

## ***Supplementary File 2: Additional tables and figures***

### ***Social health and change in cognitive capability among older adults: findings from four European longitudinal studies.***

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**Supplementary Table 1** Correlations between markers of social health

	Marital/cohabitation status	Network size	Contact frequency	Participation in social activities	Positive support	Negative support
<b>NSHD</b>						
Marital/cohabitation status	1					
Network size	-0.04	1				
Participation in social activities	-	-	-	-		
Contact frequency	-0.12	0.32	1	-		
Positive support	0.09	0.08	0.06	-	1	
Negative support	-0.02	0.00	0.03	-	0.26	1
<b>ELSA</b>						
Marital/cohabitation status	1					
Network size	0.03	1				
Contact frequency	-0.07	0.17	1			
Participation in social activities	0.07	0.10	0.02	1		
Positive support	-0.01	0.25	0.32	0.07	1	
Negative support	-0.15	0.10	0.04	0.00	0.29	1
<b>SNAC-K</b>						
Marital/cohabitation status	1					
Network size	0.15	1				
Contact frequency	-0.10	0.13	1			
Participation in social activities	0.12	0.17	0.03	1		
Positive support	0.14	0.35	0.16	0.09	1	
Negative support	-	-	-	-	-	-
<b>RS</b>						
Marital/cohabitation status	1					
Network size	-	-				
Contact frequency	-	-	-			
Participation in social activities	-	-	-	-		
Positive support	0.05	-	-	-	1	
Negative support	-	-	-	-	-	-

**Supplementary Table 2:** Correlations between cognitive measures at baseline

	Memory	Executive Functioning	Processing speed
<b>NSHD</b>			
Memory	1		
Executive Functioning	-	1	
Processing speed	0.11	-	1
<b>ELSA</b>			
Memory	1		
Executive Functioning	0.38	1	
Processing speed	0.13	0.17	1
<b>SNAC-K</b>			
Memory	1		
Executive Functioning	0.39	1	
Processing speed	0.28	0.36	1
<b>RS</b>			
Memory	1		
Executive Functioning	0.40	1	
Processing speed	0.44	0.46	1

### Supplementary Table 3: Social health at baseline and standardised memory score on average over time

*Adjustment 1= sex, age at baseline*

*Adjustment 2= sex, age at baseline, social class, education.*

*Adjustment 3= sex, age at baseline, social class, education, IADL, and vascular-related health conditions.*

*Blank cells indicate no data available*

		Adjustment 1		Adjustment 2		Adjustment 3		Additional adjustment for depression	
Study	Exposure	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>
Marital/cohabitation status (reference unmarried and alone)									
NSHD	Married or cohabiting	-0.05 (-0.17, 0.07)	20.16	-0.02 (-0.13, 0.09)	19.03	-0.02 (-0.13, 0.08)	18.71	-0.02 (-0.13, 0.08)	17.10
ELSA	Married or cohabiting	0.08 (0.05, 0.12)	28.35	0.05 (0.02, 0.08)	30.14	0.05 (0.02, 0.08)	30.45	0.02 (-0.01, 0.05)	32.56
SNAC-K	Married or cohabiting	0.17 (0.1, 0.24)	25.42	0.14 (0.07, 0.21)	24.81	0.13 (0.06, 0.2)	24.80	0.11 (0.04, 0.18)	24.20
RS	Married or cohabiting	-0.01 (-0.08, 0.05)	26.07	-0.03 (-0.09, 0.04)	26.01	-0.02 (-0.09, 0.04)	26.04	-0.03 (-0.09, 0.03)	26.14
Overall	Married or cohabiting	0.05 (-0.04, 0.15)	88.51	0.04 (-0.03, 0.11)	81.76	0.04 (-0.03, 0.11)	80.67	0.02 (-0.04, 0.08)	73.46
Network size (reference: none)									
NSHD	1-2	-0.14 (-0.34, 0.06)	24.25	-0.04 (-0.22, 0.14)	22.74	-0.04 (-0.22, 0.14)	22.97	-0.04 (-0.22, 0.14)	23.50
ELSA	1-2	0.01 (-0.1, 0.12)	65.81	0.02 (-0.08, 0.12)	69.95	0.02 (-0.08, 0.12)	69.60	0.02 (-0.09, 0.12)	69.24
SNAC-K	1-2	0.05 (-0.27, 0.37)	9.95	0 (-0.31, 0.32)	7.30	0 (-0.31, 0.31)	7.43	-0.02 (-0.34, 0.3)	7.25
RS	1-2								
Overall	1-2	-0.02 (-0.12, 0.08)	8.95	0 (-0.08, 0.09)	0.00	0.01 (-0.08, 0.09)	0.00	0 (-0.09, 0.09)	0.00
NSHD	3-6	-0.08 (-0.27, 0.11)	32.13	-0.03 (-0.2, 0.14)	25.72	-0.03 (-0.2, 0.14)	26.13	-0.04 (-0.2, 0.13)	26.43
ELSA	3-6	0.12 (0.01, 0.22)	51.96	0.09 (-0.01, 0.19)	66.33	0.09 (-0.01, 0.19)	65.69	0.08 (-0.02, 0.18)	65.74

SNAC-K	3-6	0.18 (-0.14, 0.49)	15.91	0.1 (-0.21, 0.41)	7.95	0.09 (-0.22, 0.39)	8.17	0.05 (-0.26, 0.36)	7.83
RS	3-6								
<b>Overall</b>	<b>3-6</b>	<b>0.06 (-0.08, 0.2)</b>	<b>44.28</b>	<b>0.06 (-0.03, 0.15)</b>	<b>7.56</b>	<b>0.06 (-0.03, 0.15)</b>	<b>8.22</b>	<b>0.05 (-0.04, 0.14)</b>	<b>7.24</b>
NSHD	≥6	-0.1 (-0.28, 0.08)	34.82	-0.02 (-0.18, 0.14)	29.44	-0.02 (-0.18, 0.14)	29.65	-0.03 (-0.19, 0.13)	28.55
ELSA	≥6	0.14 (0.04, 0.25)	42.97	0.11 (0.02, 0.21)	61.11	0.11 (0.02, 0.21)	60.75	0.09 (-0.01, 0.19)	63.13
SNAC-K	≥6	0.28 (-0.03, 0.6)	22.21	0.16 (-0.15, 0.47)	9.45	0.15 (-0.16, 0.46)	9.60	0.12 (-0.19, 0.44)	8.31
RS									
<b>Overall</b>	<b>≥6</b>	<b>0.09 (-0.11, 0.29)</b>	<b>71.35</b>	<b>0.08 (-0.02, 0.18)</b>	<b>19.09</b>	<b>0.08 (-0.02, 0.18)</b>	<b>19.24</b>	<b>0.06 (-0.03, 0.15)</b>	<b>12.31</b>
<b>Contact frequency (reference: never/almost never)</b>									
NSHD	>1/year	0.07 (-0.31, 0.46)	21.28	-0.11 (-0.45, 0.24)	28.67	-0.1 (-0.45, 0.24)	28.65	-0.12 (-0.46, 0.23)	28.75
ELSA	>1/year	0.37 (0.18, 0.55)	61.87	0.27 (0.1, 0.44)	49.66	0.27 (0.1, 0.44)	49.55	0.26 (0.09, 0.43)	49.22
SNAC-K	>1/year	0.19 (-0.25, 0.63)	16.86	0.07 (-0.37, 0.5)	21.67	0.05 (-0.38, 0.48)	21.80	0.02 (-0.41, 0.45)	22.03
RS	>1/year								
<b>Overall</b>	<b>&gt;1/year</b>	<b>0.27 (0.08, 0.47)</b>	<b>19.41</b>	<b>0.12 (-0.13, 0.36)</b>	<b>50.12</b>	<b>0.11 (-0.13, 0.36)</b>	<b>50.33</b>	<b>0.1 (-0.15, 0.35)</b>	<b>51.72</b>
NSHD	1-2/month	-0.04 (-0.42, 0.34)	29.22	-0.22 (-0.56, 0.12)	31.63	-0.22 (-0.55, 0.12)	31.59	-0.22 (-0.56, 0.11)	31.47
ELSA	1-2/month	0.45 (0.26, 0.63)	45.15	0.32 (0.16, 0.49)	41.68	0.32 (0.16, 0.49)	41.68	0.3 (0.14, 0.47)	41.95
SNAC-K	1-2/month	0.22 (-0.21, 0.66)	25.63	0.07 (-0.36, 0.49)	26.69	0.05 (-0.37, 0.47)	26.73	0.02 (-0.4, 0.44)	26.57
RS	1-2/month								
<b>Overall</b>	<b>1-2/month</b>	<b>0.25 (-0.06, 0.55)</b>	<b>61.83</b>	<b>0.08 (-0.25, 0.42)</b>	<b>72.98</b>	<b>0.08 (-0.25, 0.42)</b>	<b>72.90</b>	<b>0.06 (-0.27, 0.39)</b>	<b>72.33</b>
NSHD	2-4/month	-0.04 (-0.41, 0.33)	26.65	-0.18 (-0.51, 0.15)	30.64	-0.17 (-0.5, 0.16)	30.56	-0.18 (-0.51, 0.15)	30.33
ELSA	2-4/month	0.35 (0.16, 0.53)	51.92	0.26 (0.09, 0.43)	45.76	0.26 (0.09, 0.43)	45.85	0.24 (0.07, 0.4)	46.36
SNAC-K	2-4/month	0.26 (-0.18, 0.69)	21.43	0.12 (-0.31, 0.54)	23.60	0.1 (-0.32, 0.52)	23.59	0.07 (-0.35, 0.5)	23.31
RS	2-4/month								
<b>Overall</b>	<b>2-4/month</b>	<b>0.22 (-0.01, 0.46)</b>	<b>42.04</b>	<b>0.09 (-0.18, 0.36)</b>	<b>60.20</b>	<b>0.09 (-0.18, 0.36)</b>	<b>59.83</b>	<b>0.07 (-0.19, 0.34)</b>	<b>58.74</b>

NSHD	2-3/week	-0.1 (-0.47, 0.27)	23.77	-0.21 (-0.54, 0.12)	30.31	-0.2 (-0.54, 0.13)	30.20	-0.22 (-0.55, 0.11)	30.42
ELSA	2-3/week	0.23 (0.03, 0.42)	59.30	0.18 (0, 0.36)	48.40	0.18 (0, 0.36)	48.54	0.17 (0, 0.35)	47.85
SNAC-K	2-3/week	0.18 (-0.27, 0.64)	16.93	0.06 (-0.38, 0.51)	21.29	0.04 (-0.4, 0.49)	21.26	0.01 (-0.43, 0.45)	21.74
RS	2-3/week								
<b>Overall</b>	<b>2-3/week</b>	<b>0.14 (-0.06, 0.34)</b>	<b>21.19</b>	<b>0.04 (-0.21, 0.29)</b>	<b>51.03</b>	<b>0.04 (-0.21, 0.28)</b>	<b>50.52</b>	<b>0.02 (-0.24, 0.27)</b>	<b>53.12</b>
<b>Social participation (reference: low &lt;1 activity)</b>									
NSHD	moderate (2-3 activities)								
ELSA	moderate (2-3 activities)	0.23 (0.19, 0.27)	94.54	0.17 (0.13, 0.2)	97.01	0.16 (0.13, 0.2)	93.48	0.14 (0.1, 0.18)	79.38
SNAC-K	moderate (2-3 activities)	0.11 (-0.11, 0.33)	5.46	0.09 (-0.13, 0.3)	2.99	0.05 (-0.17, 0.26)	6.52	-0.01 (-0.23, 0.22)	20.62
RS	moderate (2-3 activities)								
<b>Overall</b>	<b>moderate (2-3 activities)</b>	<b>0.22 (0.17, 0.28)</b>	<b>5.14</b>	<b>0.16 (0.13, 0.2)</b>	<b>0.01</b>	<b>0.16 (0.1, 0.21)</b>	<b>7.68</b>	<b>0.11 (-0.01, 0.23)</b>	<b>37.86</b>
NSHD	high (≥4 or more activities)								
ELSA	high (≥4 or more activities)	0.5 (0.47, 0.54)	96.60	0.32 (0.29, 0.36)	96.32	0.32 (0.28, 0.36)	96.52	0.29 (0.25, 0.32)	96.67
SNAC-K	high (≥4 or more activities)	0.41 (0.21, 0.6)	3.40	0.31 (0.12, 0.51)	3.68	0.25 (0.05, 0.45)	3.48	0.22 (0.01, 0.42)	3.33
RS	high (≥4 or more activities)								
<b>Overall</b>	<b>high (≥4 or more activities)</b>	<b>0.5 (0.46, 0.54)</b>	<b>0.00</b>	<b>0.32 (0.29, 0.36)</b>	<b>0.00</b>	<b>0.32 (0.28, 0.35)</b>	<b>0.00</b>	<b>0.28 (0.25, 0.32)</b>	<b>0.00</b>
<b>Positive social support (reference: low &lt;-1SD)</b>									
NSHD	-1SD to OSD	0.03 (-0.06, 0.13)	13.08	0.04 (-0.06, 0.13)	14.49	0.03 (-0.07, 0.13)	11.83	0.08 (-0.03, 0.2)	9.29

ELSA	-1SD to OSD	0.07 (0.03, 0.11)	64.02	0.07 (0.03, 0.11)	59.81	0.04 (0, 0.08)	67.73	0.12 (0.08, 0.16)	63.32
SNAC-K	-1SD to OSD	-0.02 (-0.13, 0.08)	11.07	-0.03 (-0.13, 0.08)	12.45	-0.05 (-0.15, 0.06)	9.74	0.1 (0.01, 0.19)	14.55
RS	-1SD to OSD	0.08 (-0.03, 0.18)	11.83	0.07 (-0.03, 0.17)	13.25	0.06 (-0.04, 0.17)	10.71	0.1 (0.01, 0.19)	12.84
<b>Overall</b>	<b>-1SD to OSD</b>	<b>0.06 (0.02, 0.09)</b>	<b>5.28</b>	<b>0.05 (0.02, 0.09)</b>	<b>11.62</b>	<b>0.03 (0, 0.07)</b>	<b>12</b>	<b>0.11 (0.08, 0.14)</b>	<b>0.00</b>
NSHD	OSD to 1SD	0.08 (-0.03, 0.2)	9.29	0.05 (-0.05, 0.15)	10.39	0.05 (-0.05, 0.15)	10.37	0.04 (-0.06, 0.14)	10.59
ELSA	OSD to 1SD	0.12 (0.08, 0.16)	63.32	0.09 (0.05, 0.13)	64.34	0.09 (0.05, 0.13)	64.23	0.05 (0.01, 0.09)	64.24
SNAC-K	OSD to 1SD	0.1 (0.01, 0.19)	14.55	0.07 (-0.02, 0.16)	13.27	0.07 (-0.01, 0.16)	13.35	0.05 (-0.04, 0.14)	12.91
RS	OSD to 1SD	0.1 (0.01, 0.19)	12.84	0.1 (0, 0.19)	12.00	0.09 (0, 0.18)	12.06	0.08 (-0.01, 0.17)	12.26
<b>Overall</b>	<b>OSD to 1SD</b>	<b>0.11 (0.08, 0.14)</b>	<b>0.00</b>	<b>0.08 (0.05, 0.12)</b>	<b>0.01</b>	<b>0.08 (0.05, 0.11)</b>	<b>0.00</b>	<b>0.05 (0.02, 0.08)</b>	<b>0.00</b>
NSHD	>1 SD	0.12 (0, 0.24)	33.24	0.09 (-0.01, 0.2)	33.66	0.09 (-0.02, 0.2)	33.73	0.08 (-0.03, 0.18)	33.75
ELSA	>1 SD	-0.01 (-0.05, 0.04)	36.75	0 (-0.04, 0.05)	36.31	0 (-0.04, 0.05)	37.76	-0.03 (-0.08, 0.01)	40.24
SNAC-K	>1 SD	-0.26 (-0.43, -0.09)	30.01	-0.28 (-0.45, -0.12)	30.03	-0.23 (-0.4, -0.06)	28.51	-0.2 (-0.38, -0.03)	26.01
RS	>1 SD								
<b>Overall</b>	<b>&gt;1 SD</b>	<b>-0.04 (-0.25, 0.17)</b>	<b>90.88</b>	<b>-0.05 (-0.26, 0.16)</b>	<b>92.50</b>	<b>-0.03 (-0.21, 0.14)</b>	<b>88.93</b>	<b>-0.04 (-0.18, 0.1)</b>	<b>82.96</b>
<b>Negative social support (reference: low &lt;-1SD)</b>									
NSHD	-1SD to OSD	0.1 (-0.01, 0.21)	17.56	0.09 (-0.01, 0.18)	15.43	0.09 (-0.01, 0.18)	15.41	0.08 (-0.02, 0.17)	15.32
ELSA	-1SD to OSD	0.16 (0.12, 0.2)	82.44	0.12 (0.08, 0.17)	84.57	0.12 (0.08, 0.17)	84.59	0.09 (0.05, 0.14)	84.68
SNAC-K	-1SD to OSD								
RS	-1SD to OSD								
<b>Overall</b>	<b>-1SD to OSD</b>	<b>0.15 (0.1, 0.2)</b>	<b>9.11</b>	<b>0.12 (0.08, 0.16)</b>	<b>0.02</b>	<b>0.12 (0.08, 0.16)</b>	<b>0.01</b>	<b>0.09 (0.05, 0.13)</b>	<b>0.02</b>
NSHD	OSD to 1SD	0.19 (0.08, 0.3)	13.74	0.16 (0.06, 0.26)	14.82	0.16 (0.06, 0.26)	14.79	0.14 (0.04, 0.24)	14.55
ELSA	OSD to 1SD	0.2 (0.16, 0.25)	86.26	0.16 (0.12, 0.2)	85.18	0.16 (0.11, 0.2)	85.21	0.11 (0.07, 0.15)	85.45
SNAC-K	OSD to 1SD								
RS	OSD to 1SD								

Overall	OSD to 1SD	0.2 (0.16, 0.24)	0.01	0.16 (0.12, 0.2)	0.01	0.16 (0.12, 0.19)	0.02	0.12 (0.08, 0.16)	0.00
NSHD	>1 SD	0.02 (-0.1, 0.13)	16.42	0.1 (-0.01, 0.2)	20.36	0.1 (-0.01, 0.2)	21.24	0.07 (-0.03, 0.17)	29.79
ELSA	>1 SD	0.04 (-0.01, 0.09)	83.58	0.04 (-0.01, 0.08)	79.64	0.04 (-0.01, 0.08)	78.76	0 (-0.05, 0.04)	70.21
SNAC-K	>1 SD								
RS	>1 SD								
Overall	>1 SD	0.03 (-0.01, 0.08)	0.03	0.05 (0, 0.1)	8.56	0.05 (0, 0.1)	11.30	0.02 (-0.05, 0.08)	38.82

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## Supplementary Table 4: Social health at baseline and standardised executive function score on average over time

*Adjustment 1= sex, age at baseline*

*Adjustment 2= sex, age at baseline, social class, education.*

*Adjustment 3= sex, age at baseline, social class, education, IADL, and vascular-related health conditions.*

