**Online Supplemental Materials 1**

**Table 1**

*Descriptive Statistics Item Pool Financial Subscale*

| Item | Mean | SD | Median | Range | Skew | Kurtosis |
| --- | --- | --- | --- | --- | --- | --- |
| *Parent -> Parent (N= 138)* | | | | | | |
| F1 | 7.49 | 2.58 | 8.0 | 9 | -0.89 | -0.27 |
| F2 | 7.71 | 2.14 | 8.0 | 9 | -1.06 | 0.91 |
| **F3** | **8.23** | **2.18** | **8.5** | **9** | **-1.47** | **2.01** |
| F4 | 7.65 | 2.66 | 8.0 | 9 | -1.07 | 0.05 |
| F5 | 7.79 | 2.36 | 8.0 | 9 | -1.06 | 0.36 |
| F6 | 7.48 | 2.29 | 8.0 | 9 | -0.86 | 0.19 |
| F7 | 7.82 | 2.19 | 8.0 | 9 | -0.86 | -0.16 |
| F8 | 8.02 | 2.11 | 8.0 | 8 | -0.97 | 0.01 |
| F9 | 7.67 | 2.08 | 8.0 | 9 | -0.89 | 0.24 |
| F10 | 7.26 | 2.20 | 8.0 | 9 | -0.69 | -0.18 |
| *Child -> Child (N= 101)* | | | | | | |
| F1 | 7.07 | 2.48 | 8.0 | 9 | -0.64 | -0.50 |
| F2 | 7.62 | 2.20 | 8.0 | 9 | -0.57 | -0.59 |
| **F3** | **8.22** | **2.13** | **9.0** | **9** | **-1.32** | **1.28** |
| F4 | 7.60 | 2.49 | 8.0 | 9 | -1.04 | 0.21 |
| F5 | 7.24 | 2.40 | 8.0 | 9 | -0.86 | 0.15 |
| F6 | 7.49 | 2.11 | 8.0 | 7 | -0.42 | -0.91 |
| F7 | 7.47 | 2.38 | 8.0 | 9 | -0.86 | -0.04 |
| F8 | 7.91 | 2.32 | 8.0 | 9 | -0.98 | 0.01 |
| F9 | 7.49 | 2.31 | 8.0 | 9 | -0.92 | 0.31 |
| F10 | 7.17 | 2.29 | 8.0 | 9 | -0.70 | -0.30 |
| *Parent -> Child (N= 139)* | | | | | | |
| F1 | 7.57 | 2.47 | 8.0 | 9 | -0.87 | -0.25 |
| F2 | 7.78 | 2.46 | 8.0 | 9 | -1.05 | 0.17 |
| **F3** | **8.78** | **1.77** | **10.0** | **9** | **-1.67** | **2.80** |
| F4 | 7.80 | 2.55 | 8.0 | 9 | -1.02 | -0.08 |
| F5 | 8.40 | 1.84 | 9.0 | 8 | -1.25 | 1.27 |
| F6 | 8.51 | 1.90 | 9.0 | 9 | -1.79 | 3.60 |
| F7 | 8.21 | 2.25 | 9.0 | 9 | -1.37 | 1.05 |
| F8 | 8.59 | 1.83 | 9.0 | 8 | -1.54 | 2.10 |
| F9 | 8.44 | 1.85 | 9.0 | 9 | -1.66 | 3.28 |
| F10 | 8.01 | 1.77 | 8.0 | 8 | -0.89 | 0.56 |
| *Child -> Parent (N = 123)* | | | | | | |
| F1 | 7.76 | 2.05 | 8.0 | 9 | -0.79 | 0.13 |
| F2 | 7.60 | 1.95 | 8.0 | 9 | -0.60 | 0.08 |
| **F3** | **8.37** | **1.81** | **8.0** | **9** | **-1.39** | **2.40** |
| F4 | 7.63 | 2.36 | 8.0 | 9 | -0.89 | -0.03 |
| F5 | 7.41 | 2.22 | 8.0 | 8 | -0.74 | 0.10 |
| F6 | 7.67 | 2.03 | 8.0 | 9 | -0.89 | 0.64 |
| F7 | 7.30 | 2.34 | 8.0 | 9 | -0.71 | -0.30 |
| F8 | 7.95 | 2.10 | 8.0 | 9 | -1.05 | 0.67 |
| F9 | 7.67 | 2.25 | 8.0 | 9 | -1.01 | 0.58 |
| F10 | 7.42 | 2.15 | 8.0 | 8 | -0.69 | -0.51 |

