Supplemental Material for

Age Differences in Loneliness from Late Adolescence to Oldest Old Age:

Maike Luhmann[1] & Louise C. Hawkley[2]

[1] University of Cologne

[2] NORC at the University of Chicago

Table S1. Regression coefficients for a model without income.

Variable	Regression coefficients	
	B	*SE*
(Intercept)	-0.28***	0.023
Female	0.071***	0.015
Socioeconomic status		
Years of education	-0.006	0.003
Work status		
Working full-time	0.002	0.020
Other work status	0.025	0.024
Relationship status		
Not living with a partner	0.15***	0.038
Single	0.32***	0.035
Living arrangements		
Household size		
1 person	0.045	0.037
3 or more persons	0.005	0.030
Living with children	0.13***	0.033
Functional limitations		
somewhat	0.22***	0.020
severe	0.56***	0.032
Social engagement		
Volunteering	-0.019*	0.008
Political engagement	-0.010	0.017
Religious engagement	-0.034***	0.010
No. of friends	-0.025***	0.002
Contact frequency		
Face-to-face contact with friends	-0.124***	0.010
Face-to-face contact with relatives	-0.060***	0.008
Contact with friends and relatives abroad	0.026***	0.007
Use of social online networks	0.048***	0.005

Notes. All continuous predictors were centered on the mean of the total sample. Standard errors are adjusted for clustering. Categorical predictors were dummy-coded with the following reference groups: gender: male; work status: not working; household size: 2 persons; relationship status: living with partner; functional limitations: not at all. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table S2. Tests of interactions between age and different predictors in two random subsamples using alternative age groups (< 35 years, 35-80 years, > 80 years).

Variable	Sample A					Sample B				
	F	*df₁*	*df₂*	*p*	Significance	*F*	*df₁*	*df₂*	*p*	Significance
Gender	0.73	2	7937	.480		6.72	2	8145	.001	**
Income	0.62	2	7937	.536		0.09	2	8145	.912	
Education	2.19	2	7937	.112		2.24	2	8145	.107	
Work status	8.41	3	7936	.000	***	3.68	3	8144	.012	*
Relationship status	2.26	4	7935	.060		0.88	4	8143	.474	
Household size	2.28	4	7935	.058		1.25	4	8143	.288	
Children in household	4.25	2	7937	.014	*	3.33	2	8145	.036	*
Functional limitations	2.20	4	7935	.066		1.44	4	8143	.217	
Volunteering	0.15	2	7933	.861		0.39	2	8141	.674	
Political engagement	2.45	2	7933	.087		2.21	2	8141	.110	
Religious engagement	10.57	2	7933	.000	***	3.49	2	8141	.030	*
No. of friends	0.32	2	7937	.724		3.41	2	8145	.033	*
Contact with friends	3.48	2	7931	.031	*	1.77	2	8139	.170	
Contact with relatives	1.02	2	7931	.361		8.77	2	8139	.000	***
Contact abroad	4.01	2	7931	.018	*	3.05	2	8139	.048	*
Contact online	0.40	2	7931	.673		5.08	2	8139	.006	**