*Blank cells indicate no data available*

		Adjustment 1		Adjustment 2		Adjustment 3		Additional adjustment for depression	
Study	Exposure	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>
<b>Marital/cohabitation status (reference unmarried and alone)</b>									
NSHD	Married or cohabiting								
ELSA	Married or cohabiting	0.1 (0.06, 0.14)	35.73	0.06 (0.02, 0.1)	37.73	0.06 (0.02, 0.09)	38.24	0.03 (0, 0.07)	39.49
SNAC-K	Married or cohabiting	0.21 (0.13, 0.28)	31.38	0.16 (0.08, 0.23)	29.93	0.15 (0.08, 0.22)	29.59	0.13 (0.06, 0.21)	28.56
RS	Married or cohabiting	0.02 (-0.04, 0.08)	32.90	0.02 (-0.05, 0.08)	32.33	0.02 (-0.05, 0.08)	32.17	0.01 (-0.05, 0.08)	31.95
<b>Overall</b>	<b>Married or cohabiting</b>	<b>0.11 (0, 0.21)</b>	<b>89.19</b>	<b>0.07 (0, 0.15)</b>	<b>81.50</b>	<b>0.07 (0, 0.14)</b>	<b>79.32</b>	<b>0.06 (-0.01, 0.12)</b>	<b>74.62</b>
<b>Network size (references: none)</b>									
NSHD	1-2								
ELSA	1-2	0.14 (0, 0.27)	76.10	0.14 (0.01, 0.26)	65.33	0.14 (0.01, 0.26)	64.46	0.13 (0.01, 0.26)	68.77
SNAC-K		-0.09 (-0.43, 0.26)	23.90	-0.15 (-0.48, 0.18)	34.67	-0.16 (-0.49, 0.18)	35.54	-0.13 (-0.47, 0.21)	31.23
RS	1-2								
<b>Overall</b>	<b>1-2</b>	<b>0.08 (-0.11, 0.27)</b>	<b>29.59</b>	<b>0.04 (-0.23, 0.3)</b>	<b>59.82</b>	<b>0.03 (-0.24, 0.31)</b>	<b>62.00</b>	<b>0.05 (-0.19, 0.29)</b>	<b>50.98</b>
NSHD	3-6								

ELSA	3-6	0.2 (0.07, 0.32)	87.47	0.16 (0.05, 0.28)	88.60	0.17 (0.05, 0.28)	81.42	0.16 (0.04, 0.27)	88.74
SNAC-K		0.09 (-0.24, 0.43)	12.53	-0.01 (-0.33, 0.32)	11.40	-0.03 (-0.35, 0.29)	18.58	-0.02 (-0.35, 0.31)	11.26
RS	3-6								
<b>Overall</b>	<b>3-6</b>	<b>0.18 (0.07, 0.3)</b>	<b>0.00</b>	<b>0.15 (0.04, 0.26)</b>	<b>0.00</b>	<b>0.13 (-0.02, 0.28)</b>	<b>18.39</b>	<b>0.14 (0.03, 0.25)</b>	<b>0.00</b>
NSHD	≥6								
ELSA	≥6	0.25 (0.12, 0.38)	87.60	0.21 (0.1, 0.33)	83.58	0.21 (0.1, 0.33)	78.05	0.19 (0.08, 0.31)	88.94
SNAC-K	≥6	0.18 (-0.16, 0.52)	12.40	0.02 (-0.3, 0.35)	16.42	0.01 (-0.32, 0.33)	21.95	0.01 (-0.32, 0.35)	11.06
RS									
<b>Overall</b>	<b>≥6</b>	<b>0.24 (0.12, 0.36)</b>	<b>0.00</b>	<b>0.18 (0.04, 0.32)</b>	<b>13.42</b>	<b>0.17 (0, 0.34)</b>	<b>27.47</b>	<b>0.17 (0.06, 0.29)</b>	<b>0.00</b>
<b>Contact frequency (reference: never/almost never)</b>									
NSHD	>1/year								
ELSA	>1/year	0.5 (0.31, 0.69)	86.19	0.39 (0.21, 0.56)	87.67	0.39 (0.21, 0.56)	87.43	0.37 (0.21, 0.54)	88.20
SNAC-K	>1/year	0.35 (-0.12, 0.83)	13.81	0.2 (-0.26, 0.65)	12.33	0.17 (-0.28, 0.63)	12.57	0.16 (-0.29, 0.61)	11.80
RS	>1/year								
<b>Overall</b>	<b>&gt;1/year</b>	<b>0.48 (0.3, 0.65)</b>	<b>0.00</b>	<b>0.36 (0.2, 0.52)</b>	<b>0.00</b>	<b>0.36 (0.2, 0.52)</b>	<b>0.00</b>	<b>0.35 (0.19, 0.5)</b>	<b>0.00</b>
NSHD	1-2/month								
ELSA	1-2/month	0.6 (0.41, 0.78)	86.08	0.46 (0.29, 0.62)	87.63	0.46 (0.29, 0.62)	87.38	0.44 (0.28, 0.6)	88.16
SNAC-K	1-2/month	0.5 (0.04, 0.96)	13.92	0.3 (-0.15, 0.75)	12.37	0.28 (-0.16, 0.72)	12.62	0.25 (-0.19, 0.69)	11.84
RS	1-2/month								
<b>Overall</b>	<b>1-2/month</b>	<b>0.58 (0.41, 0.75)</b>	<b>0.00</b>	<b>0.44 (0.28, 0.59)</b>	<b>0.00</b>	<b>0.43 (0.28, 0.59)</b>	<b>0.00</b>	<b>0.42 (0.26, 0.57)</b>	<b>0.00</b>
NSHD	2-4/month								
ELSA	2-4/month	0.51 (0.32, 0.7)	85.84	0.41 (0.24, 0.58)	87.42	0.41 (0.24, 0.58)	87.17	0.39 (0.22, 0.55)	87.93
SNAC-K	2-4/month	0.51 (0.04, 0.97)	14.16	0.33 (-0.12, 0.77)	12.58	0.31 (-0.13, 0.75)	12.83	0.29 (-0.15, 0.73)	12.07
RS	2-4/month								

<b>Overall</b>	<b>2-4/month</b>	<b>0.51 (0.34, 0.68)</b>	<b>0.00</b>	<b>0.4 (0.24, 0.55)</b>	<b>0.00</b>	<b>0.39 (0.23, 0.55)</b>	<b>0.00</b>	<b>0.38 (0.22, 0.53)</b>	<b>0.00</b>
NSHD	2-3/week								
ELSA	2-3/week	0.4 (0.2, 0.6)	85.47	0.35 (0.17, 0.53)	87.02	0.34 (0.16, 0.53)	86.77	0.34 (0.16, 0.51)	87.52
SNAC-K	2-3/week	0.36 (-0.12, 0.85)	14.53	0.21 (-0.26, 0.68)	12.98	0.19 (-0.27, 0.65)	13.23	0.15 (-0.31, 0.61)	12.48
RS	2-3/week								
<b>Overall</b>	<b>2-3/week</b>	<b>0.4 (0.21, 0.58)</b>	<b>0.00</b>	<b>0.33 (0.16, 0.5)</b>	<b>0.00</b>	<b>0.32 (0.16, 0.49)</b>	<b>0.00</b>	<b>0.32 (0.15, 0.48)</b>	<b>0.00</b>
<b>Social participation (reference: low &lt;1 activity)</b>									
NSHD	moderate (2-3 activities)								
ELSA	moderate (2-3 activities)	0.25 (0.21, 0.29)	96.90	0.18 (0.14, 0.22)	96.80	0.18 (0.14, 0.22)	96.87	0.16 (0.11, 0.2)	97.01
SNAC-K	moderate (2-3 activities)	0.21 (-0.02, 0.45)	3.10	0.17 (-0.06, 0.4)	3.20	0.11 (-0.12, 0.34)	3.13	0.11 (-0.13, 0.34)	2.99
RS	moderate (2-3 activities)								
<b>Overall</b>	<b>moderate (2-3 activities)</b>	<b>0.25 (0.21, 0.29)</b>	<b>0.00</b>	<b>0.18 (0.14, 0.22)</b>	<b>0.01</b>	<b>0.18 (0.14, 0.22)</b>	<b>0.00</b>	<b>0.16 (0.11, 0.2)</b>	<b>0.00</b>
NSHD	high (≥4 or more activities)								
ELSA	high (≥4 or more activities)	0.55 (0.5, 0.59)	80.17	0.35 (0.31, 0.39)	95.82	0.35 (0.3, 0.39)	71.41	0.32 (0.27, 0.36)	85.03
SNAC-K	high (≥4 or more activities)	0.41 (0.2, 0.62)	19.83	0.28 (0.07, 0.48)	4.18	0.19 (-0.03, 0.4)	28.59	0.19 (-0.03, 0.41)	14.97
RS	high (≥4 or more activities)								
<b>Overall</b>	<b>high (≥4 or more activities)</b>	<b>0.52 (0.41, 0.63)</b>	<b>34.88</b>	<b>0.35 (0.31, 0.39)</b>	<b>0.00</b>	<b>0.3 (0.16, 0.44)</b>	<b>53</b>	<b>0.3 (0.21, 0.39)</b>	<b>24.10</b>
<b>Positive social support (reference: low &lt;-1SD)</b>									

NSHD	-1SD to 0SD								
ELSA	-1SD to 0SD	0.08 (0.03, 0.13)	64.92	0.05 (0, 0.1)	71.51	0.05 (0, 0.09)	71.29	0.02 (-0.03, 0.06)	71.36
SNAC-K	-1SD to 0SD	0.05 (-0.06, 0.17)	16.02	0.04 (-0.07, 0.15)	13.09	0.03 (-0.08, 0.14)	13.22	0.02 (-0.09, 0.13)	12.99
RS	-1SD to 0SD	0 (-0.11, 0.1)	19.06	0 (-0.1, 0.1)	15.40	-0.01 (-0.11, 0.09)	15.49	-0.01 (-0.11, 0.09)	15.65
<b>Overall</b>	<b>-1SD to 0SD</b>	<b>0.06 (0.01, 0.11)</b>	<b>10.36</b>	<b>0.04 (0, 0.08)</b>	<b>0.03</b>	<b>0.04 (0, 0.08)</b>	<b>0.01</b>	<b>0.01 (-0.03, 0.05)</b>	<b>0.02</b>
NSHD	0SD to 1SD								
ELSA	0SD to 1SD	0.1 (0.05, 0.15)	55.83	0.07 (0.03, 0.12)	66.57	0.07 (0.02, 0.12)	66.31	0.03 (-0.02, 0.08)	61.85
SNAC-K	0SD to 1SD	0.17 (0.07, 0.26)	21.98	0.12 (0.03, 0.22)	16.74	0.13 (0.04, 0.22)	16.91	0.11 (0.02, 0.21)	18.70
RS	0SD to 1SD	0.05 (-0.05, 0.14)	22.19	0.05 (-0.04, 0.14)	16.68	0.04 (-0.05, 0.13)	16.78	0.03 (-0.06, 0.13)	19.45
<b>Overall</b>	<b>0SD to 1SD</b>	<b>0.1 (0.06, 0.15)</b>	<b>22.95</b>	<b>0.08 (0.04, 0.11)</b>	<b>0.00</b>	<b>0.07 (0.04, 0.11)</b>	<b>0.00</b>	<b>0.05 (0.01, 0.09)</b>	<b>10.64</b>
NSHD	>1 SD								
ELSA	>1 SD	-0.05 (-0.11, 0)	88.11	-0.04 (-0.09, 0.01)	67.99	-0.04 (-0.09, 0.01)	91.88	-0.08 (-0.13, -0.03)	92.19
SNAC-K	>1 SD	-0.15 (-0.33, 0.03)	11.89	-0.18 (-0.36, -0.01)	32.01	-0.12 (-0.29, 0.05)	8.12	-0.1 (-0.28, 0.08)	7.81
RS	>1 SD								
<b>Overall</b>	<b>&gt;1 SD</b>	<b>-0.06 (-0.13, 0)</b>	<b>7.41</b>	<b>-0.09 (-0.22, 0.04)</b>	<b>56.93</b>	<b>-0.05 (-0.1, 0)</b>	<b>0.01</b>	<b>-0.08 (-0.13, -0.03)</b>	<b>0.00</b>
Negative social support (reference: low <-1SD)									
NSHD	-1SD to 0SD								
ELSA	-1SD to 0SD	0.17 (0.11, 0.22)	100	0.13 (0.08, 0.18)	100	0.13 (0.08, 0.18)	100	0.1 (0.05, 0.15)	100
SNAC-K	-1SD to 0SD								
RS	-1SD to 0SD								
Overall	-1SD to 0SD								
NSHD	0SD to 1SD								
ELSA	0SD to 1SD	0.19 (0.14, 0.25)	100	0.14 (0.1, 0.19)	100	0.14 (0.09, 0.19)	100	0.11 (0.06, 0.16)	100
SNAC-K	0SD to 1SD								

RS	0SD to 1SD
Overall	0SD to 1SD

NSHD	>1 SD								
ELSA	>1 SD	0.02 (-0.04, 0.07)	100	0.02 (-0.04, 0.07)	100	0.02 (-0.04, 0.07)	100	-0.02 (-0.07, 0.04)	100
SNAC-K	>1 SD								
RS	>1 SD								
Overall	>1 SD								

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## Supplementary Table 5: Social health at baseline and standardised processing speed score on average over time

*Adjustment 1= sex, age at baseline*

*Adjustment 2= sex, age at baseline, social class, education.*

*Adjustment 3= sex, age at baseline, social class, education, IADL, and vascular-related health conditions.*

*Blank cells indicate no data available*

		Adjustment 1		Adjustment 2		Adjustment 3		Additional adjustment for depression	
Study	Exposure	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>
Marital/cohabitation status (reference unmarried and alone)									
NSHD	Married or cohabiting	0.04 (-0.08, 0.17)	17.83	0.06 (-0.07, 0.18)	16.98	0.05 (-0.07, 0.17)	16.39	0.05 (-0.07, 0.17)	15.56
ELSA	Married or cohabiting	0.02 (-0.02, 0.06)	29.87	0.01 (-0.04, 0.05)	30.44	0 (-0.04, 0.05)	30.85	-0.01 (-0.06, 0.03)	31.68
SNAC-K	Married or cohabiting	0.17 (0.1, 0.25)	25.09	0.15 (0.07, 0.22)	24.70	0.14 (0.06, 0.21)	24.70	0.12 (0.04, 0.19)	24.27
RS	Married or cohabiting	0.01 (-0.05, 0.07)	27.21	-0.01 (-0.06, 0.05)	27.89	0 (-0.06, 0.05)	28.06	-0.01 (-0.07, 0.04)	28.48
Overall	Married or cohabiting	0.06 (-0.02, 0.14)	79.80	0.05 (-0.02, 0.12)	76.90	0.04 (-0.02, 0.11)	74.87	0.03 (-0.03, 0.09)	70.64
Network size (references: none)									
NSHD	1-2	0.04 (-0.17, 0.25)	29.98	0.09 (-0.11, 0.3)	30.22	0.09 (-0.11, 0.3)	30.28	0.09 (-0.11, 0.3)	30.64
ELSA	1-2	0.04 (-0.11, 0.19)	59.97	0.04 (-0.11, 0.18)	59.82	0.04 (-0.11, 0.18)	59.51	0.03 (-0.12, 0.18)	59.51
SNAC-K	1-2	0.03 (-0.33, 0.4)	10.05	0 (-0.35, 0.36)	9.96	0 (-0.35, 0.35)	10.22	0.04 (-0.33, 0.4)	9.85
RS	1-2								
Overall	1-2	0.04 (-0.07, 0.15)	0.00	0.05 (-0.06, 0.16)	0.00	0.05 (-0.06, 0.16)	0.00	0.05 (-0.06, 0.16)	0.00
NSHD	3-6	0.1 (-0.1, 0.29)	31.27	0.12 (-0.07, 0.31)	31.57	0.12 (-0.07, 0.31)	31.64	0.11 (-0.08, 0.31)	32.02

ELSA	3-6	0.08 (-0.07, 0.22)	59.14	0.06 (-0.08, 0.2)	58.95	0.06 (-0.08, 0.2)		0.06 (-0.08, 0.2)	58.64
SNAC-K	3-6	0.08 (-0.27, 0.44)	9.58	0.03 (-0.32, 0.38)	9.48	0 (-0.34, 0.35)	9.72	0 (-0.35, 0.36)	9.35
RS	3-6								
<b>Overall</b>	<b>3-6</b>	<b>0.08 (-0.03, 0.19)</b>	<b>0.00</b>	<b>0.08 (-0.03, 0.18)</b>	<b>0.00</b>	<b>0.07 (-0.03, 0.18)</b>	<b>0.00</b>	<b>0.07 (-0.04, 0.18)</b>	<b>0.00</b>
NSHD	≥6	0.1 (-0.09, 0.29)	32.38	0.14 (-0.05, 0.33)	32.67	0.14 (-0.05, 0.33)	32.74	0.13 (-0.06, 0.32)	33.09
ELSA	≥6	0.12 (-0.02, 0.27)	58.25	0.11 (-0.03, 0.25)	58.09	0.11 (-0.03, 0.25)	57.78	0.1 (-0.05, 0.24)	57.82
SNAC-K	≥6	0.22 (-0.14, 0.57)	9.37	0.13 (-0.22, 0.48)	9.25	0.11 (-0.24, 0.46)	9.48	0.1 (-0.26, 0.46)	9.10
RS	≥6								
<b>Overall</b>	<b>≥6</b>	<b>0.13 (0.02, 0.23)</b>	<b>0.01</b>	<b>0.12 (0.01, 0.23)</b>	<b>0.00</b>	<b>0.12 (0.01, 0.23)</b>	<b>0.00</b>	<b>0.11 (0, 0.22)</b>	<b>0.01</b>
<b>Contact frequency (reference: never/almost never)</b>									
NSHD	>1/year	0.11 (-0.3, 0.51)	25.05	0.04 (-0.36, 0.44)	24.28	0.05 (-0.35, 0.45)	24.21	0.04 (-0.36, 0.44)	24.25
ELSA	>1/year	0.07 (-0.18, 0.33)	56.57	0.03 (-0.23, 0.28)	58.52	0.03 (-0.23, 0.28)	58.25	0.02 (-0.24, 0.27)	58.04
SNAC-K	>1/year	0.51 (0.03, 0.98)	18.38	0.4 (-0.07, 0.87)	17.20	0.36 (-0.11, 0.83)	17.55	0.35 (-0.11, 0.82)	17.71
RS	>1/year								
<b>Overall</b>	<b>&gt;1/year</b>	<b>0.16 (-0.05, 0.37)</b>	<b>0.00</b>	<b>0.1 (-0.1, 0.29)</b>	<b>0.00</b>	<b>0.09 (-0.1, 0.29)</b>	<b>0.00</b>	<b>0.08 (-0.11, 0.28)</b>	<b>0.00</b>
NSHD	1-2/month	0.07 (-0.32, 0.47)	23.96	0 (-0.39, 0.39)	24.61	0.01 (-0.38, 0.4)	24.55	0.01 (-0.38, 0.39)	24.59
ELSA	1-2/month	0.14 (-0.12, 0.39)	58.75	0.09 (-0.17, 0.34)	57.93	0.08 (-0.17, 0.34)	57.65	0.07 (-0.18, 0.33)	57.43
SNAC-K	1-2/month	0.52 (0.05, 0.98)	17.29	0.38 (-0.08, 0.85)	17.45	0.36 (-0.1, 0.81)	17.81	0.34 (-0.12, 0.79)	17.98
RS	1-2/month								
<b>Overall</b>	<b>1-2/month</b>	<b>0.19 (-0.01, 0.38)</b>	<b>0.00</b>	<b>0.12 (-0.08, 0.31)</b>	<b>0.00</b>	<b>0.12 (-0.08, 0.31)</b>	<b>0.00</b>	<b>0.1 (-0.09, 0.3)</b>	<b>0.00</b>
NSHD	2-4/month	0.15 (-0.24, 0.54)	25.15	0.1 (-0.28, 0.48)	25.81	0.11 (-0.27, 0.49)	25.74	0.1 (-0.28, 0.48)	25.78
ELSA	2-4/month	0.15 (-0.1, 0.41)	57.66	0.11 (-0.14, 0.37)	56.84	0.11 (-0.14, 0.37)	56.56	0.1 (-0.15, 0.36)	56.35
SNAC-K	2-4/month	0.51 (0.05, 0.98)	17.19	0.39 (-0.07, 0.86)	17.35	0.37 (-0.09, 0.83)	17.70	0.34 (-0.12, 0.79)	17.87
RS	2-4/month								