*Note.*  Bold items were removed based on Item Analysis

**Table 2**

*Descriptive Statistics Item Pool Practical Subscale*

| Item | Mean | SD | Median | Range | Skew | Kurtosis |
| --- | --- | --- | --- | --- | --- | --- |
| *Parent -> Parent (N= 138)* | | | | | | |
| **P1** | **9.23** | **1.13** | **10.0** | **5** | **-1.41** | **1.51** |
| **P2** | **9.36** | **1.00** | **10.0** | **5** | **-1.48** | **2.05** |
| **P3** | **9.21** | **1.55** | **10.0** | **9** | **-2.69** | **8.63** |
| P4 | 8.97 | 1.60 | 10.0 | 9 | -2.06 | 5.13 |
| P5 | 8.98 | 1.54 | 10.0 | 9 | -2.50 | 9.00 |
| P6 | 8.36 | 1.75 | 9.0 | 8 | -1.25 | 1.42 |
| P7 | 8.29 | 1.87 | 8.0 | 9 | -1.40 | 2.06 |
| P8 | 8.12 | 2.25 | 8.5 | 9 | -1.30 | 1.02 |
| P9 | 8.27 | 1.93 | 9.0 | 8 | -1.21 | 0.80 |
| *Child -> Child (N= 101)* | | | | | | |
| **P1** | **8.34** | **1.83** | **8.0** | **9** | **-1.40** | **2.37** |
| **P2** | **8.61** | **1.51** | **9.0** | **7** | **-1.22** | **1.37** |
| **P3** | **8.42** | **2.29** | **10.0** | **9** | **-1.46** | **1.28** |
| P4 | 7.51 | 2.28 | 8.0 | 9 | -0.57 | -0.63 |
| P5 | 7.70 | 1.89 | 8.0 | 7 | -0.44 | -0.77 |
| P6 | 6.89 | 2.39 | 7.0 | 9 | -0.42 | -0.87 |
| P7 | 6.36 | 2.72 | 7.0 | 9 | -0.30 | -1.13 |
| P8 | 6.79 | 2.67 | 8.0 | 9 | -0.53 | -0.89 |
| P9 | 6.43 | 2.53 | 7.0 | 9 | -0.31 | -0.94 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Parent -> Child (N= 139)* | | | | | | |
| **P1** | **9.31** | **1.08** | **10.0** | **5** | **-1.56** | **2.12** |
| **P2** | **9.35** | **1.07** | **10.0** | **5** | **-1.77** | **3.38** |
| **P3** | **9.48** | **1.08** | **10.0** | **5** | **-2.45** | **6.38** |
| P4 | 8.95 | 1.58 | 10.0 | 8 | -1.74 | 3.01 |
| P5 | 8.95 | 1.41 | 10.0 | 8 | -1.87 | 5.10 |
| P6 | 8.58 | 1.73 | 9.0 | 7 | -1.65 | 2.63 |
| P7 | 8.14 | 2.11 | 8.0 | 9 | -1.24 | 1.01 |
| P8 | 8.43 | 2.08 | 9.0 | 9 | -1.47 | 1.43 |
| P9 | 8.50 | 1.90 | 9.0 | 8 | -1.33 | 1.00 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Child -> Parent (N = 123)* | | | | | | |
| **P1** | **8.35** | **1.58** | **8.0** | **7** | **-0.95** | **0.50** |
| **P2** | **8.56** | **1.41** | **8.0** | **6** | **-0.73** | **0.00** |
| **P3** | **8.04** | **2.21** | **8.0** | **8** | **-0.84** | **-0.44** |
| P4 | 7.89 | 1.81 | 8.0 | 7 | -0.65 | -0.16 |
| P5 | 7.73 | 1.97 | 8.0 | 8 | -0.67 | -0.33 |
| P6 | 6.73 | 2.20 | 7.0 | 9 | -0.24 | -0.77 |
| P7 | 6.52 | 2.41 | 7.0 | 9 | -0.28 | -0.81 |
| P8 | 6.95 | 2.35 | 8.0 | 8 | -0.29 | -1.14 |
| P9 | 6.16 | 2.32 | 6.0 | 8 | 0.05 | -1.09 |

