reference)												
Non-female to female	.089 (.637)	(-.28, .46)	.254 (.091)	(-.04, .55)	.375 (.031)	(.03, .72)	-.140 (.358)	(-.44, .16)	-.076 (.657)	(-.41, .26)	.158 (.295)	(-.14, .45)
Stable female	.116 (.349)	(-.13, .36)	.142 (.192)	(-.07, .36)	-.049 (.665)	(-.27, .17)	.070 (.525)	(-.15, .29)	.119 (.291)	(-.10, .34)	.240 (.030)	(.02, .46)
Birth cohort												
1991–1993 (Reference)												
1981–1983	.334 (.180)	(-.16, .82)	.225 (.246)	(-.16, .61)	.043 (.853)	(-.41, .49)	-.107 (.584)	(-.49, .28)	-.119 (.599)	(-.56, .33)	-.247 (.206)	(-.63, .14)
1971–1973	.377 (.161)	(-.15, .91)	.083 (.711)	(-.36, .52)	.023 (.926)	(-.46, .51)	-.321 (.153)	(-.76, .12)	-.160 (.513)	(-.64, .32)	-.331 (.141)	(-.77, .11)
Education												
Low (Reference)												
Moderate	-.605 (.067)	(-1.25, .04)	.276 (.335)	(-.29, .84)	.080 (.79)	(-.51, .67)	-.100 (.729)	(-.67, .47)	-.881 (.003)	(-1.47, -.29)	.127 (.662)	(-.44, .69)
High	-.554 (.09)	(-1.19, .09)	.184 (.521)	(-.38, .75)	.061 (.839)	(-.53, .65)	-.160 (.581)	(-.73, .41)	-.833 (.005)	(-1.41, -.25)	-.113 (.696)	(-.68, .46)
Age group youngest cohabiting child												
U3 (Reference)												
U6	.048 (0.719)	(-.21, .31)	-.144 (.293)	(-.41, .12)	-.104 (.400)	(-.35, .14)	.111 (.418)	(-.16, .38)	.113 (.354)	(-.13, .35)	-.106 (.440)	(-.38, .16)
U12	.018 (.906)	(-.28, .32)	-.071 (.637)	(-.37, .22)	-.021 (.882)	(-.30, .26)	.088 (.559)	(-.21, .38)	.267 (.057)	(-.01, .54)	-.037 (.804)	(-.33, .26)
Under 18	-.393 (.048)	(-.78, -.00)	-.305 (.102)	(-.67, .06)	-.360 (.049)	(-.72, -.00)	.147 (.435)	(-.22, .52)	.066 (.712)	(-.29, .42)	-.235 (.212)	(-.60, .13)
Employment status												
Full-time / self-employed (Reference)												
Part-time / marginally / occasionally employed	.851 (.014)	(.17, 1.53)	-.010 (.924)	(-.22, .20)	.095 (.764)	(-.53, .72)	-.036 (.730)	(-.24, .17)	.349 (.268)	(-.27, .97)	-.087 (.411)	(-.29, .12)
Maternal / paternal leave	-.123 (.729)	(-.82, .58)	.026 (.879)	(-.30, .36)	-.162 (.621)	(-.80, .48)	.034 (.843)	(-.30, .37)	-.121 (.709)	(-.76, .52)	.034 (.840)	(-.30, .37)
Unemployed	.372 (.164)	(-.15, .90)	-.007 (.966)	(-.32, .31)	.055 (.821)	(-.43, .54)	.045 (.781)	(-.28, .37)	.621 (.011)	(.14, 1.10)	-.087 (.589)	(-.40, .23)
More work	.283 (.114)	(-.07, .63)	.437 (.002)	(.16, .71)	-.055 (.737)	(-.37, .27)	.085 (.546)	(-.19, .36)	-.223 (.170)	(-.54, .10)	.109 (.441)	(-.17, .39)
Working remotely	.058 (.581)	(-.15, .26)	.206 (.017)	(.04, .38)	.123 (.199)	(-.06, .31)	.125 (.148)	(-.04, .29)	.091 (.348)	(-.10, .28)	-.058 (.501)	(-.23, .11)
N	296		447		295		446		296		448	
R2	.354		.299		.407		.333		.410		.347	

Note: p-values in parentheses below the coefficients.

Source: Pairfam 11 and coronavirus survey

Table S3: Results from gender-specific linear regression models for partnered fathers and mothers estimating changes in levels of stress, exhaustion, and loneliness by the interaction of changes in the division of childcare and gender-role attitudes.