<b>Overall</b>	<b>2-4/month</b>	<b>0.22 (0.02, 0.41)</b>	<b>0.00</b>	<b>0.16 (-0.03, 0.35)</b>	<b>0.00</b>	<b>0.16 (-0.03, 0.35)</b>	<b>0.00</b>	<b>0.15 (-0.05, 0.34)</b>	<b>0.00</b>
NSHD	2-3/week	0.05 (-0.34, 0.44)	27.18	0.02 (-0.37, 0.4)	27.82	0.03 (-0.36, 0.41)	27.75	0.01 (-0.37, 0.4)	27.79
ELSA	2-3/week	0.16 (-0.11, 0.43)	55.68	0.14 (-0.13, 0.41)	54.90	0.13 (-0.14, 0.41)	54.63	0.13 (-0.14, 0.4)	54.44
SNAC-K	2-3/week	0.43 (-0.06, 0.92)	17.14	0.32 (-0.16, 0.81)	17.27	0.3 (-0.18, 0.78)	17.62	0.27 (-0.2, 0.75)	17.76
RS	2-3/week								
<b>Overall</b>	<b>2-3/week</b>	<b>0.18 (-0.02, 0.38)</b>	<b>0.00</b>	<b>0.14 (-0.07, 0.34)</b>	<b>0.00</b>	<b>0.13 (-0.07, 0.33)</b>	<b>0.00</b>	<b>0.12 (-0.08, 0.33)</b>	<b>0.00</b>
<b>Social participation (reference: low &lt;1 activity)</b>									
NSHD	moderate (2-3 activities)								
ELSA	moderate (2-3 activities)	0.12 (0.06, 0.17)	95.94	0.1 (0.05, 0.15)	95.83	0.09 (0.04, 0.14)	71.50	0.08 (0.02, 0.13)	75.50
SNAC-K	moderate (2-3 activities)	0 (-0.25, 0.24)	4.06	-0.02 (-0.27, 0.22)	4.17	-0.09 (-0.34, 0.15)	28.50	-0.1 (-0.35, 0.15)	24.50
RS	moderate (2-3 activities)								
<b>Overall</b>	<b>moderate (2-3 activities)</b>	<b>0.11 (0.06, 0.16)</b>	<b>0.00</b>	<b>0.09 (0.04, 0.14)</b>	<b>0.00</b>	<b>0.04 (-0.13, 0.2)</b>	<b>53.13</b>	<b>0.03 (-0.12, 0.18)</b>	<b>44.62</b>
NSHD	high (≥4 or more activities)								
ELSA	high (≥4 or more activities)	0.21 (0.16, 0.26)	95.51	0.15 (0.1, 0.2)	94.87	0.14 (0.09, 0.19)	94.99	0.12 (0.07, 0.17)	95.19
SNAC-K	high (≥4 or more activities)	0.3 (0.08, 0.52)	4.49	0.23 (0.01, 0.45)	5.13	0.12 (-0.11, 0.34)	5.01	0.1 (-0.13, 0.33)	4.81
RS	high (≥4 or more activities)								
<b>Overall</b>	<b>high (≥4 or more activities)</b>	<b>0.22 (0.17, 0.26)</b>	<b>0.00</b>	<b>0.15 (0.1, 0.2)</b>	<b>0.01</b>	<b>0.14 (0.09, 0.19)</b>	<b>0.00</b>	<b>0.12 (0.07, 0.17)</b>	<b>0.00</b>
<b>Positive social support (reference: low &lt;-1SD)</b>									



NSHD	-1SD to OSD	0.09 (-0.02, 0.21)	13.37	0.08 (-0.03, 0.2)	14.23	0.08 (-0.03, 0.2)	13.59	0.08 (-0.03, 0.19)	15.78
ELSA	-1SD to OSD	0.03 (-0.02, 0.09)	57.71	0.02 (-0.03, 0.07)	53.65	0.02 (-0.04, 0.07)	55.08	0 (-0.05, 0.06)	48.82
SNAC-K	-1SD to OSD	0.03 (-0.09, 0.15)	12.64	0.02 (-0.1, 0.14)	13.25	0.01 (-0.11, 0.12)	12.94	-0.02 (-0.14, 0.09)	14.73
RS	-1SD to OSD	0.1 (0, 0.2)	16.27	0.1 (0, 0.2)	18.87	0.09 (0, 0.19)	18.39	0.08 (-0.01, 0.18)	20.67
<b>Overall</b>	<b>-1SD to OSD</b>	<b>0.05 (0.01, 0.09)</b>	<b>0.00</b>	<b>0.04 (0, 0.09)</b>	<b>5.56</b>	<b>0.04 (0, 0.08)</b>	<b>1.92</b>	<b>0.03 (-0.02, 0.08)</b>	<b>16.19</b>
NSHD	OSD to 1SD	0.13 (0.01, 0.25)	14.95	0.12 (0, 0.23)	16.84	0.11 (0, 0.23)	15.77	0.11 (-0.01, 0.22)	17.91
ELSA	OSD to 1SD	0.03 (-0.02, 0.09)	43.79	0.02 (-0.03, 0.08)	38.11	0.02 (-0.03, 0.07)	40.19	0 (-0.05, 0.05)	35.90
SNAC-K	OSD to 1SD	0.05 (-0.05, 0.15)	20.02	0.02 (-0.07, 0.12)	21.14	0.03 (-0.07, 0.12)	20.61	-0.02 (-0.12, 0.08)	21.60
RS	OSD to 1SD	0.12 (0.02, 0.21)	21.24	0.12 (0.04, 0.21)	23.91	0.11 (0.03, 0.2)	23.44	0.1 (0.01, 0.18)	24.59
<b>Overall</b>	<b>OSD to 1SD</b>	<b>0.07 (0.02, 0.12)</b>	<b>27.50</b>	<b>0.06 (0.01, 0.12)</b>	<b>43.79</b>	<b>0.06 (0.01, 0.11)</b>	<b>36.18</b>	<b>0.04 (-0.02, 0.1)</b>	<b>51.56</b>
NSHD	>1 SD	0.07 (-0.06, 0.2)	33.12	0.06 (-0.06, 0.18)	33.33	0.06 (-0.07, 0.18)	17.72	0.04 (-0.08, 0.17)	17.80
ELSA	>1 SD	0.01 (-0.05, 0.07)	41.39	0.01 (-0.05, 0.07)	40.61	0.01 (-0.05, 0.07)	74.18	-0.01 (-0.07, 0.05)	74.37
SNAC-K	>1 SD	-0.21 (-0.4, -0.03)	25.49	-0.22 (-0.41, -0.04)	26.06	-0.14 (-0.32, 0.04)	8.10	-0.16 (-0.34, 0.03)	7.83
RS	>1 SD								
<b>Overall</b>	<b>&gt;1 SD</b>	<b>-0.03 (-0.17, 0.11)</b>	<b>76.86</b>	<b>-0.03 (-0.18, 0.11)</b>	<b>79.07</b>	<b>0.01 (-0.05, 0.06)</b>	<b>0.00</b>	<b>-0.01 (-0.06, 0.04)</b>	<b>0.00</b>
<b>Negative social support (reference: low &lt;-1SD)</b>									
NSHD	-1SD to OSD	0.05 (-0.06, 0.16)	19.14	0.05 (-0.06, 0.16)	19.13	0.04 (-0.07, 0.16)	19.33	0.08 (-0.04, 0.19)	18.20
ELSA	-1SD to OSD	0.01 (-0.05, 0.06)	80.86	0.01 (-0.05, 0.06)	80.87	-0.01 (-0.06, 0.05)	80.67	0.05 (-0.01, 0.1)	81.80
SNAC-K	-1SD to OSD								
RS	-1SD to OSD								
<b>Overall</b>	<b>-1SD to OSD</b>	<b>0.02 (-0.03, 0.07)</b>	<b>0.02</b>	<b>0.02 (-0.03, 0.06)</b>	<b>0.01</b>	<b>0 (-0.04, 0.05)</b>	<b>0.04</b>	<b>0.05 (0, 0.1)</b>	<b>0.01</b>
NSHD	OSD to 1SD	0.07 (-0.05, 0.18)	18.45	0.07 (-0.05, 0.18)	18.45	0.05 (-0.07, 0.16)	18.49	-0.01 (-0.13, 0.11)	21.09
ELSA	OSD to 1SD	0.03 (-0.02, 0.09)	81.55	0.03 (-0.02, 0.09)	81.55	0.01 (-0.04, 0.07)	81.51	0.02 (-0.04, 0.08)	78.91
SNAC-K	OSD to 1SD								

RS	OSD to 1SD								
<b>Overall</b>	<b>OSD to 1SD</b>	<b>0.04 (-0.01, 0.09)</b>	<b>0.00</b>	<b>0.04 (-0.01, 0.09)</b>	<b>0.01</b>	<b>0.02 (-0.03, 0.07)</b>	<b>0.02</b>	<b>0.01 (-0.04, 0.07)</b>	<b>0.00</b>
NSHD	>1 SD	-0.01 (-0.13, 0.11)	21.09	0.03 (-0.09, 0.15)	21.37	0.03 (-0.09, 0.15)	21.37	0.01 (-0.11, 0.12)	21.02
ELSA	>1 SD	0.02 (-0.04, 0.08)	78.91	0.02 (-0.04, 0.08)	78.63	0.02 (-0.04, 0.08)	78.63	0 (-0.06, 0.06)	78.98
SNAC-K	>1 SD								
RS	>1 SD								
<b>Overall</b>	<b>&gt;1 SD</b>	<b>0.01 (-0.04, 0.07)</b>	<b>0.00</b>	<b>0.02 (-0.03, 0.08)</b>	<b>0.01</b>	<b>0.02 (-0.03, 0.08)</b>	<b>0.01</b>	<b>0 (-0.05, 0.06)</b>	<b>0.01</b>

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## Supplementary Table 6: Social health at baseline and global/composite cognition on average over time

Adjustment 1= sex, age at baseline

Adjustment 2= sex, age at baseline, social class, education.

Adjustment 3= sex, age at baseline, social class, education, IADL, and vascular-related health conditions.

Blank cells indicate no data available

		Adjustment 1		Adjustment 2		Adjustment 3		Additional adjustment for depression	
Study	Exposure	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>	Coef (95% CI)	Weight/I <sup>2</sup>
Marital/cohabitation status (reference unmarried and alone)									
NSHD	Married or cohabiting	-0.01 (-0.13, 0.11)	20.41	0.02 (-0.09, 0.13)	18.85	0.01 (-0.1, 0.13)	18.33	0.01 (-0.1, 0.12)	17.35
ELSA	Married or cohabiting	0.1 (0.05, 0.14)	27.71	0.06 (0.02, 0.1)	29.22	0.05 (0.01, 0.09)	29.54	0.02 (-0.02, 0.06)	30.51
SNAC-K	Married or cohabiting	0.24 (0.17, 0.31)	25.48	0.19 (0.12, 0.26)	25.09	0.18 (0.12, 0.25)	25.15	0.16 (0.09, 0.23)	24.85
RS	Married or cohabiting	0.05 (-0.02, 0.11)	26.40	0.03 (-0.02, 0.09)	26.84	0.04 (-0.02, 0.09)	26.98	0.03 (-0.03, 0.09)	27.29
Overall	Married or cohabiting	0.1 (0, 0.2)	89.31	0.08 (0, 0.15)	82.67	0.07 (0, 0.15)	81.17	0.06 (-0.01, 0.12)	77.02
Network size (reference: none)									
NSHD	1-2	-0.06 (-0.27, 0.15)	28.97	0.03 (-0.16, 0.22)	29.52	0.03 (-0.15, 0.22)	29.61	0.03 (-0.16, 0.22)	30.30
ELSA	1-2	0.09 (-0.06, 0.23)	58.95	0.09 (-0.05, 0.22)	59.64	0.09 (-0.05, 0.22)	59.21	0.08 (-0.05, 0.21)	58.73
SNAC-K	1-2	-0.02 (-0.34, 0.3)	12.07	-0.08 (-0.39, 0.23)		-0.09 (-0.4, 0.22)	11.18	-0.07 (-0.38, 0.24)	10.97
RS	1-2								

<b>Overall</b>	<b>1-2</b>	<b>0.03 (-0.08, 0.14)</b>	<b>0.83</b>	<b>0.05 (-0.05, 0.15)</b>	<b>0.00</b>	<b>0.05 (-0.05, 0.15)</b>	<b>0.00</b>	<b>0.05 (-0.05, 0.15)</b>	<b>0.01</b>
NSHD	3-6	0.01 (-0.18, 0.21)	31.45	0.06 (-0.12, 0.23)	30.89	0.06 (-0.12, 0.23)	31.00	0.05 (-0.13, 0.23)	31.75
ELSA	3-6	0.17 (0.03, 0.31)	55.88	0.13 (0.01, 0.26)	58.79	0.13 (0.01, 0.26)	58.35	0.12 (-0.01, 0.25)	57.81
SNAC-K	3-6	0.13 (-0.19, 0.44)	12.68	0.03 (-0.28, 0.33)	10.32	0 (-0.3, 0.3)		-0.01 (-0.32, 0.3)	10.44
RS	3-6								
<b>Overall</b>	<b>3-6</b>	<b>0.11 (0, 0.23)</b>	<b>8.78</b>	<b>0.1 (0, 0.2)</b>	<b>0.00</b>	<b>0.09 (0, 0.19)</b>	<b>0.00</b>	<b>0.09 (-0.01, 0.18)</b>	<b>0.00</b>
NSHD	≥6	0 (-0.19, 0.19)	35.60	0.08 (-0.09, 0.25)	31.99	0.08 (-0.09, 0.25)	32.12	0.07 (-0.11, 0.24)	32.81
ELSA	≥6	0.24 (0.1, 0.38)	44.44	0.2 (0.07, 0.32)	57.97	0.19 (0.07, 0.32)	57.52	0.17 (0.04, 0.3)	57.06
SNAC-K	≥6	0.27 (-0.05, 0.58)	19.96	0.11 (-0.2, 0.41)	10.04	0.08 (-0.22, 0.39)	10.37	0.08 (-0.23, 0.38)	10.13
RS	≥6								
<b>Overall</b>	<b>≥6</b>	<b>0.16 (-0.01, 0.33)</b>	<b>53.63</b>	<b>0.15 (0.05, 0.25)</b>	<b>0.00</b>	<b>0.15 (0.05, 0.24)</b>	<b>0.00</b>	<b>0.13 (0.03, 0.23)</b>	<b>0.00</b>
Contact frequency (reference: never/almost never)									
NSHD	>1/year	0.11 (-0.29, 0.51)	20.63	-0.06 (-0.42, 0.3)	27.87	-0.05 (-0.41, 0.31)	26.93	-0.06 (-0.42, 0.3)	26.65
ELSA	>1/year	0.43 (0.2, 0.66)	62.77	0.31 (0.09, 0.52)	50.23	0.31 (0.09, 0.52)	51.77	0.29 (0.08, 0.5)	52.13
SNAC-K	>1/year	0.48 (0.03, 0.93)	16.60	0.32 (-0.11, 0.75)	21.91	0.29 (-0.13, 0.71)	21.30	0.26 (-0.16, 0.68)	21.22
RS									
<b>Overall</b>	<b>&gt;1/year</b>	<b>0.37 (0.19, 0.55)</b>	<b>0.47</b>	<b>0.21 (-0.02, 0.44)</b>	<b>35.98</b>	<b>0.21 (-0.01, 0.43)</b>	<b>30.21</b>	<b>0.19 (-0.03, 0.41)</b>	<b>29.59</b>
NSHD	1-2/month	0.01 (-0.39, 0.4)	30.49	-0.16 (-0.51, 0.2)	31.71	-0.15 (-0.5, 0.21)	31.46	-0.16 (-0.51, 0.2)	31.24

ELSA	1-2/month	0.54 (0.32, 0.77)	41.70	0.39 (0.18, 0.61)	40.28	0.39 (0.18, 0.61)	40.59	0.37 (0.16, 0.58)	41.01
SNAC-K	1-2/month	0.56 (0.12, 0.99)	27.81	0.36 (-0.06, 0.78)	28.02	0.33 (-0.08, 0.74)	27.95	0.29 (-0.12, 0.7)	27.75
RS	1-2/month								
Overall	1-2/month	0.38 (0.04, 0.73)	65.85	0.21 (-0.14, 0.56)	71.15	0.21 (-0.13, 0.54)	69.48	0.18 (-0.14, 0.51)	68.03
NSHD	2-4/month	0.06 (-0.32, 0.45)	29.24	-0.06 (-0.41, 0.29)	30.80	-0.05 (-0.4, 0.3)	30.33	-0.06 (-0.41, 0.29)	29.91
ELSA	2-4/month	0.47 (0.25, 0.7)	45.86	0.36 (0.15, 0.58)	44.23	0.36 (0.14, 0.57)	45.00	0.34 (0.13, 0.55)	45.80
SNAC-K	2-4/month	0.57 (0.14, 1.01)	24.90	0.39 (-0.03, 0.82)	24.97	0.37 (-0.05, 0.78)	24.68	0.33 (-0.08, 0.75)	24.29
<b>Overall</b>	<b>2-4/month</b>	<b>0.38 (0.1, 0.66)</b>	<b>49.32</b>	<b>0.24 (-0.04, 0.52)</b>	<b>54.93</b>	<b>0.24 (-0.03, 0.5)</b>	<b>51.40</b>	<b>0.22 (-0.04, 0.47)</b>	<b>48.75</b>
NSHD	2-3/week	-0.04 (-0.42, 0.35)	29.33	-0.14 (-0.49, 0.21)	31.56	-0.13 (-0.48, 0.22)	31.17	-0.14 (-0.49, 0.21)	31.18
ELSA	2-3/week	0.36 (0.12, 0.6)	47.46	0.3 (0.07, 0.53)	44.02	0.3 (0.07, 0.52)	44.63	0.29 (0.07, 0.52)	44.30
SNAC-K	2-3/week	0.43 (-0.03, 0.89)	23.21	0.27 (-0.17, 0.72)	24.42	0.24 (-0.19, 0.68)	24.20	0.19 (-0.24, 0.63)	24.52
RS	2-3/week								
<b>Overall</b>	<b>2-3/week</b>	<b>0.26 (0, 0.52)</b>	<b>41.01</b>	<b>0.16 (-0.12, 0.44)</b>	<b>53.74</b>	<b>0.15 (-0.12, 0.42)</b>	<b>50.60</b>	<b>0.13 (-0.14, 0.41)</b>	<b>52.36</b>