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$. Interactions that were significant in both subsamples were followed up with Tukey adjusted post-hoc comparisons. The effect of work status was similar to the one found for the age groups used in the main article, with loneliness levels among young adults being significantly lower for those in other occupations than for those working full-time or not at all, and with loneliness levels among middle-aged adults being significantly lower for those not working at all than for those working full-time or in other occupations. Due to the low number of individuals working full-time or working in other occupations, no post-hoc comparisons were conducted among older adults. For child status, parents were lonelier than non-parents among young and old adults, but not among middle-aged adults. More frequent religious engagement was associated with lower levels of loneliness in the middle age group only but not in the other age groups. Frequency of contact with people abroad was positively associated with loneliness among middle-aged and older adults, but not among younger adults. Furthermore, the association was significantly stronger in the old age group than in the other two groups.
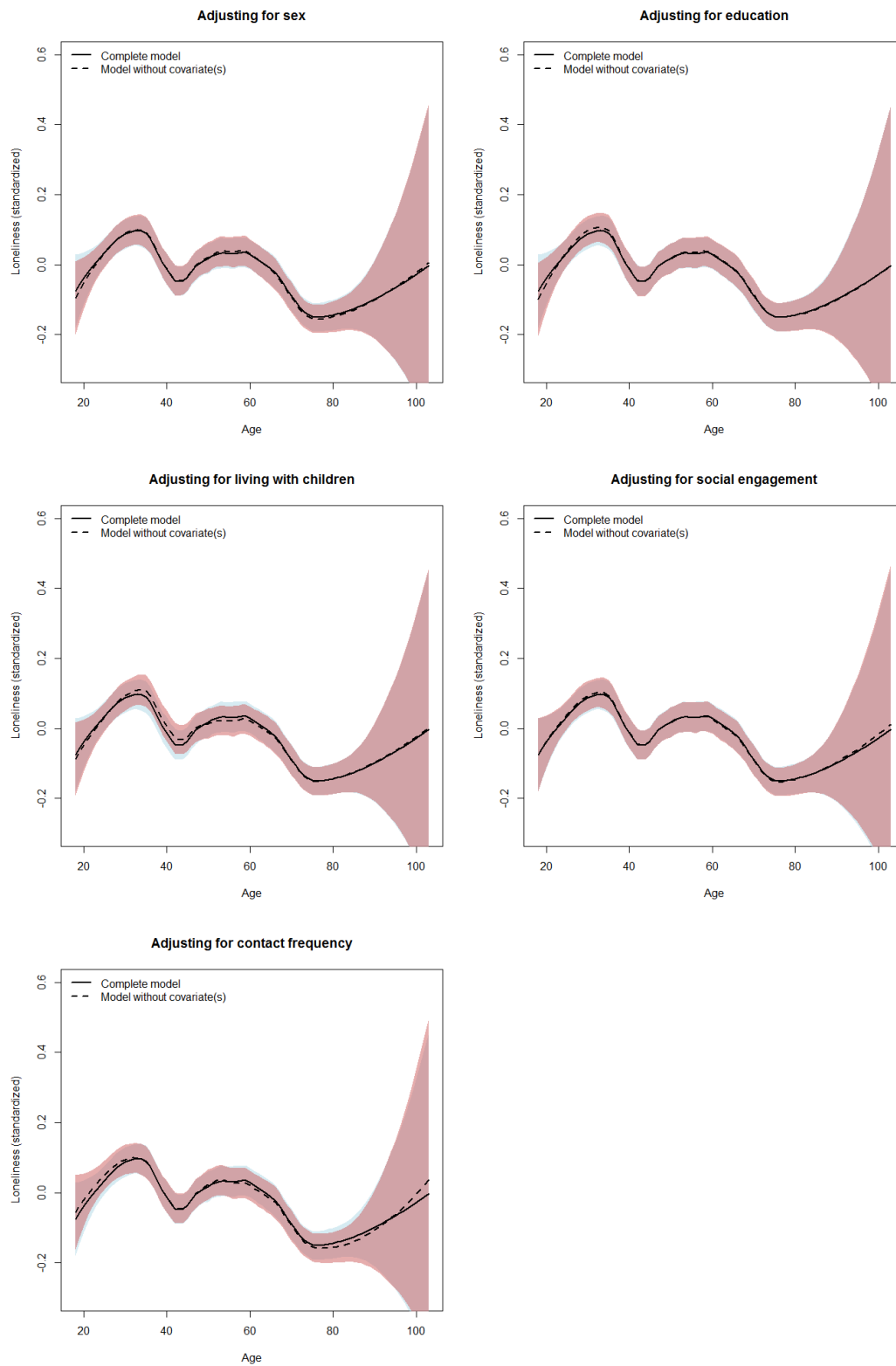
Adjusting for sex