Variable	Stress				Exhaustion				Loneliness			
	Fathers		Mothers		Fathers		Mothers		Fathers		Mothers	
	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI	Coef.	95% CI
Base mean	-.588 (.000)	(-.68, -.49)	-.529 (.000)	(-.61, -.45)	-.746 (.000)	(-.85, -.64)	-.666 (.000)	(-.76, -.58)	-.710 (.000)	(-.81, -.61)	-.646 (.000)	(-.73, -.56)
Division of childcare												
Female to non-female	-.143 (.460)	(-.52, .24)	.210 (.227)	(-.13, .55)	-.089 (.617)	(-.44, .26)	.033 (.849)	(-.31, .38)	.039 (.822)	(-.31, .38)	.189 (.270)	(-.15, .53)
Stable non-female (Reference)												
Non-female to female	.303 (.239)	(-.20, .81)	.352 (.061)	(-.02, .72)	.337 (.154)	(-.13, .80)	-.170 (.365)	(-.54, .20)	-.193 (.408)	(-.65, .27)	.371 (.048)	(.00, .74)
Stable female	.099 (.513)	(-.20, .40)	.188 (.162)	(-.08, .45)	-.035 (.804)	(-.31, .24)	.037 (.784)	(-.23, .30)	.053 (.702)	(-.22, .33)	.255 (.058)	(-.01, .52)
Egalitarian	.056 (.774)	(-.33, 0.44)	.201 (.305)	(-.18, .59)	-.044 (.809)	(-.40, .31)	.107 (.584)	(-.28, .49)	-.055 (.757)	(-.40, .29)	.271 (.166)	(-.11, .65)
Division of childcare*Egalitarian												
Female to non-female*Egalitarian	.073 (.813)	(-.54, .68)	-.344 (.290)	(-.98, .29)	.159 (.578)	(-.40, .72)	-.501 (.122)	(-1.14, .14)	.057 (.839)	(-.50, .61)	-.602 (.063)	(-1.24, .03)
Stable non-female*Egalitarian (Reference)												
Non-female to female*Egalitarian	-.467 (.232)	(-1.23, .30)	-.271 (.388)	(-0.89, .35)	.079 (.823)	(-.62, .78)	.088 (.783)	(-.54, .71)	.269 (.441)	(-.42, .96)	-.601 (.055)	(-1.22, .01)
Stable female*Egalitarian	.071 (.774)	(-.42, .56)	-.137 (.544)	(-.58, .31)	-.064 (.779)	(-.51, .39)	.069 (.759)	(-.37, .51)	.203 (.368)	(-.24, .65)	-.047 (.835)	(-.49, .39)
Birth cohort												
1991–1993 (Reference)												
1981–1983	.357 (.157)	(-.14, .85)	.207 (.289)	(-.18, .59)	.018 (.939)	(-.44, 0.48)	-.131 (.503)	(-.52, .25)	-.090 (.695)	(-.54, .36)	-.271 (.165)	(-.65, .11)
1971–1973	.393 (.152)	(-.14, .93)	.063 (.779)	(-.38, .50)	-.005 (.985)	(-.50, .49)	-.345 (.125)	(-.79, .10)	-.131 (.599)	(-.62, .36)	-.353 (.115)	(-.79, .09)
Education												
Low (Reference)												
Medium	-.615 (.063)	(-1.27, .03)	.300 (.300)	(-.26, .87)	.076 (.803)	(-.52, .67)	-.045 (.878)	(-.61, .52)	-.876 (.004)	(-1.47, -.28)	.157 (.586)	(-.41, .72)
High	-.576 (.079)	(-1.22, .07)	.207 (.475)	(-.36, .78)	.076 (.801)	(-.52, .67)	-.125 (.667)	(-.70, .45)	-.851 (.005)	(-1.44, -.26)	-.094 (.744)	(-.66, .47)
Age group youngest cohabiting child												
U3 (Reference)												
U6	.044 (.743)	(-.22, .31)	-.133 (.335)	(-.40, .14)	-.097 (.435)	(-.34, .15)	.143 (.301)	(-.13, .41)	.111 (.369)	(-.13, .35)	-.068 (.621)	(-.34, .20)
U12	.018 (.907)	(-.29, .32)	-.065 (.670)	(-.36, .23)	-.011 (.936)	(-.29, .27)	.093 (.537)	(-.20, .39)	.271 (.057)	(-.01, .55)	-.025 (.866)	(-.32, .27)
Under 18	-.381 (.058)	(-.77, .01)	-.279 (.140)	(-.65, .09)	-.362 (.051)	(-.73, .00)	.166 (.383)	(-.21, .54)	.076 (.675)	(-.28, .43)	-.191 (.312)	(-.56, .18)
Employment status												
Full-time / self-employed (Reference)												
Part-time / marginally / occasionally employed	.881 (.012)	(.20, 1.57)	.001 (.995)	(-.21, .21)	.073 (.820)	(-.56, .70)	-.016 (.878)	(-.22, .19)	.337 (.290)	(-.29, .96)	-.070 (.507)	(-.28, .14)
Maternal / paternal leave	-.076	(-.78, .63)	.049	(-.29, .38)	-.172	(-.82, .48)	.077	(-.26, .41)	-.110	(-.76, .54)	.072	(-.26, .41)

	(.833)		(.773)		(.603)		(.650)		(.737)		(.670)	
Unemployed	.419	(-.11, .95)	.010	(-.31, .33)	.042	(-.45, .53)	.078	(-.24, .40)	.629	(.14, 1.11)	-.056	(-.37, .26)
	(.120)		(.950)		(.864)		(.633)		(.011)		(.730)	
More work	.301	(-.05, .66)	.440	(.16, .72)	-.057	(-.38, .27)	.082	(-.19, .36)	-.242	(-.56, .08)	.117	(-.16, .39)
	(.095)		(.002)		(.732)		(.559)		(.141)		(.407)	
Working remotely	.074	(-.13, .28)	.202	(.03, .37)	.110	(-.08, .30)	.116	(-.05, .29)	.098	(-.10, .29)	-.066	(-.24, .10)
	(.483)		(.021)		(.261)		(.182)		(.319)		(.443)	
N	296		447		295		446		296		448	
R2	.350		.295		.400		.335		.405		.355	

Note: p-values in parentheses below the coefficients.

Source: Pairfam 11 and coronavirus survey

References

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