*Note.*  Bold items were removed based on Item Analysis

**Table 3**

*Descriptive Statistics Item Pool Emotional Subscale*

| Item | Mean | SD | Median | Range | Skew | Kurtosis |
| --- | --- | --- | --- | --- | --- | --- |
| *Parent -> Parent (N= 137)* | | | | | | |
| E1 | 8.64 | 1.69 | 9.0 | 9 | -1.73 | 3.58 |
| **E2** | **9.15** | **1.14** | **10.0** | **5** | **-1.09** | **0.45** |
| **E3** | **9.26** | **1.18** | **10.0** | **6** | **-1.94** | **4.33** |
| E4 | 8.26 | 1.76 | 8.0 | 7 | -1.13 | 1.03 |
| **E5** | **9.15** | **1.41** | **10.0** | **9** | **-2.44** | **8.32** |
| E6 | 6.77 | 2.61 | 8.0 | 9 | -0.72 | -0.63 |
| E7 | 7.89 | 1.89 | 8.0 | 7 | -0.86 | 0.20 |
| E8 | 8.08 | 1.88 | 8.0 | 8 | -1.16 | 1.10 |
| E9 | 8.25 | 1.71 | 8.0 | 9 | -1.08 | 1.78 |
| **E10** | **9.66** | **0.74** | **10.0** | **3** | **-1.86** | **1.92** |
| *Child -> Child (N= 101)* | | | | | | |
| E1 | 8.46 | 1.87 | 9.0 | 9 | -1.37 | 1.75 |
| **E2** | **7.98** | **2.09** | **8.0** | **7** | **-0.82** | **-0.33** |
| **E3** | **8.83** | **1.86** | **10.0** | **9** | **-1.88** | **3.36** |
| E4 | 7.93 | 2.26 | 8.0 | 9 | -0.95 | 0.10 |
| **E5** | **8.85** | **1.54** | **10.0** | **7** | **-1.43** | **1.79** |
| E6 | 7.93 | 2.19 | 8.0 | 9 | -0.97 | 0.13 |
| E7 | 7.22 | 2.44 | 8.0 | 9 | -0.95 | 0.14 |
| E8 | 7.68 | 2.17 | 8.0 | 9 | -0.85 | 0.39 |
| E9 | 8.20 | 1.93 | 9.0 | 8 | -0.84 | -0.15 |
| **E10** | **9.70** | **0.69** | **10.0** | **2** | **-1.92** | **1.89** |
| *Parent -> Child (N= 139)* | | | | | | |
| E1 | 8.77 | 1.70 | 10.0 | 9 | -1.86 | 4.08 |
| **E2** | **9.25** | **1.16** | **10.0** | **6** | **-1.70** | **3.00** |
| **E3** | **9.37** | **1.02** | **10.0** | **4** | **-1.55** | **1.66** |
| E4 | 8.09 | 1.78 | 8.0 | 7 | -0.70 | -0.33 |
| **E5** | **9.13** | **1.33** | **10.0** | **9** | **-2.45** | **9.41** |
| E6 | 8.10 | 2.09 | 8.0 | 9 | -1.20 | 1.10 |
| E7 | 8.14 | 1.84 | 8.0 | 8 | -0.93 | 0.39 |
| E8 | 8.51 | 1.81 | 9.0 | 8 | -1.49 | 2.03 |
| E9 | 8.54 | 1.58 | 9.0 | 7 | -0.90 | 0.15 |
| **E10** | **9.63** | **1.11** | **10.0** | **9** | **-5.06** | **33.11** |
| *Child -> Parent (N = 123)* | | | | | | |
| E1 | 8.01 | 2.02 | 8.0 | 8 | -0.91 | 0.15 |
| **E2** | **7.48** | **2.16** | **8.0** | **9** | **-0.77** | **0.07** |
| **E3** | **8.56** | **1.56** | **9.0** | **6** | **-0.87** | **-0.16** |
| E4 | 7.48 | 2.08 | 8.0 | 9 | -0.60 | -0.21 |
| **E5** | **8.72** | **1.47** | **9.0** | **6** | **-0.99** | **0.27** |
| E6 | 7.31 | 2.43 | 8.0 | 9 | -0.77 | -0.27 |
| E7 | 7.55 | 2.31 | 8.0 | 9 | -1.11 | 0.61 |
| E8 | 7.57 | 1.83 | 8.0 | 7 | -0.47 | -0.42 |
| E9 | 8.10 | 1.68 | 8.0 | 7 | -0.64 | -0.33 |
| **E10** | **9.56** | **0.92** | **10.0** | **4** | **-2.01** | **3.39** |