Adjusting for education

Adjusting for living with children

Adjusting for social engagement

Adjusting for contact frequency

Figure S1. Age distribution of adjusted loneliness scores without adjusting for specific covariates (dashed line) and with adjusting for specific covariates (solid line). The confidence bands reflect 95% confidence intervals.
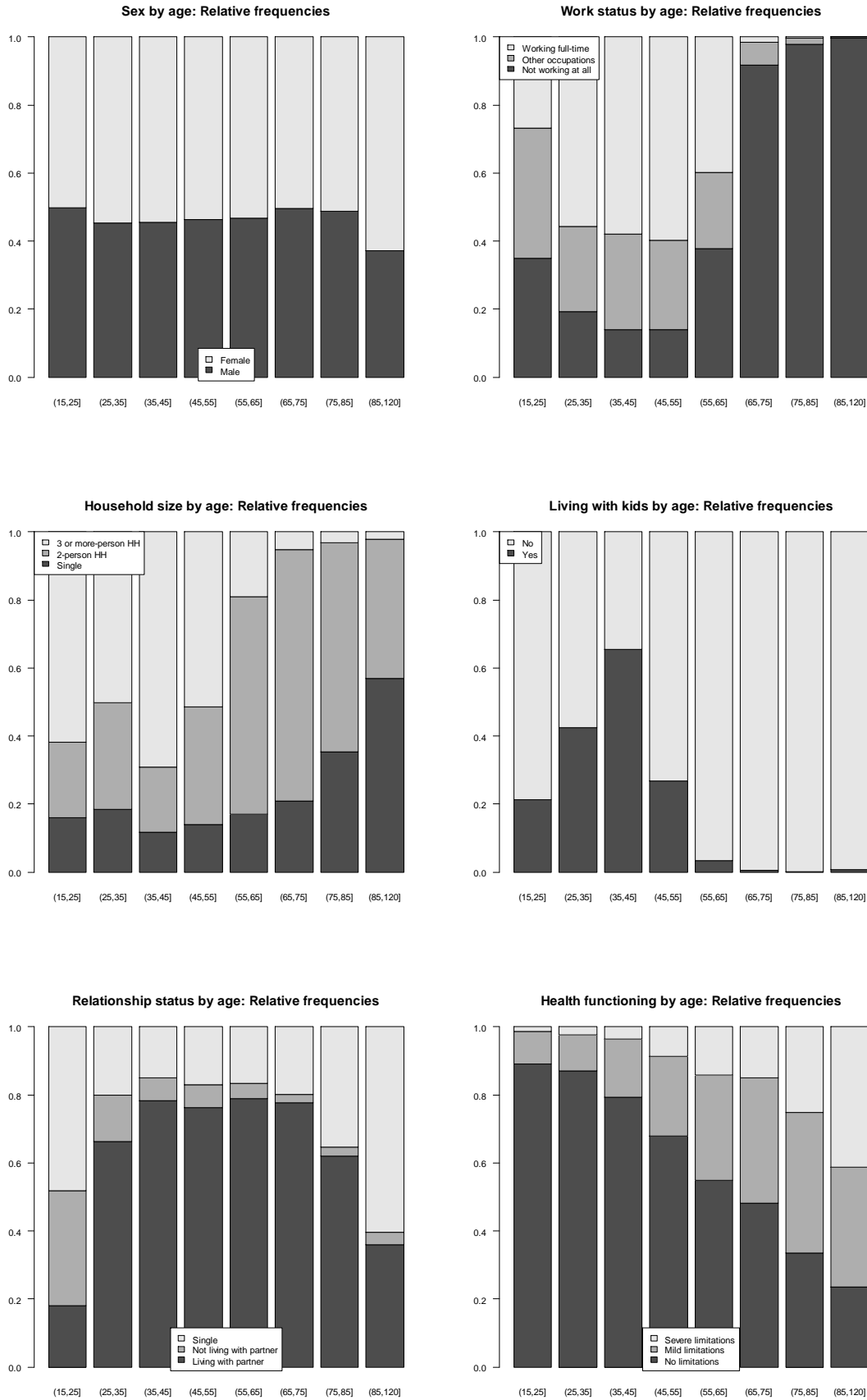
Sex by age: Relative frequencies