Social participation (reference: low <1 activity)

NSHD	moderate (2-3 activities)								
ELSA	moderate (2-3 activities)	0.27 (0.22, 0.31)	95.75	0.2 (0.15, 0.24)	95.65	0.19 (0.15, 0.24)	85.70	0.17 (0.12, 0.21)	84.14

SNAC-K	moderate (2-3 activities)	0.19 (-0.03, 0.41)	4.25	0.15 (-0.06, 0.36)	4.35	0.07 (-0.15, 0.28)	14.30	0.03 (-0.19, 0.25)	15.86
RS	moderate (2-3 activities)								
<b>Overall</b>	<b>moderate (2-3 activities)</b>	<b>0.26 (0.22, 0.31)</b>	<b>0.00</b>	<b>0.19 (0.15, 0.24)</b>	<b>0.00</b>	<b>0.17 (0.09, 0.26)</b>	<b>21.90</b>	<b>0.14 (0.05, 0.24)</b>	<b>25.65</b>
NSHD	high (≥4 or more activities)								
ELSA	high (≥4 or more activities)	0.59 (0.55, 0.63)	95.19	0.38 (0.33, 0.42)	94.55	0.37 (0.32, 0.42)	94.77	0.33 (0.29, 0.38)	94.97
SNAC-K	high (≥4 or more activities)	0.52 (0.33, 0.72)	4.81	0.4 (0.21, 0.59)	5.45	0.27 (0.08, 0.47)	5.23	0.25 (0.05, 0.45)	5.03
RS	high (≥4 or more activities)								
<b>Overall</b>	<b>high (≥4 or more activities)</b>	<b>0.59 (0.54, 0.63)</b>	<b>0.00</b>	<b>0.38 (0.33, 0.42)</b>	<b>0.00</b>	<b>0.37 (0.32, 0.41)</b>	<b>0.01</b>	<b>0.33 (0.28, 0.37)</b>	<b>0.00</b>
Positive social support (reference: low <-1SD)									
NSHD	-1SD to OSD	0.11 (-0.01, 0.22)	12.87	0.08 (-0.02, 0.18)	13.71	0.08 (-0.02, 0.19)	13.62	0.08 (-0.02, 0.18)	13.77
ELSA	-1SD to OSD	0.09 (0.04, 0.14)	57.41	0.06 (0.01, 0.11)	57.91	0.06 (0.01, 0.11)	57.52	0.02 (-0.03, 0.07)	57.40
SNAC-K	-1SD to OSD	0.02 (-0.09, 0.13)	13.62	0 (-0.11, 0.11)	12.77	-0.01 (-0.11, 0.1)	13.06	-0.03 (-0.14, 0.07)	12.87
RS	-1SD to OSD	0.07 (-0.03, 0.17)	16.11	0.07 (-0.03, 0.17)	15.61	0.06 (-0.03, 0.16)	15.79	0.06 (-0.04, 0.15)	15.95
<b>Overall</b>	<b>-1SD to OSD</b>	<b>0.08 (0.04, 0.12)</b>	<b>0.04</b>	<b>0.05 (0.02, 0.09)</b>	<b>0.01</b>	<b>0.05 (0.01, 0.09)</b>	<b>0.01</b>	<b>0.03 (-0.01, 0.07)</b>	<b>0.00</b>

NSHD	OSD to 1SD	0.14 (0.03, 0.26)	10.95	0.11 (0, 0.21)	11.79	0.11 (0, 0.21)	11.71	0.1 (-0.01, 0.2)	11.96
ELSA	OSD to 1SD	0.11 (0.06, 0.17)	53.83	0.08 (0.03, 0.13)	54.40	0.08 (0.03, 0.13)	53.93	0.03 (-0.01, 0.08)	53.79
SNAC-K	OSD to 1SD	0.12 (0.03, 0.21)	17.74	0.07 (-0.01, 0.16)	16.69	0.08 (-0.01, 0.17)	17.05	0.05 (-0.04, 0.14)	16.58
RS	OSD to 1SD	0.11 (0.02, 0.2)	17.48	0.11 (0.02, 0.2)	17.12	0.1 (0.01, 0.19)	17.31	0.09 (0, 0.17)	17.67
<b>Overall</b>	<b>OSD to 1SD</b>	<b>0.12 (0.08, 0.16)</b>	<b>0.02</b>	<b>0.09 (0.05, 0.12)</b>	<b>0.02</b>	<b>0.09 (0.05, 0.12)</b>	<b>0.02</b>	<b>0.05 (0.02, 0.09)</b>	<b>0.01</b>
NSHD	>1 SD	0.13 (0, 0.25)	33.27	0.1 (-0.01, 0.21)	33.51	0.1 (-0.01, 0.21)	33.47	0.08 (-0.03, 0.2)	33.42
ELSA	>1 SD	-0.02 (-0.07, 0.04)	36.16	-0.01 (-0.06, 0.05)	35.68	-0.01 (-0.06, 0.05)	37.72	-0.05 (-0.1, 0.01)	39.73
SNAC-K	>1 SD	-0.28 (-0.45, -0.11)	30.58	-0.31 (-0.48, -0.15)	30.80	-0.22 (-0.38, -0.06)	28.81	-0.2 (-0.37, -0.03)	26.84
RS	>1 SD								
<b>Overall</b>	<b>&gt;1 SD</b>	<b>-0.05 (-0.27, 0.17)</b>	<b>91.46</b>	<b>-0.06 (-0.3, 0.17)</b>	<b>93.16</b>	<b>-0.03 (-0.2, 0.14)</b>	<b>87.23</b>	<b>-0.04 (-0.19, 0.1)</b>	<b>81.67</b>
Negative social support (reference: low <-1SD)									
NSHD	-1SD to OSD	0.1 (-0.01, 0.22)	18.64	0.1 (-0.01, 0.2)	19.59	0.1 (0, 0.2)	19.60	0.09 (-0.02, 0.19)	19.75
ELSA	-1SD to OSD	0.15 (0.1, 0.2)	81.36	0.11 (0.06, 0.16)	80.41	0.11 (0.06, 0.16)	80.40	0.08 (0.03, 0.13)	80.25
SNAC-K	-1SD to OSD								
RS	-1SD to OSD								
<b>Overall</b>	<b>-1SD to OSD</b>	<b>0.14 (0.09, 0.19)</b>	<b>0.02</b>	<b>0.11 (0.06, 0.15)</b>	<b>0.02</b>	<b>0.11 (0.06, 0.15)</b>	<b>0.01</b>	<b>0.08 (0.03, 0.12)</b>	<b>0.02</b>
NSHD	OSD to 1SD	0.18 (0.07, 0.29)	18.29	0.15 (0.05, 0.26)	19.04	0.15 (0.05, 0.26)	19.04	0.13 (0.02, 0.23)	19.02
ELSA	OSD to 1SD	0.19 (0.13, 0.24)	81.71	0.14 (0.09, 0.19)	80.96	0.13 (0.08, 0.18)	80.96	0.09 (0.04, 0.14)	80.98
SNAC-K	OSD to 1SD								
RS	OSD to 1SD								

<b>Overall</b>	<b>0SD to 1SD</b>	<b>0.19 (0.14, 0.24)</b>	<b>0.00</b>	<b>0.14 (0.09, 0.19)</b>	<b>0.02</b>	<b>0.14 (0.09, 0.18)</b>	<b>0.01</b>	<b>0.1 (0.05, 0.14)</b>	<b>0.03</b>
NSHD	>1 SD	0.01 (-0.11, 0.12)	20.94	0.08 (-0.02, 0.19)	21.83	0.08 (-0.02, 0.19)	21.82	0.05 (-0.05, 0.16)	25.53
ELSA	>1 SD	0.03 (-0.03, 0.09)	79.06	0.03 (-0.03, 0.08)	78.17	0.03 (-0.03, 0.08)	78.18	-0.01 (-0.07, 0.04)	74.47
SNAC-K	>1 SD								
RS	>1 SD								
<b>Overall</b>	<b>&gt;1 SD</b>	<b>0.02 (-0.03, 0.08)</b>	<b>0.02</b>	<b>0.04 (-0.01, 0.09)</b>	<b>0.01</b>	<b>0.04 (-0.01, 0.09)</b>	<b>0.00</b>	<b>0 (-0.05, 0.06)</b>	<b>14.63</b>

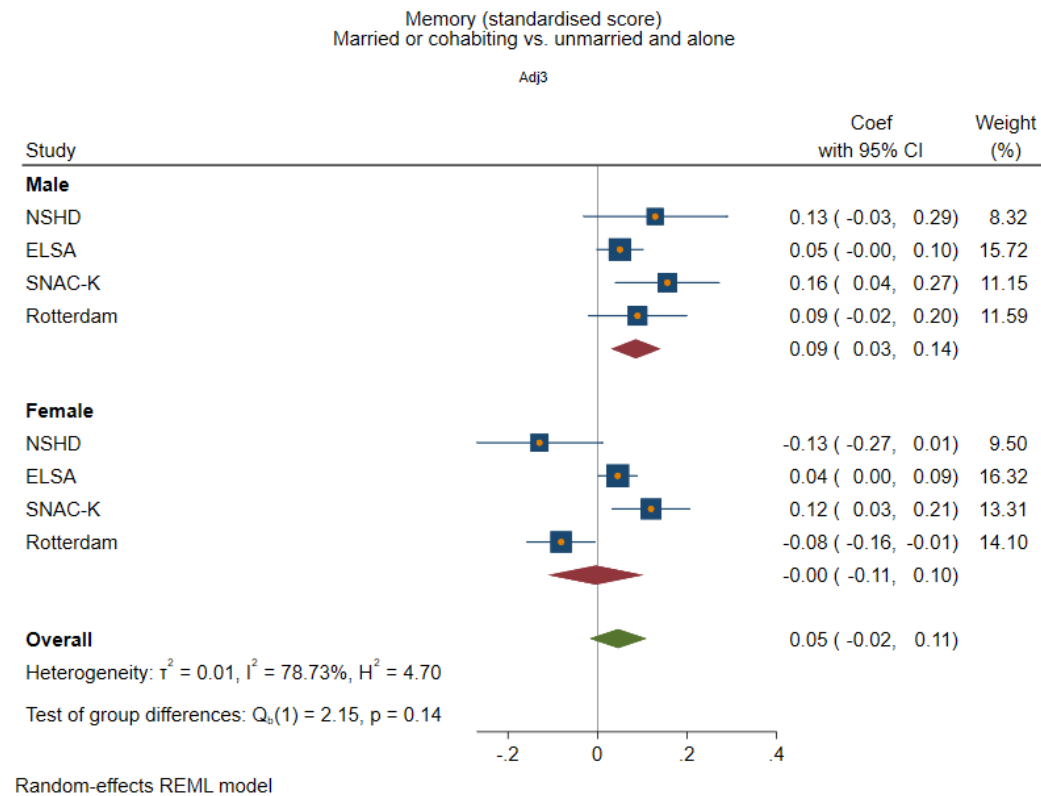
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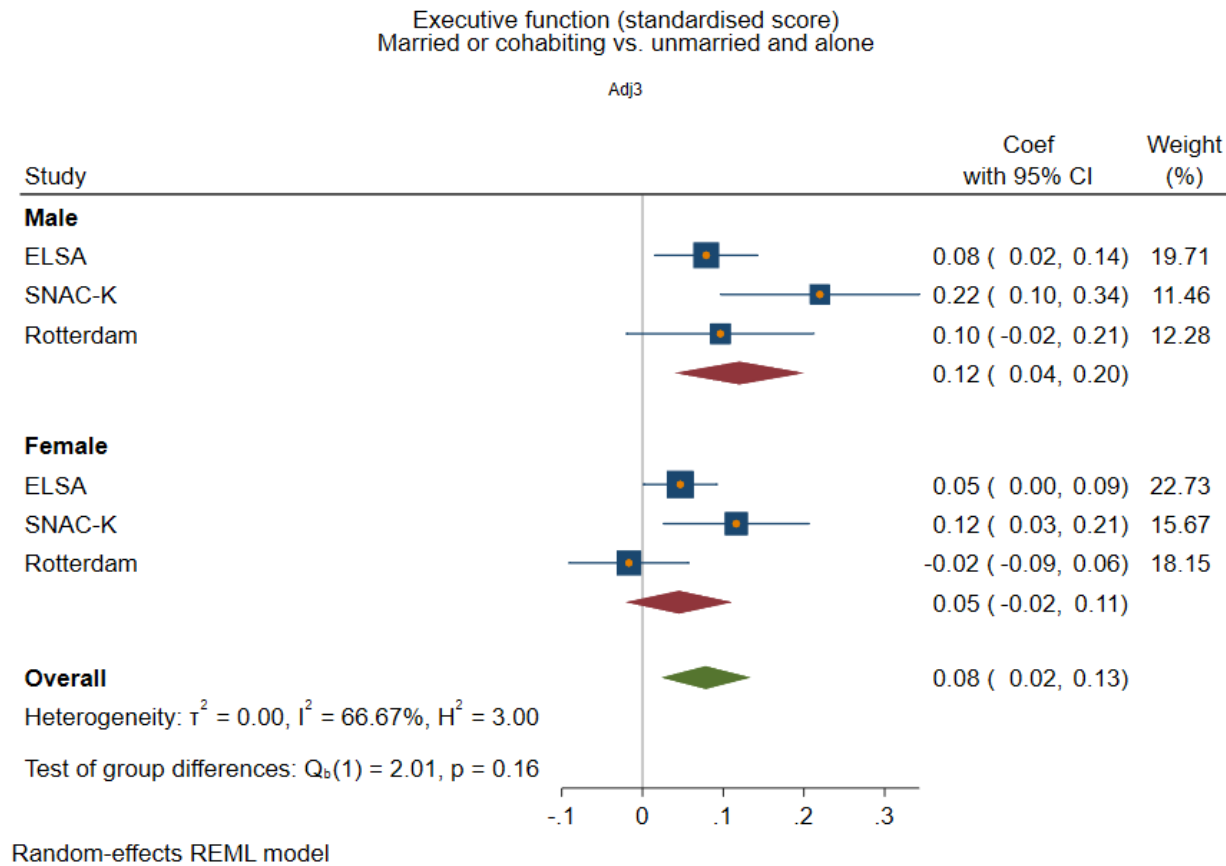
## Supplementary figure 1: Sex-stratified marital/cohabitation status and average cognitive capability

*Adjusted for age at baseline, social class, education, IADL, and vascular-related health conditions*