*Note.*  Bold items were removed based on Item Analysis

Items:

F1: If … needs money, I am willing to earn extra money for … .

F2: I would help…, no matter how much money it costs me.

F3: If needed, I would use my own savings to take care of … .

F4: If helping ... means giving money, I would rather not do it (Reverse scored).

F5: I’m willing to donate personal belongings I find important to…, should … need them.

F6: If there is little money available, I would ask or buy less for myself so there is more money for … .

F7: I want to help … , but not if it means I receive or earn less myself.

F8: I’d rather not help … if it means I receiver or earn less money.

F9: I would refrain from spending money for myself if I would notice … needs money.

F10: How much of your own possessions would you give away if you know it would help … ?

P1: If … needs my help for something, I don’t mind helping out.

P2: I am always willing to help … .

P3: If it was up to me, I’d rather not help … .

P4: If I see … needs help, I ask if I can do something.

P5: I usually don't think it's too much to ask when... asks me for help.

P6: I would give up things very important to me if … asks me for help.

P7: I don’t mind putting my own plans aside if that means I can help … .

P8: I only want to help … if it is not at my own expense.

P9: I rather not help … if that means I no longer have time to do things that I myself enjoy or find important (Reverse scored).

E1: If I notice that … is struggling, I try my best to get … to laugh again.

E2: If ... has problems, I try to find a solution together with ....

E3: Whenever ... comes to me with problems, I try my best to listen.

E4: If I see that … is sad, I propose doing something fun together.

E5: If I can make … feel good, then I try to do that.

E6: I keep my own problems to myself when I notice … is struggling.

E7: I don’t mind doing things against my will for … if I know that it will make … happy.

E8: I would give up something for myself if … feels better as a result.

E9: I try my best to make … happy, even when it takes a lot of effort myself.

E10: It is important to me that … is happy.

**Online Supplemental Materials 2**

**Table 1**

*Results of Exploratory Factor Analyses for the Financial Subscale*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor loadings | | | | |
| Item | Financial solidarity | | | |
|  | *Parent -> Parent (N= 138)* | *Child -> Child (N= 101)* | *Parent -> Child (N= 139)* | *Child -> Parent (N = 123)* |
| **F1** | **.692** | **.552** | **.639** | **.582** |
| **F2** | **.652** | **.556** | **.671** | **.661** |
| **F4** | **.655** | **.594** | **.611** | **.622** |
| **F5** | **.695** | **.636** | **.600** | **.649** |
| F6 | .463 | .648 | .415 | .417 |
| F7 | .703 | .680 | .616 | .545 |
| F8 | .658 | .776 | .647 | .545 |
| F9 | .605 | .543 | .378 | .399 |
| F10 | .731 | .627 | .655 | .620 |
| Eigenvalues | 4.12 | 4.13 | 3.76 | 3.55 |
| % of variance | 0.43 | 0.39 | 0.35 | 0.32 |
| Overall MSA | 0.82 | 0.83 | 0.84 | 0.78 |

*Note.* Factor extraction method: Principal Axis Factoring. Bold items are the ones retained.