Work status by age: Relative frequencies

Household size by age: Relative frequencies

Living with kids by age: Relative frequencies

Relationship status by age: Relative frequencies

Health functioning by age: Relative frequencies

Figure S2. Relative frequencies of all categorical predictors by age decade.
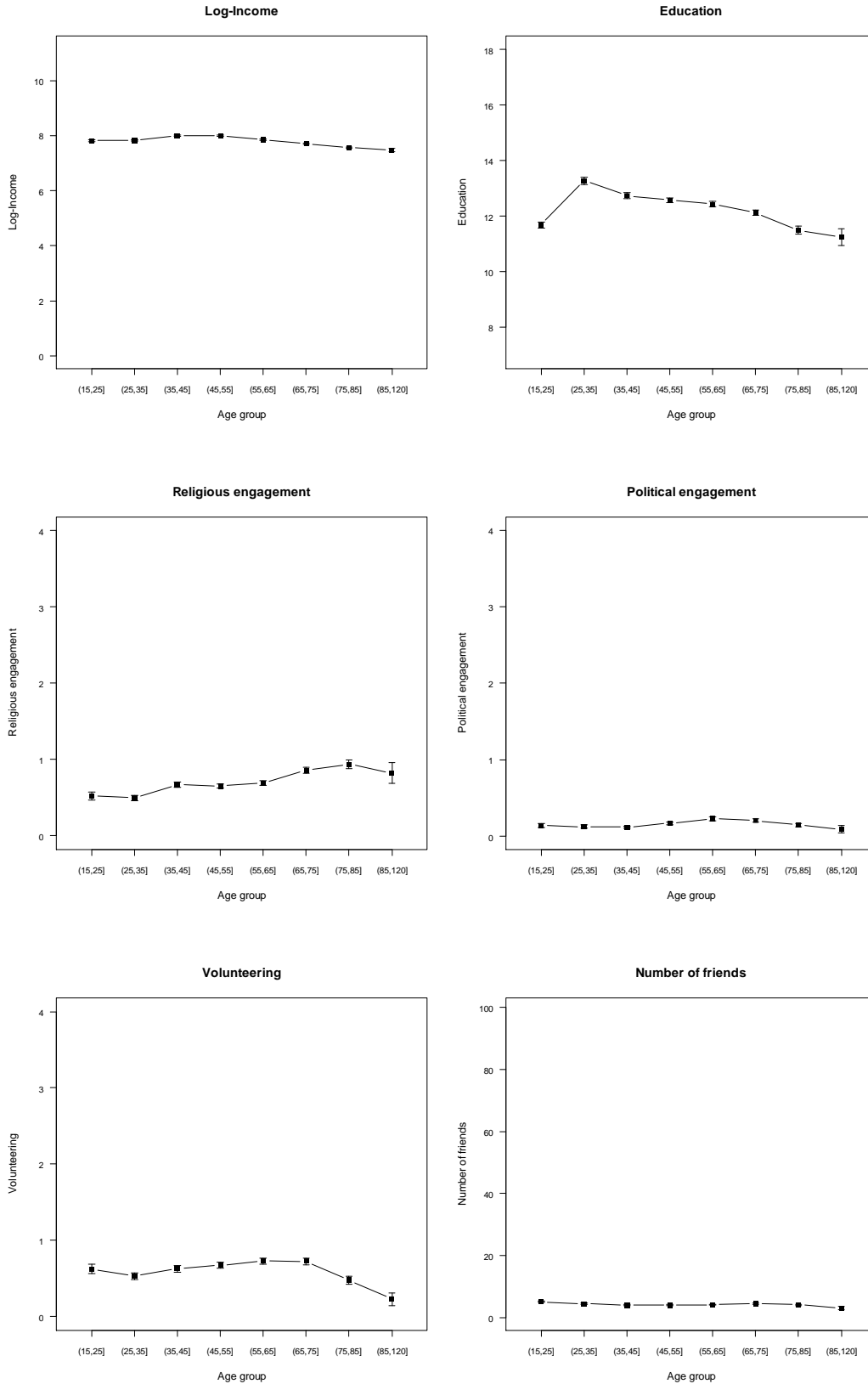
Figure S3. Mean levels for income, education, social engagement and number of friends by