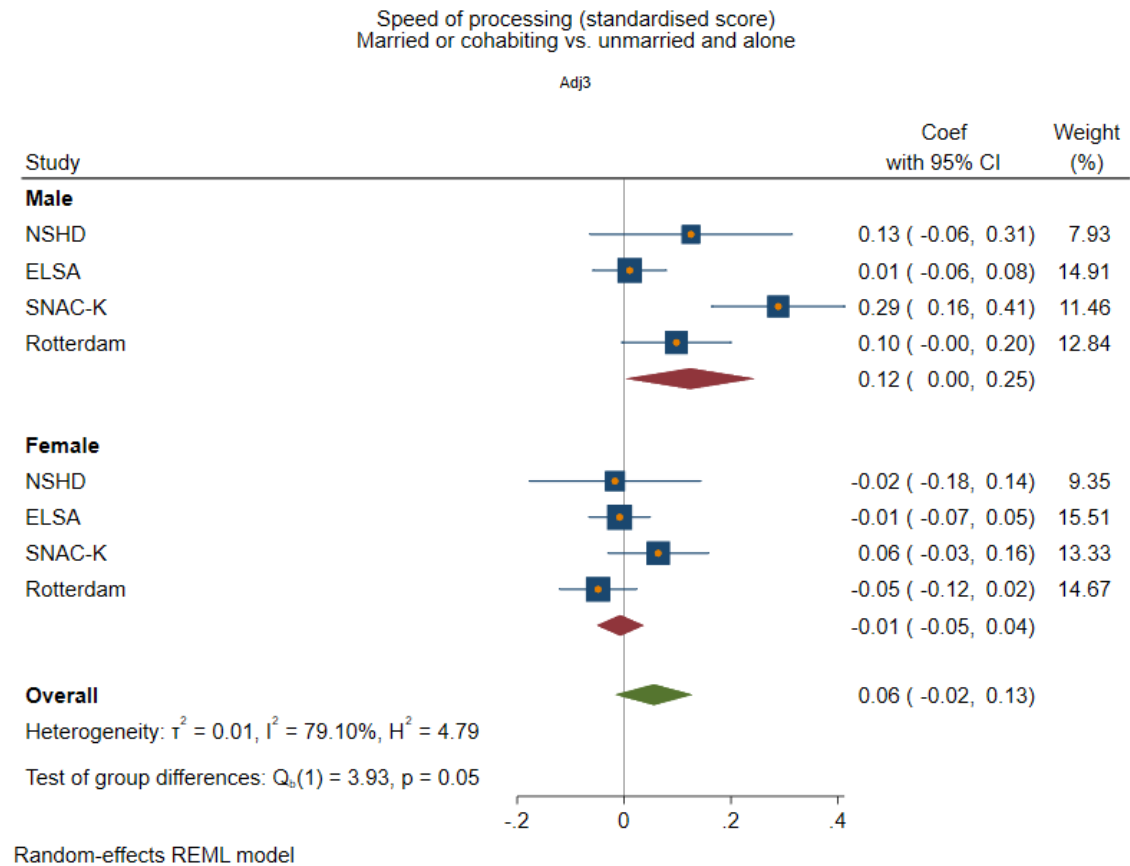
### Memory



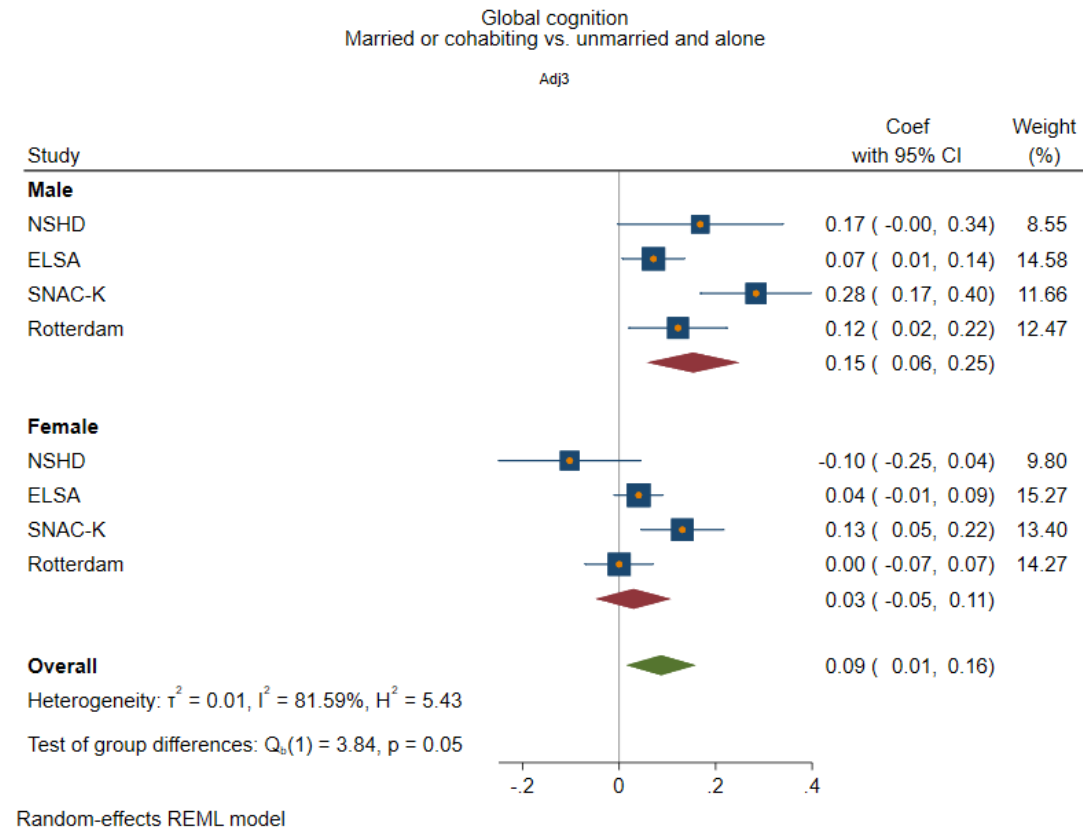
## Executive Function



## Processing Speed



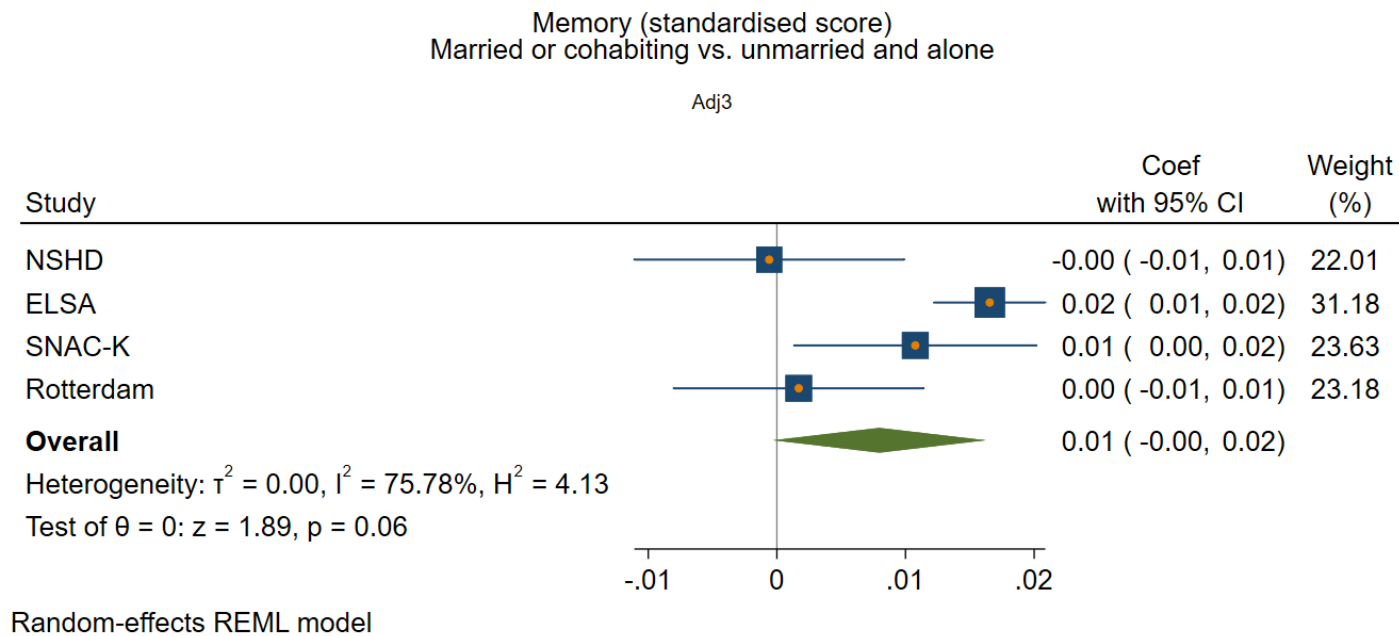
## Global/composite cognition



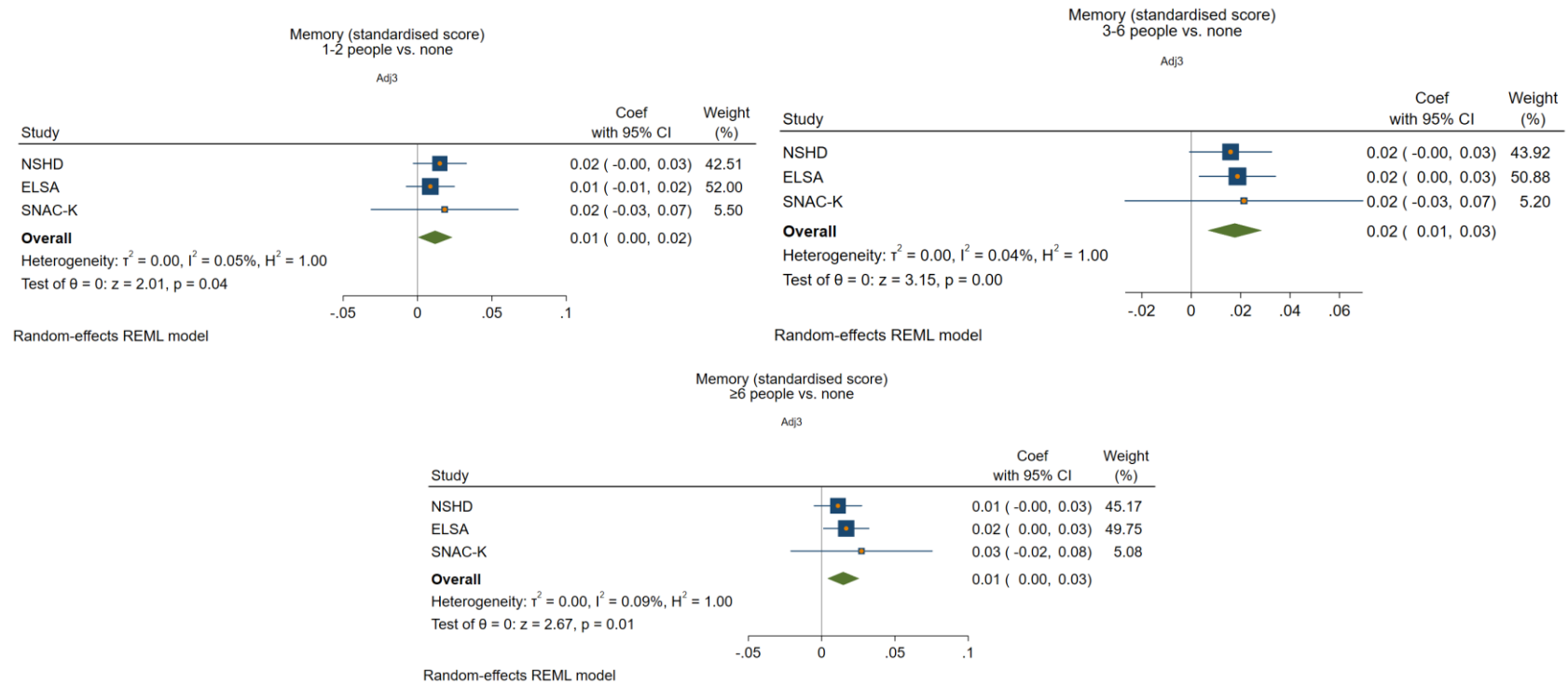
## Supplementary figure 2: Structural social health at baseline and rate of decline in memory

Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions.

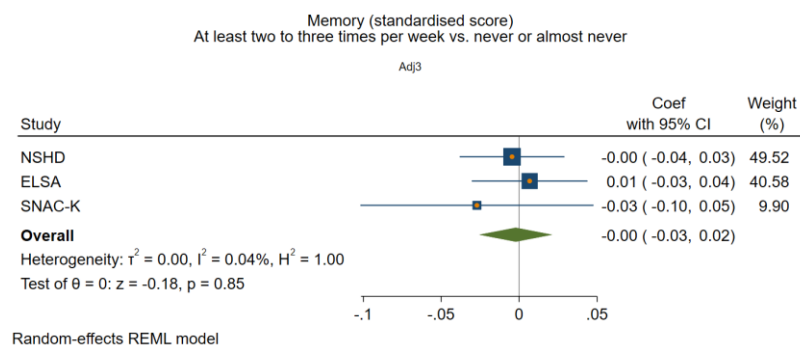
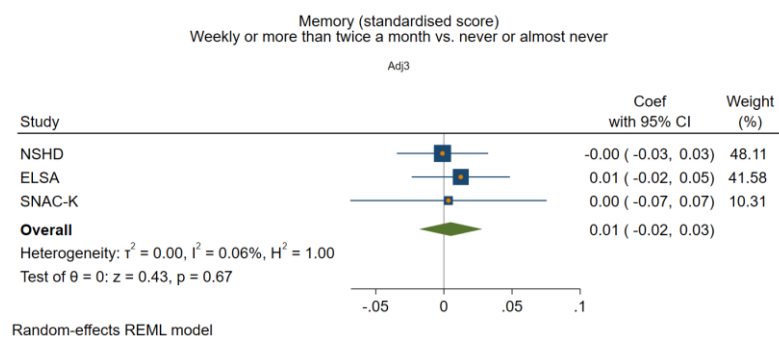
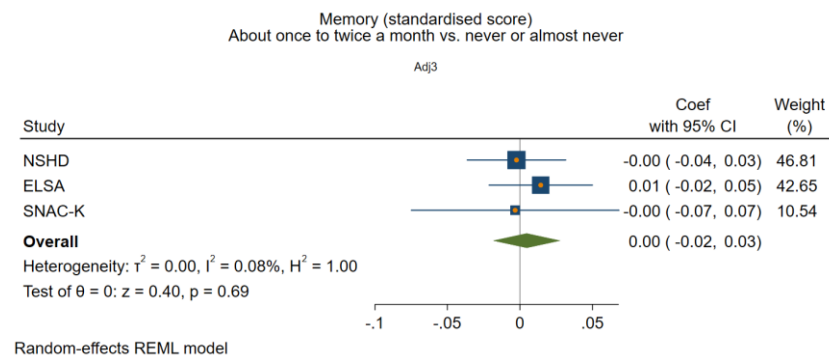
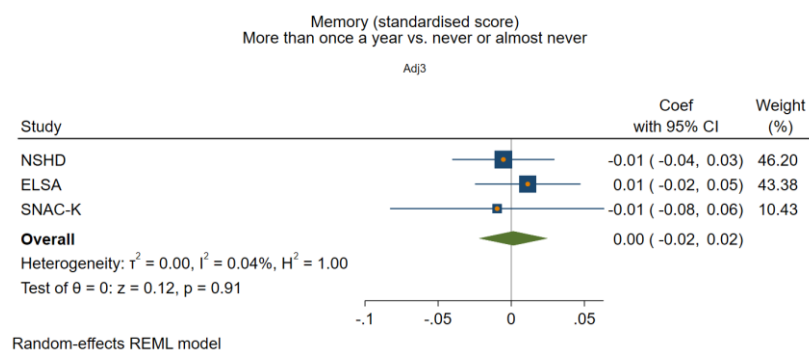
Marital/cohabitation status



## Network size



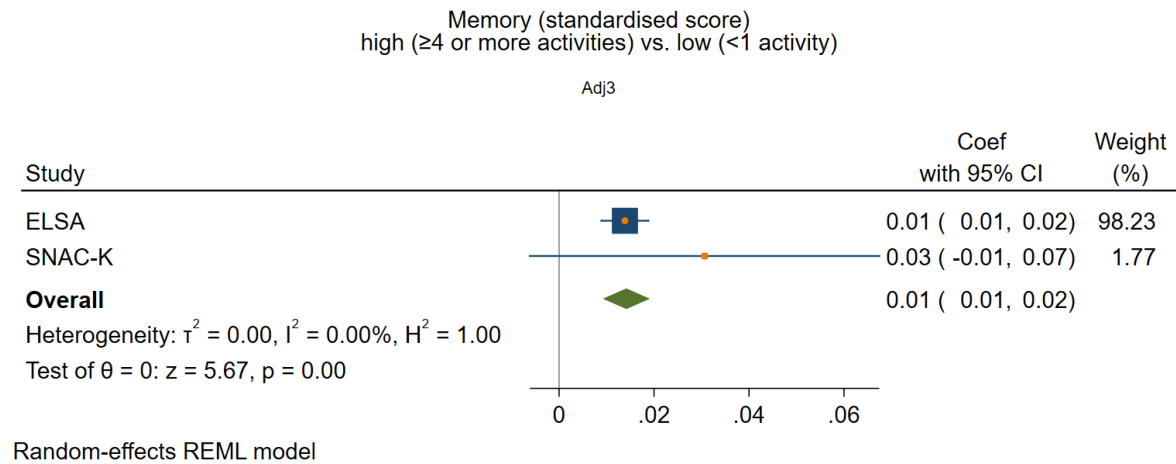
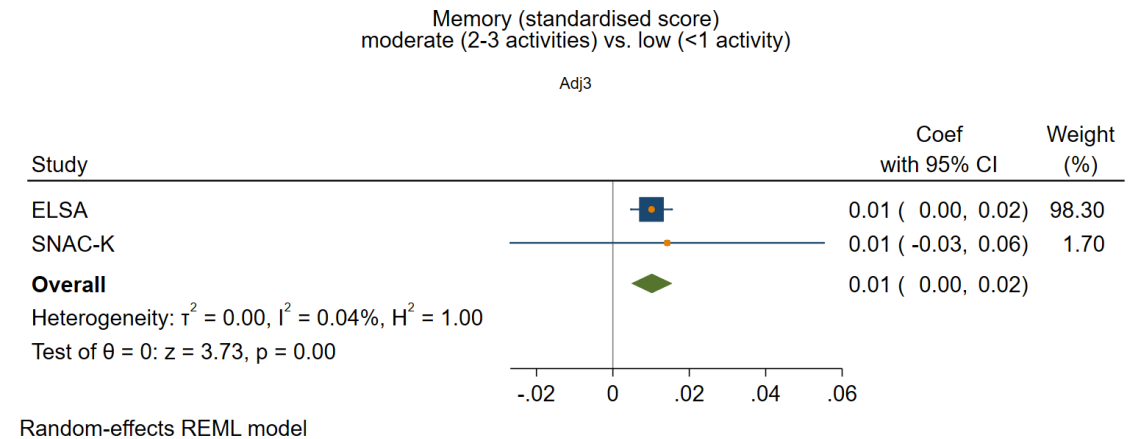
## Frequency of contact



### Supplementary figure 3: Functional social health at baseline and rate of decline in memory

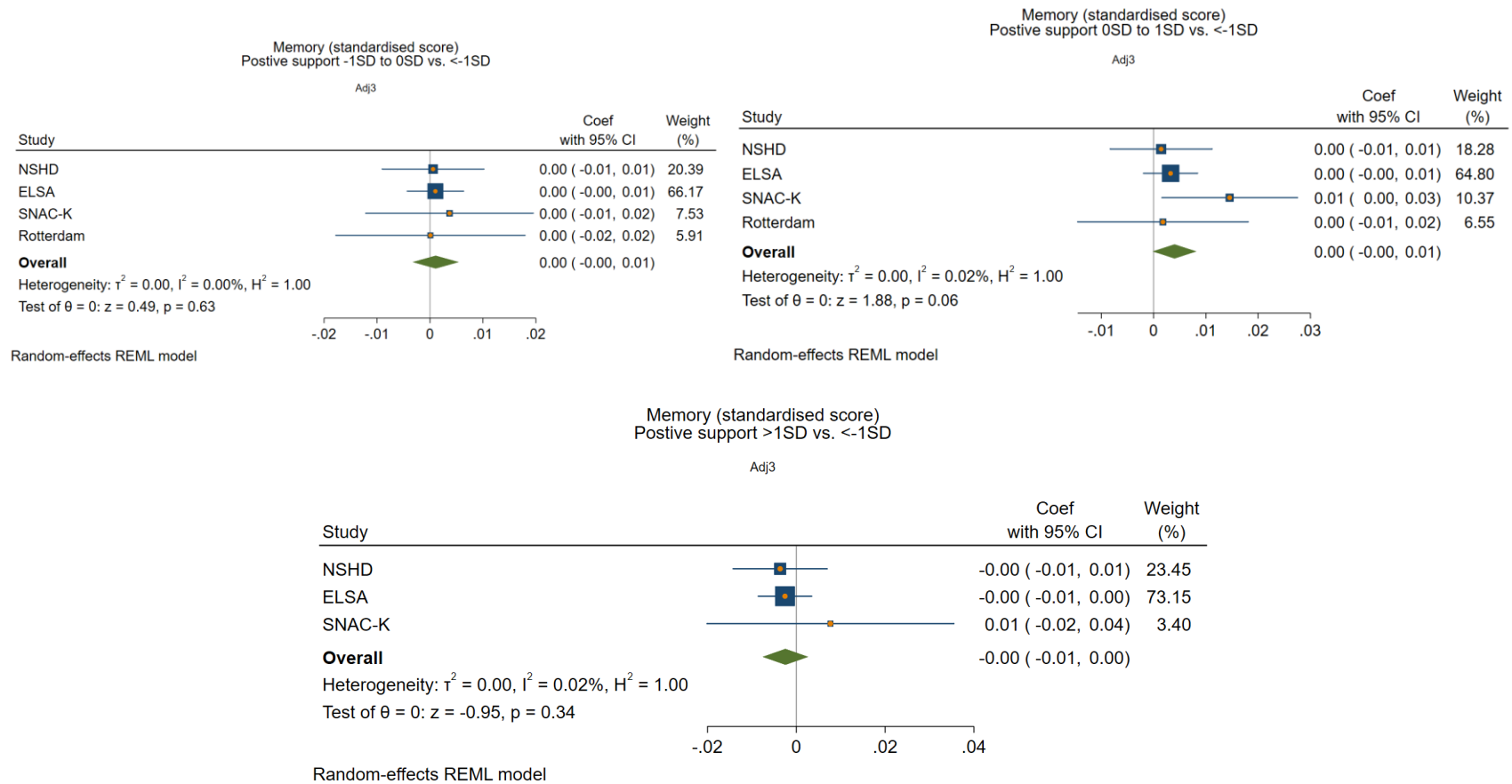
Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions