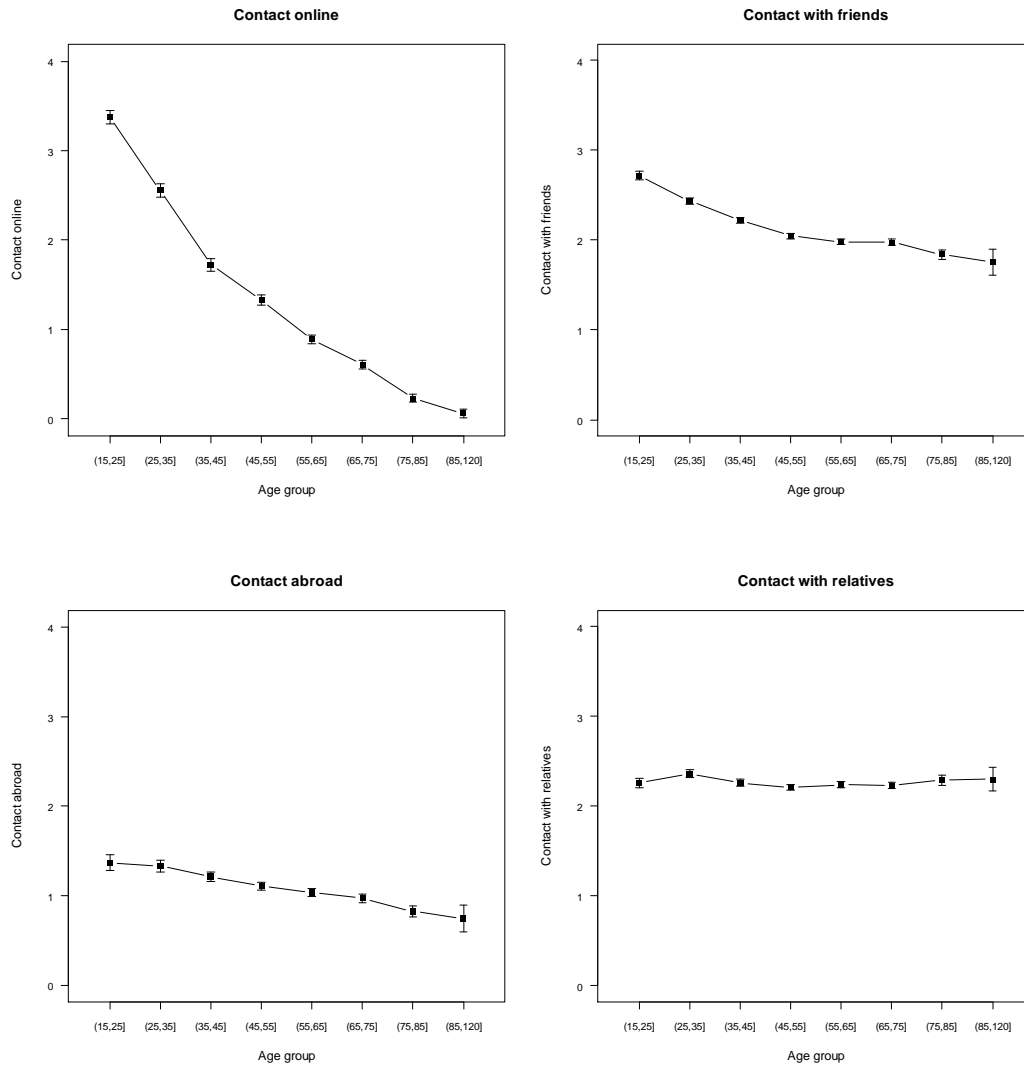age decade. Error bars reflect 95% confidence intervals.

Figure S4. Mean levels for four forms of social contact frequency by age decade. Error bars reflect 95% confidence intervals.