#### Participation in social activities

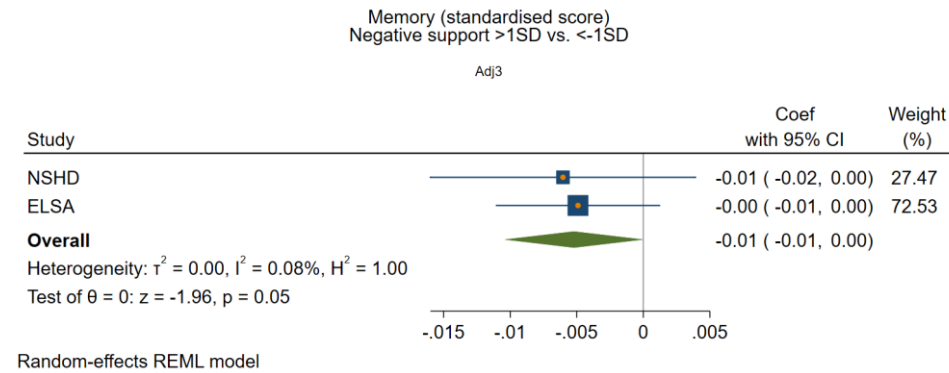
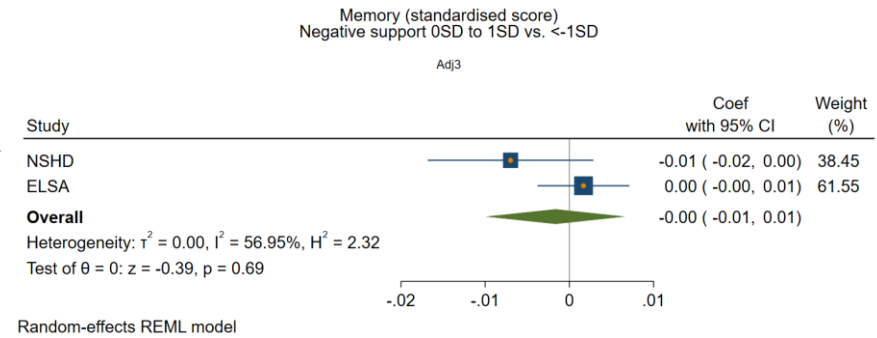
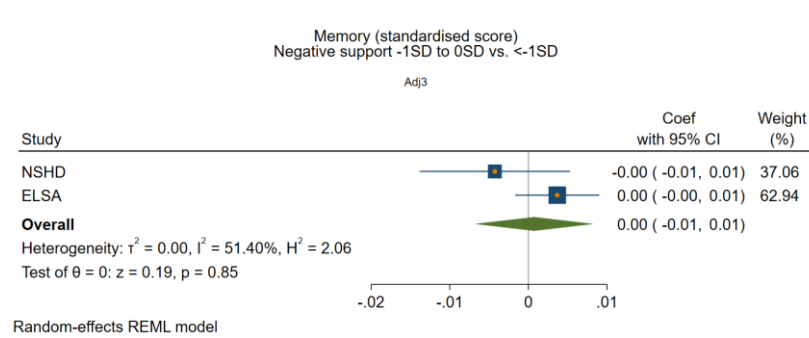




## Perceived positive social support



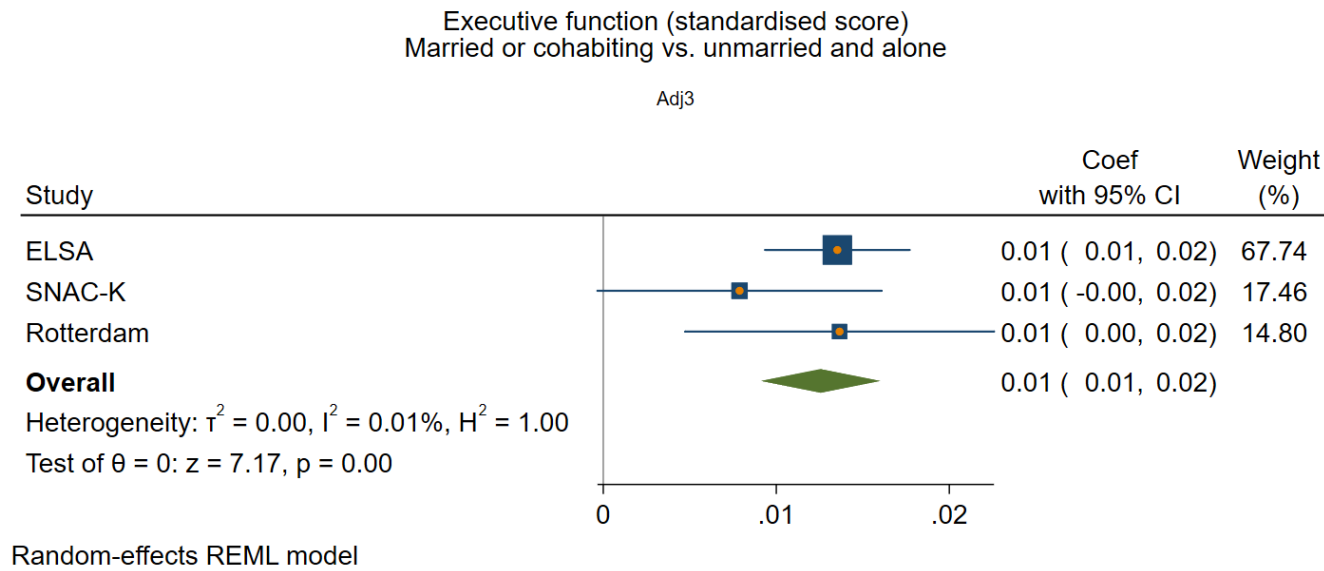
## Perceive negative social support



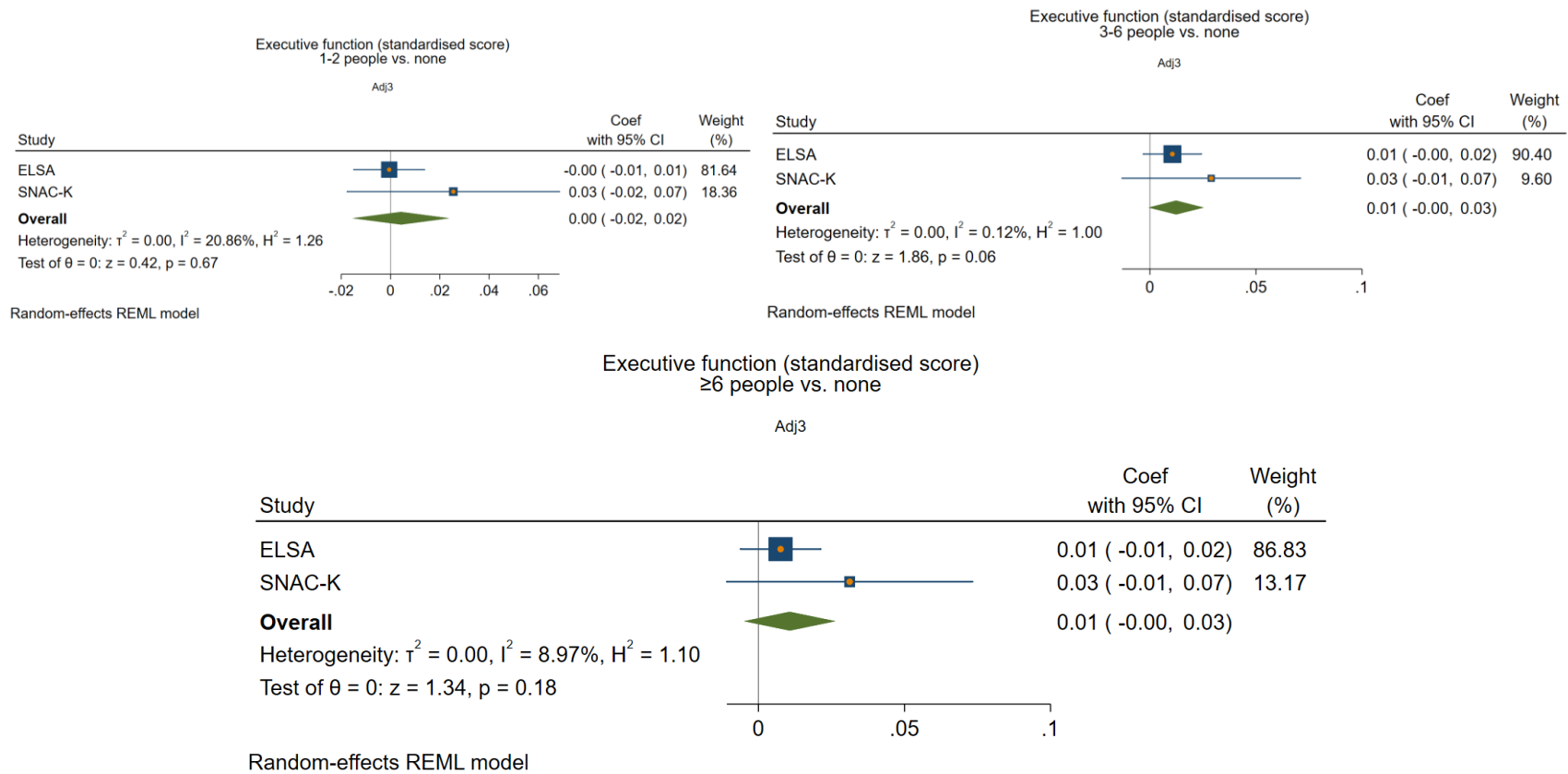
## Supplementary figure 4: Structural social health at baseline and rate of decline in executive function

*Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions.*

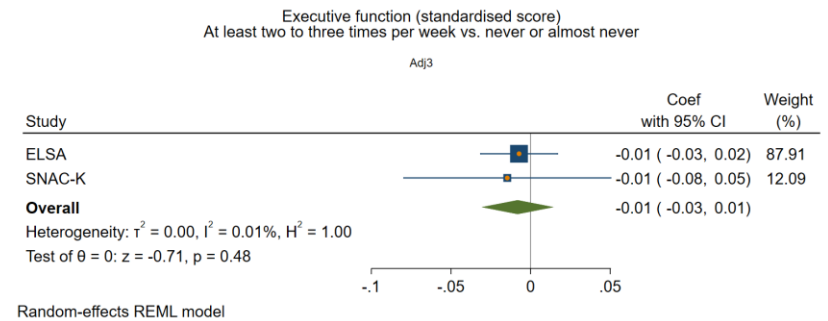
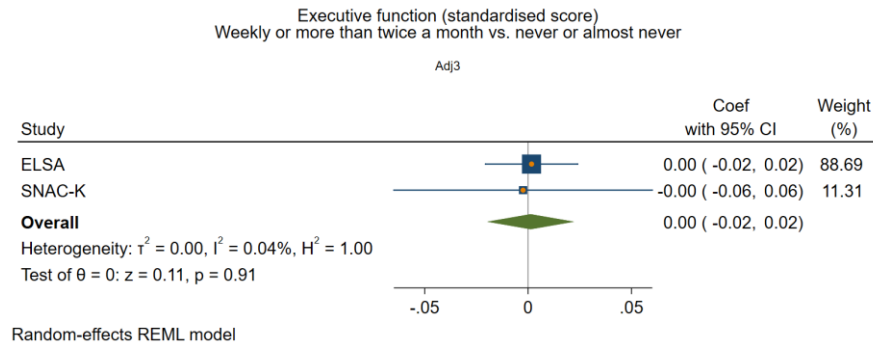
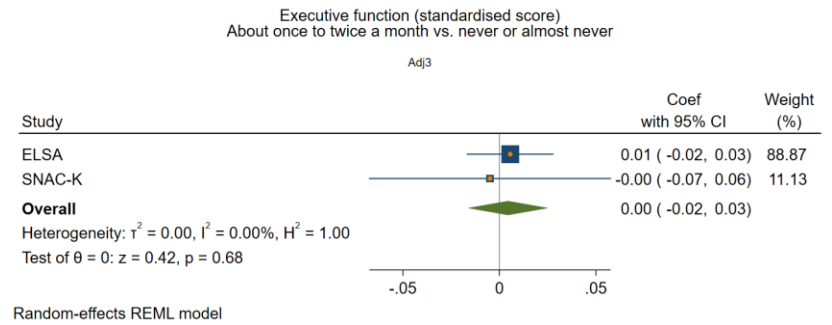
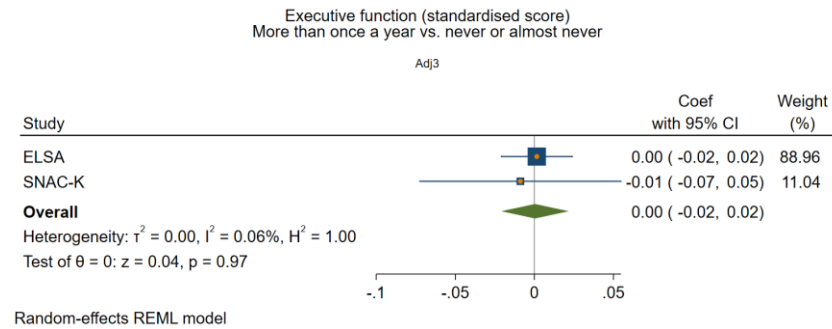
*Marital/cohabitation status*



## Network size



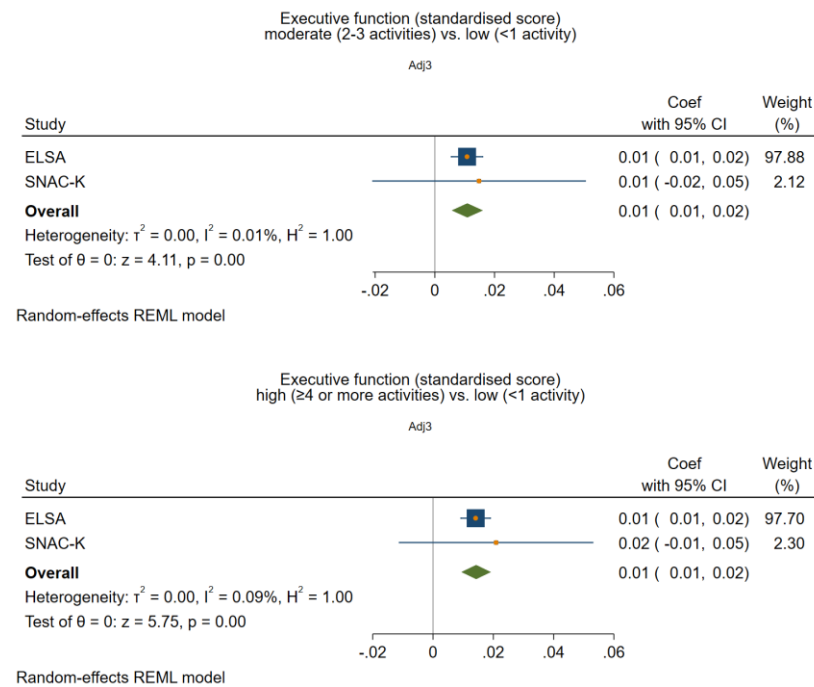
## Frequency of contact



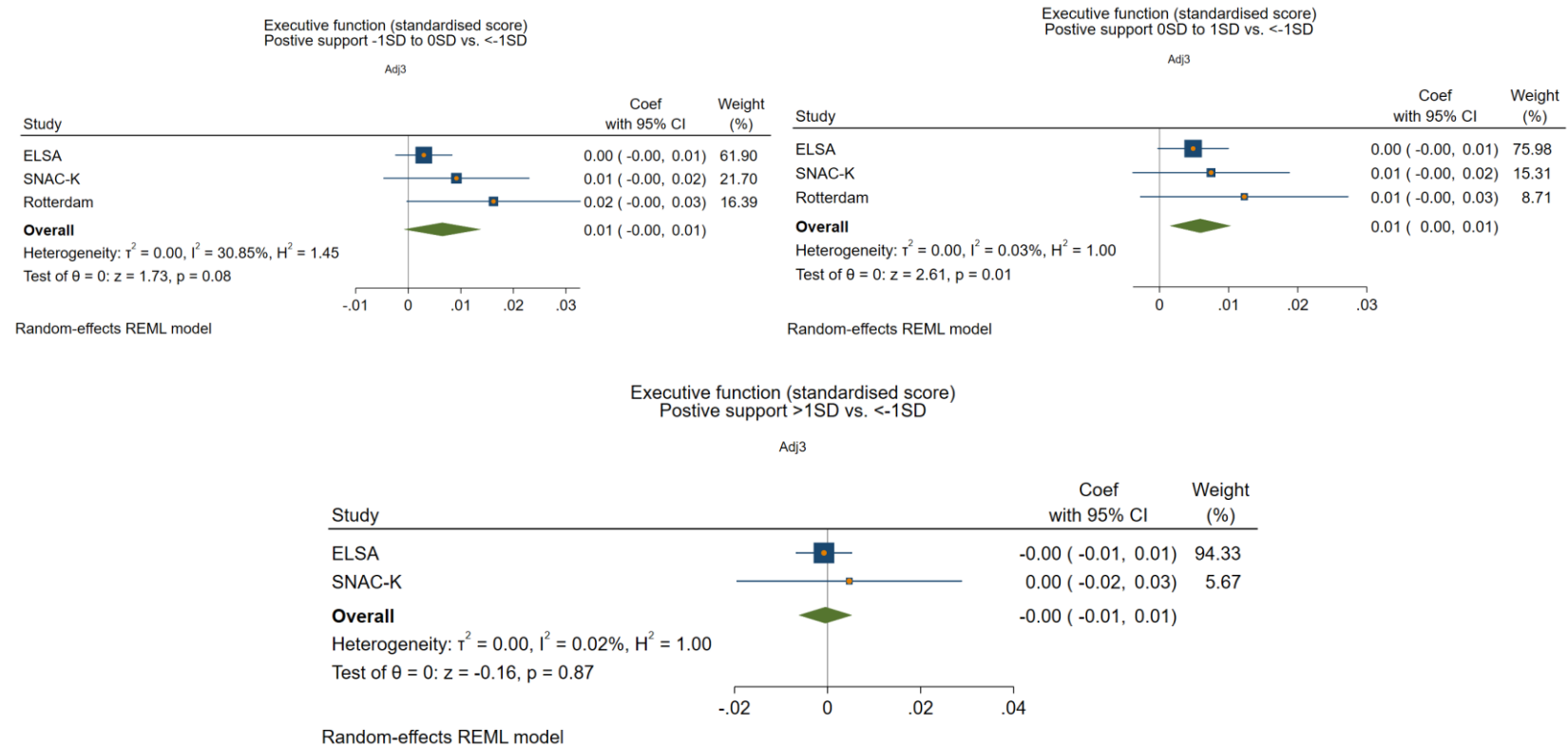
## Supplementary figure 5: Functional social health at baseline and rate of decline in executive function

Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions.

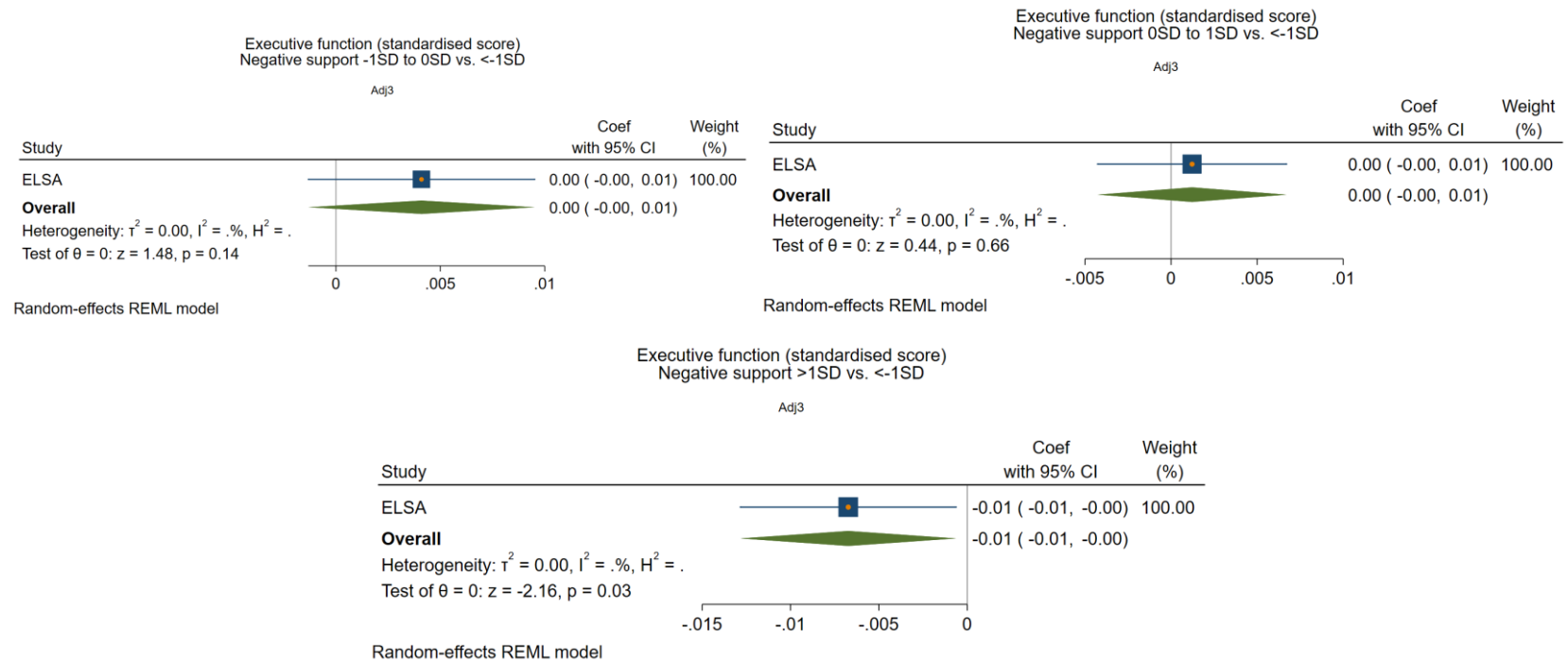
### Participation in social activities



## Perceived positive social support



## Perceived negative social support

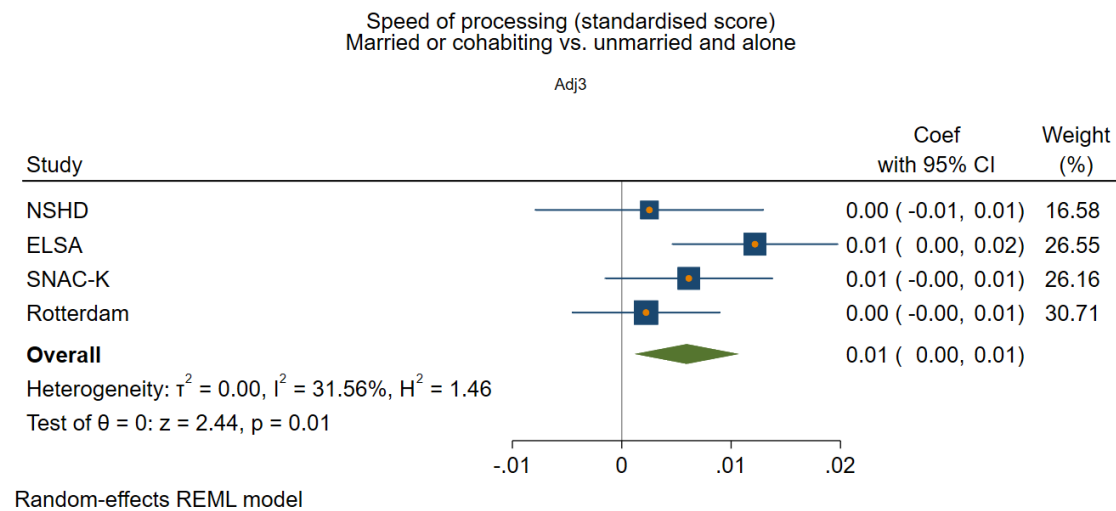




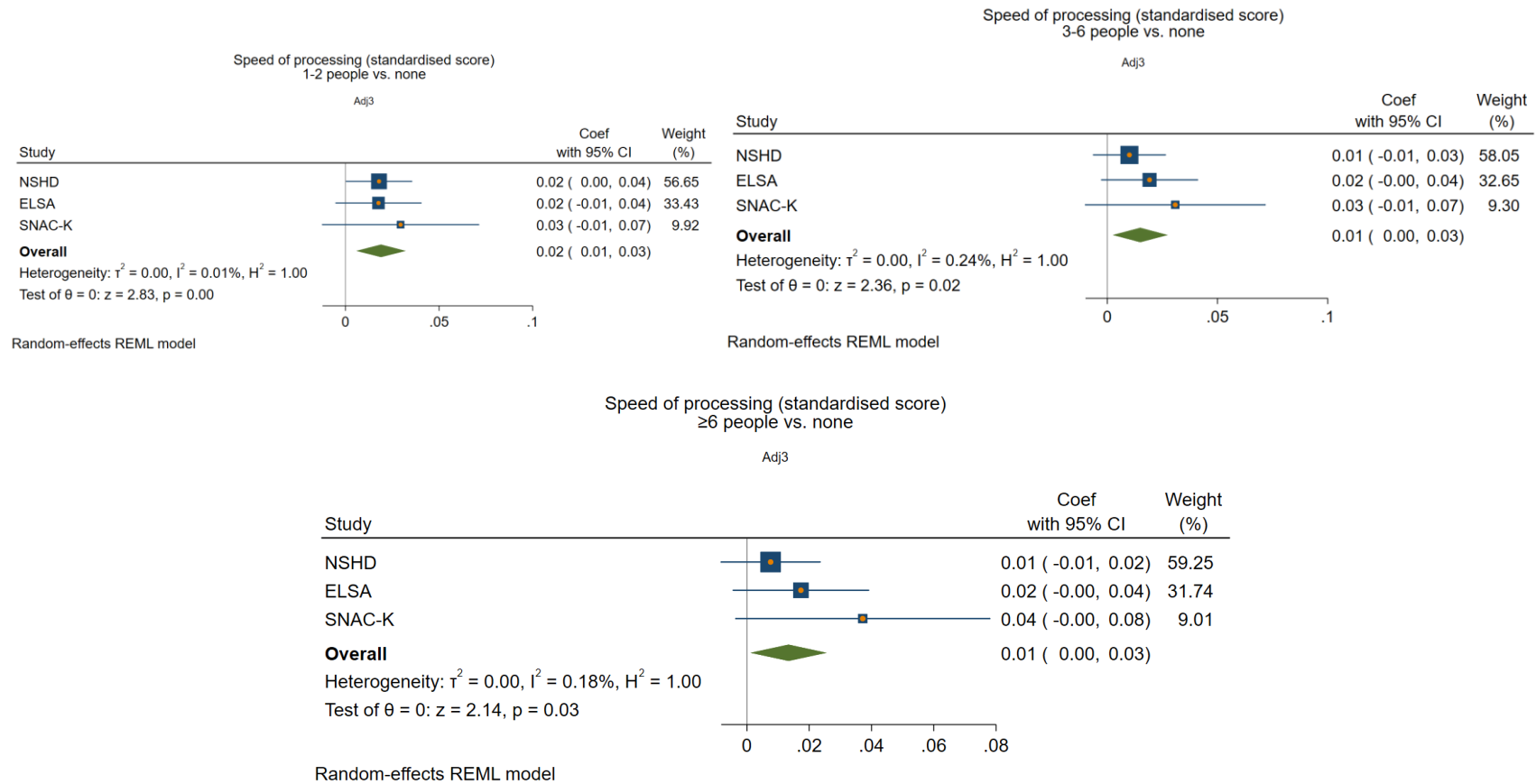
## Supplementary figure 6: Structural social health at baseline and rate of decline in processing speed

*Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions.*

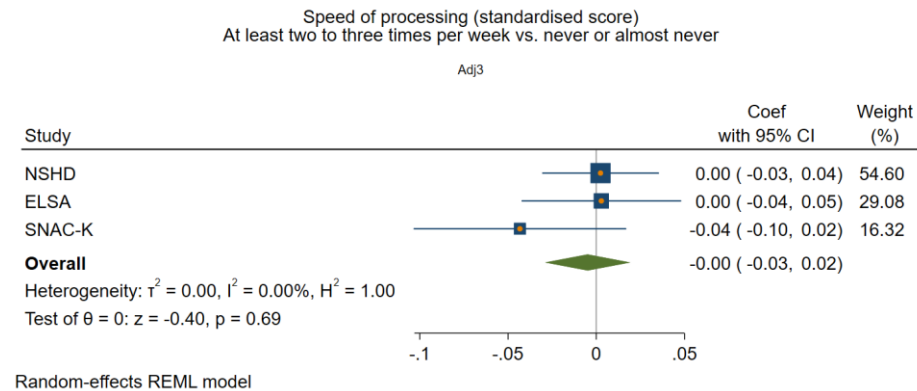
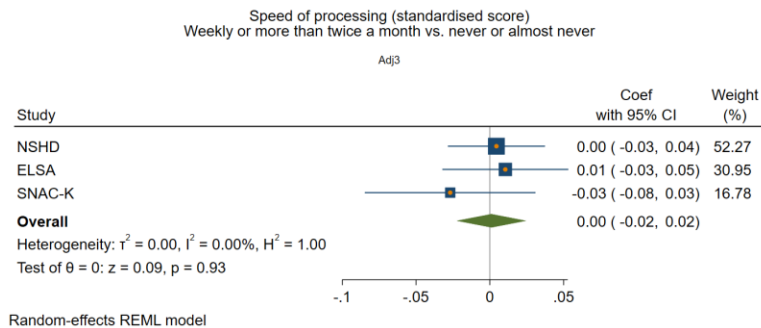
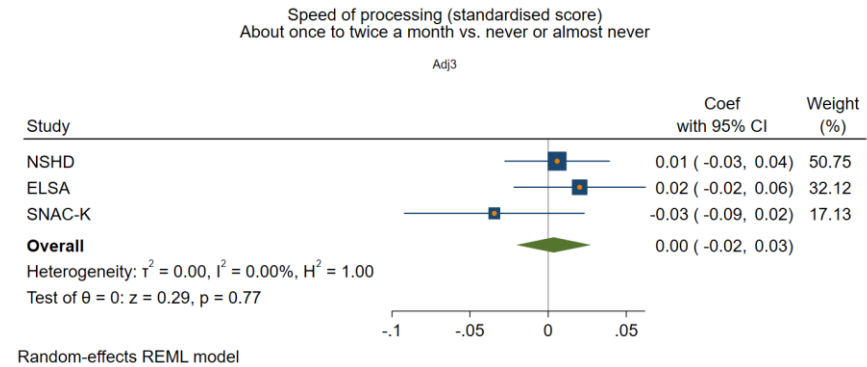
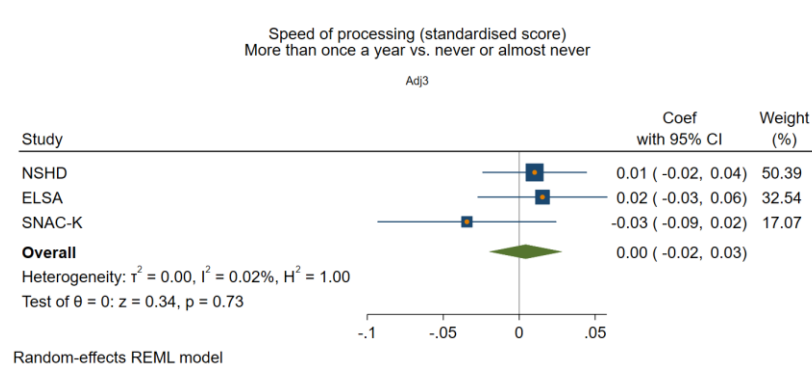
### *Marital/cohabitation status*



## Network size



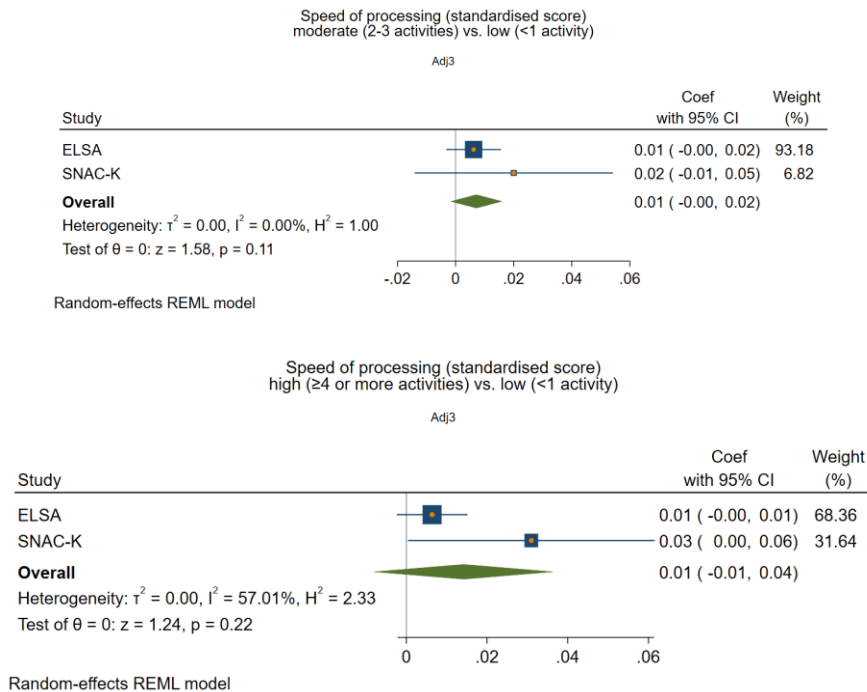
## Frequency of contact



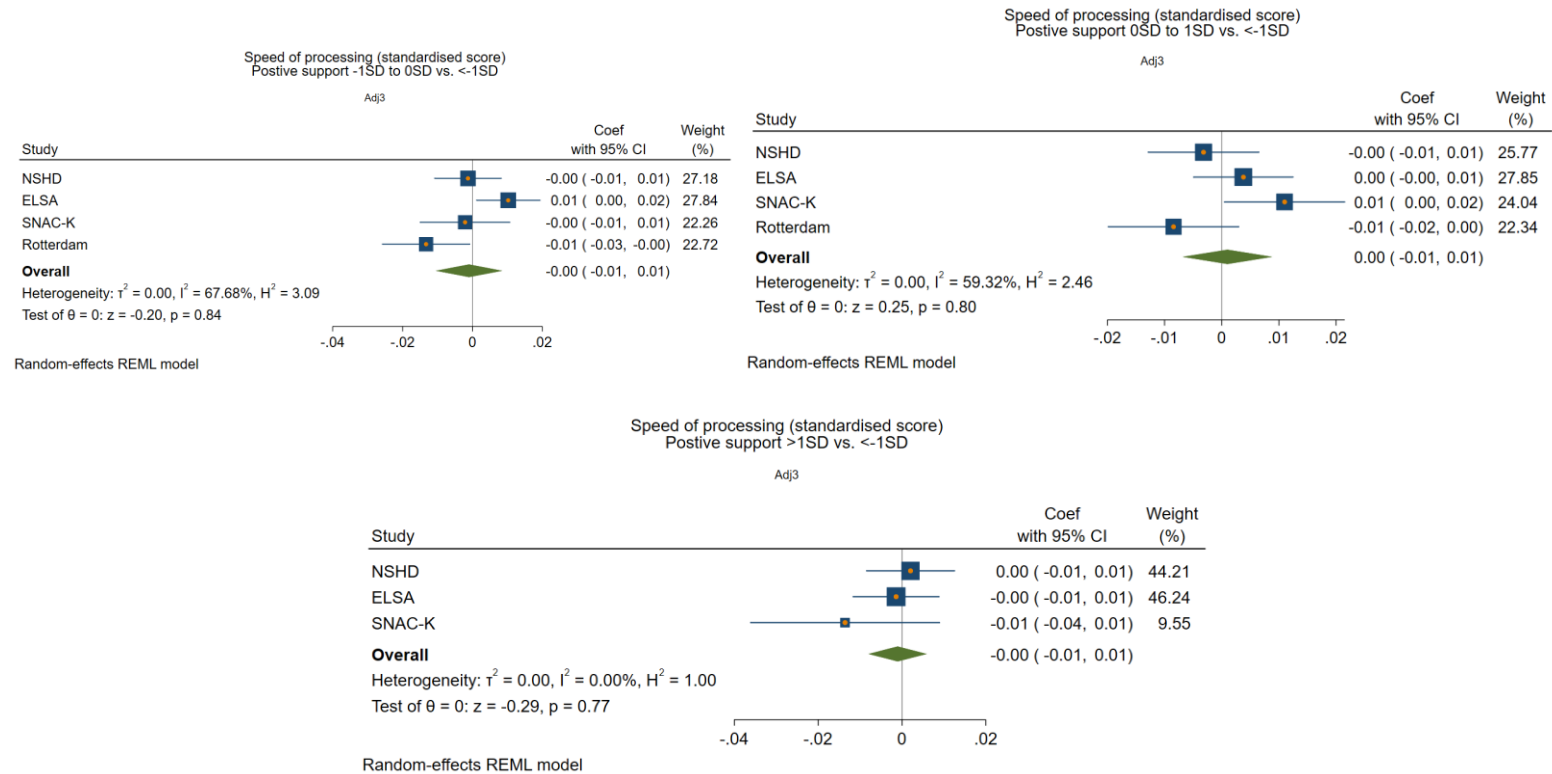
## Supplementary figure 7: Functional social health at baseline and rate of decline in processing speed

*Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions.*

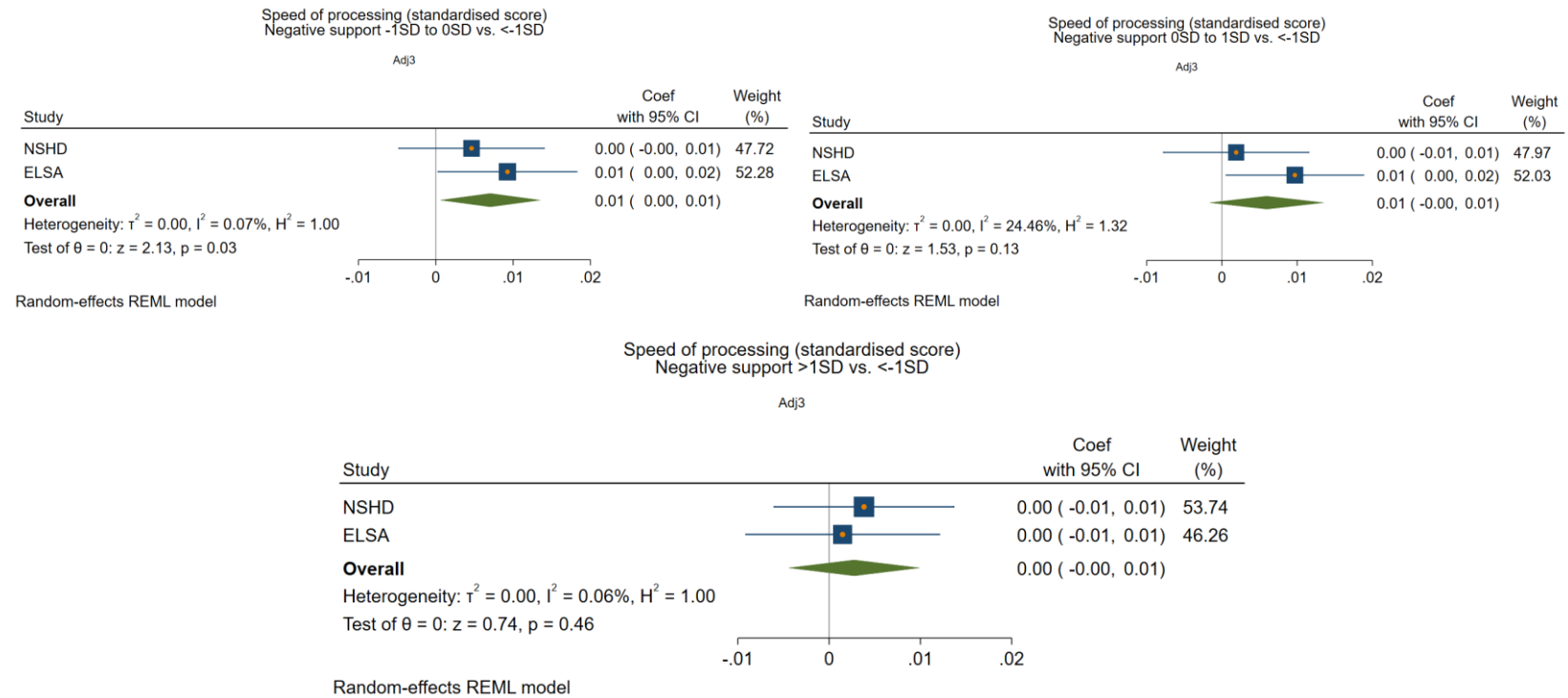
### *Participation in social activities*



## Perceived positive social support



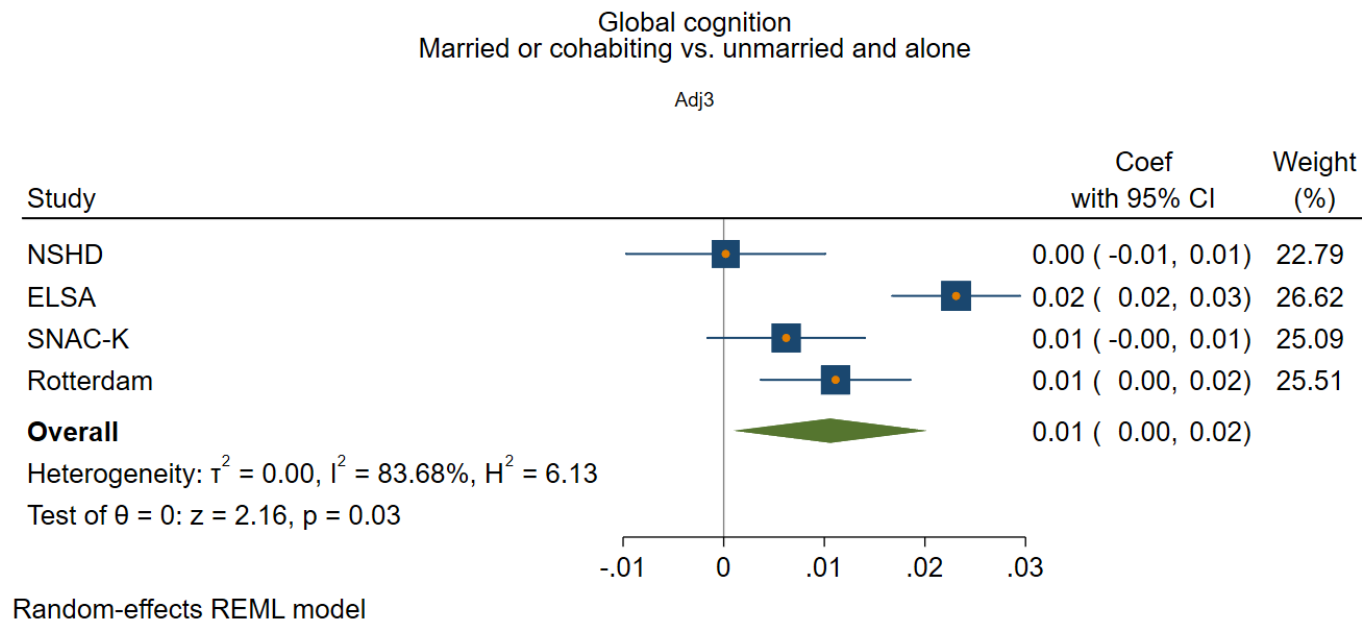
## Perceived negative social support



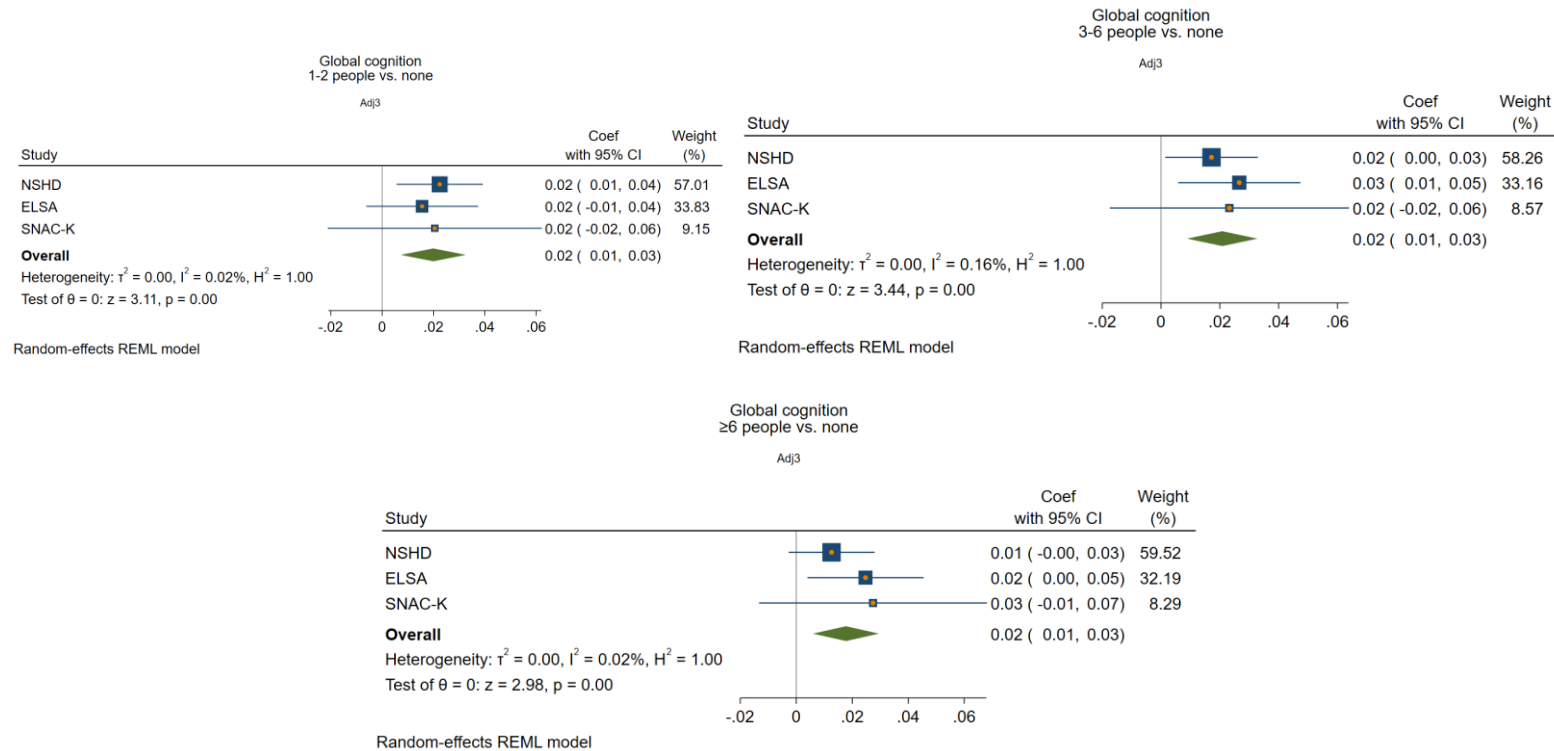
## Supplementary figure 8: Structural social health at baseline and rate of decline in global/composite cognition

Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions.

Marital/cohabitation status

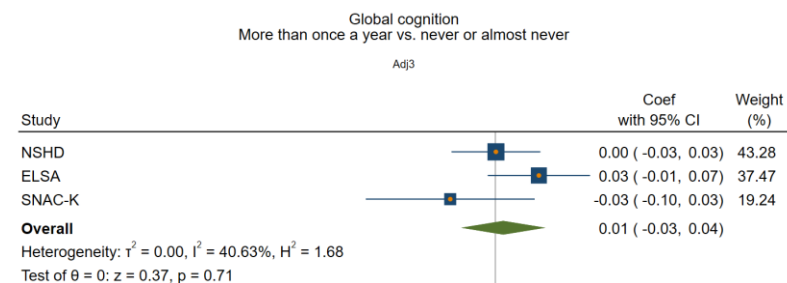


## Network size

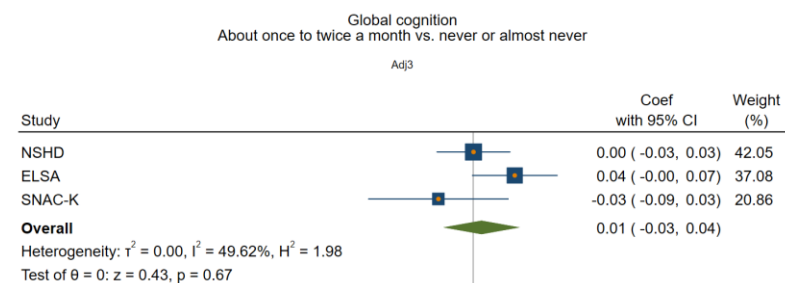




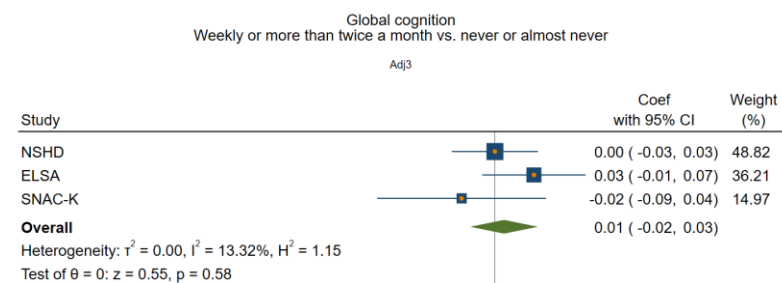
## Frequency of contact



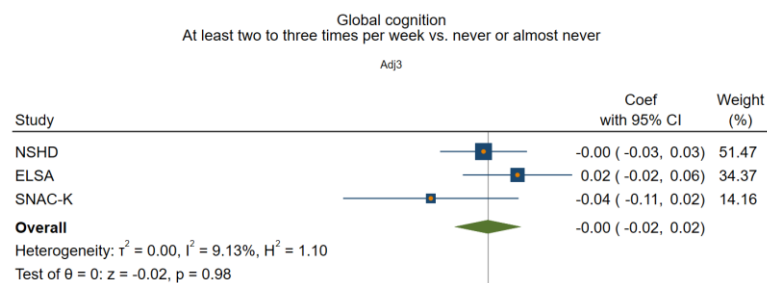
Random-effects REML model



Random-effects REML model



Random-effects REML model

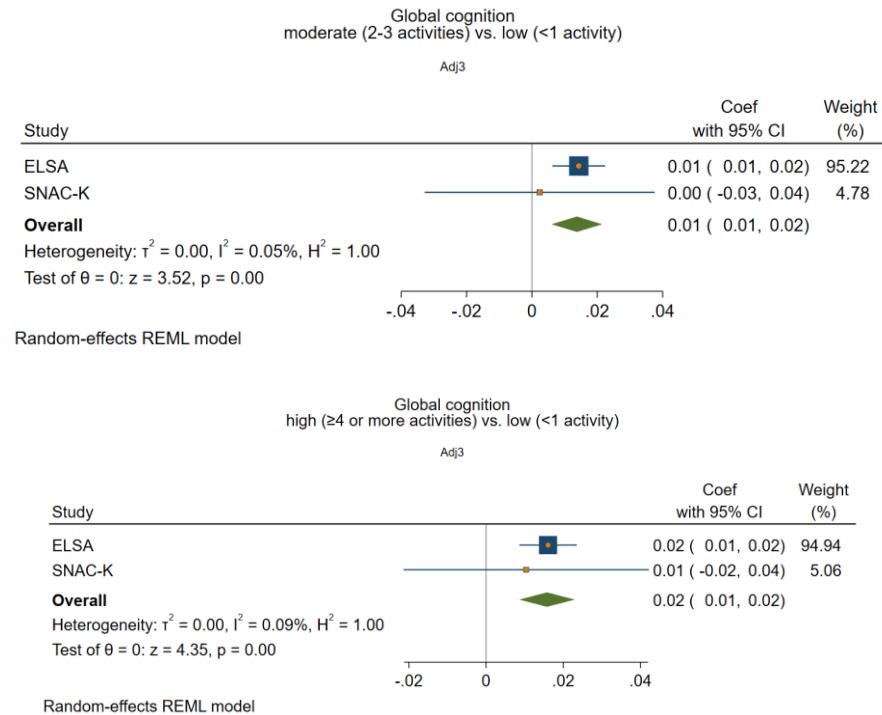


Random-effects REML model

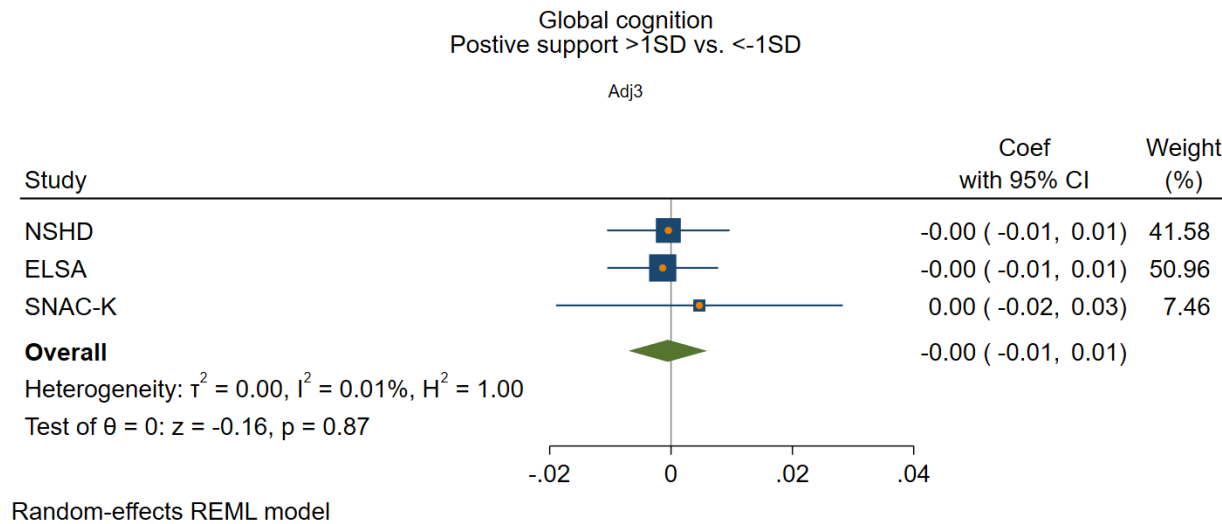
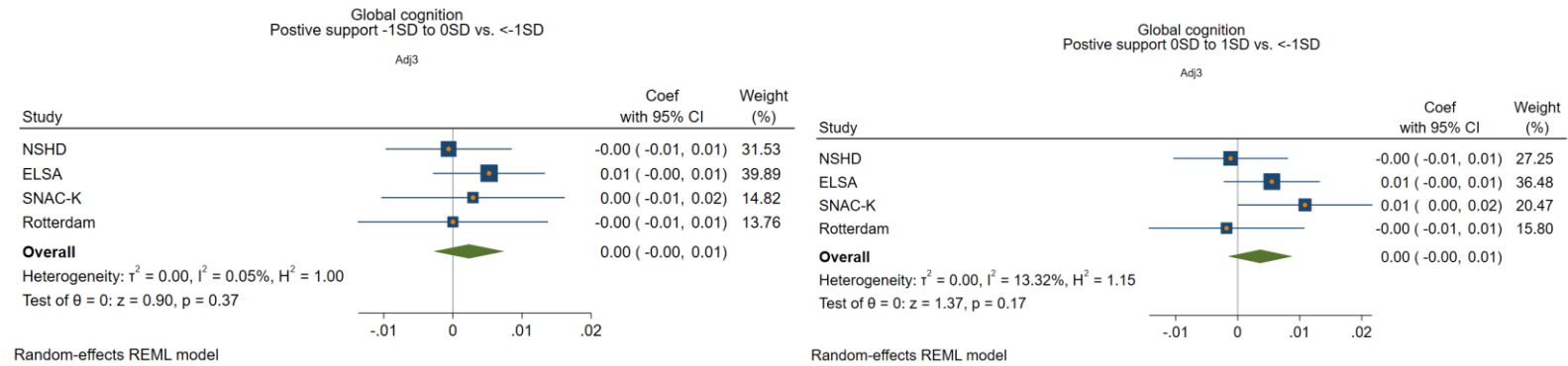
## Supplementary figure 9: Functional social health at baseline and rate of decline in global/composite cognition

*Adjusted for sex and age at baseline, social class, education, IADL, and vascular-related health conditions*

### *Participation in social activities*



## Perceived positive social support



## Perceived negative social support