**Table 2**

*Results of Exploratory Factor Analyses for the Practical Subscale*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor loadings | | | | |
| Item | Practical solidarity | | | |
|  | *Parent -> Parent (N= 138)* | *Child -> Child (N= 101)* | *Parent -> Child (N= 139)* | *Child -> Parent (N = 123)* |
| **P4** | **.623** | **.592** | **.579** | **.564** |
| P5 | .489 | .602 | .773 | .522 |
| **P6** | **.844** | **.824** | **.732** | **.682** |
| **P7** | **.727** | **.755** | **.780** | **.752** |
| P8 | .612 | .567 | .516 | .495 |
| **P9** | **.679** | **.776** | **.613** | **.664** |
| Eigenvalues | 3.21 | 3.37 | 3.23 | 2.89 |
| % of variance | 0.45 | 0.48 | 0.45 | 0.38 |
| Overall MSA | 0.77 | 0.82 | 0.77 | 0.79 |

*Note.* Factor extraction method: Principal Axis Factoring. Bold items are the ones retained

**Table 3**

*Results of Exploratory Factor Analyses for the Emotional Subscale*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor loadings | | | | |
| Item | Emotional solidarity | | | |
|  | *Parent -> Parent (N= 137)* | *Child -> Child (N= 101)* | *Parent -> Child (N= 139)* | *Child -> Parent (N = 123)* |
| E1 | .486 | .628 | .503 | .734 |
| **E4** | **.654** | **.752** | **.586** | **.660** |
| E6 | .173 | <.100 | .391 | .116 |
| **E7** | **.760** | **.643** | **.647** | **.498** |
| **E8** | **.712** | **.731** | **.743** | **.747** |
| **E9** | **.714** | **.843** | **.762** | **.815** |
| Eigenvalues | 2.82 | 3.08 | 2.87 | 2.94 |
| % of variance | 0.38 | 0.44 | 0.38 | 0.41 |
| Overall MSA | 0.77 | 0.80 | 0.79 | 0.77 |

*Note.* Factor extraction method: Principal Axis Factoring. Bold items are the ones retained

**Online Supplemental Materials 3**

**Table 1**

*Results from the Financial Subscale Confirmatory Factor Analyses*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor loadings | | | | | | | | | | | | |
| Financial solidarity | | | | | | | | | | | | |
| Item | | *Parent -> Parent (N= 138)* | | | *Child -> Child (N= 101)* | | | *Parent -> Child (N= 139)* | | | *Child -> Parent (N = 123)* | |
|  | Unstandardized | | Standardized | Unstandardized | | Standardized | Unstandardized | | Standardized | Unstandardized | | Standardized |
| F1 | 1.00 (-) | | .75 | 1.00 (-) | | .78 | 1.00 (-) | | .71 | 1.00 (-) | | .65 |
| F2 | 0.95 (.13) | | .86 | .90 (.14) | | .78 | 1.09 (.17) | | .77 | .1.09 (.20) | | .74 |
| F4 | .85 (.16) | | .62 | .67 (.16) | | .52 | .87 (.15) | | .59 | 1.18 (.23) | | .66 |
| F5 | .67 (.12) | | .55 | .62 (.13) | | .50 | .51 (.12) | | .49 | .82 (.18) | | .49 |
| χ2 (df) | 5.67 (2) | | | 0.38 (2) | | | 0.12 (2) | | | 0.15 (2) | | |
| CFI | 0.97 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| TLI | 0.91 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| SRMR | 0.03 | | | 0.01 | | | 0.01 | | | 0.01 | | |

*Note*. Dashes (--) indicate the standard error was not estimated. Robust Fit indices reported.

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

**Table 2**

*Results from the Practical Subscale Confirmatory Factor Analyses*

| Factor loadings | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Practical solidarity | | | | | | | | | | | | |
| Item | | *Parent -> Parent (N= 138)* | | | *Child -> Child (N= 101)* | | | *Parent -> Child (N= 139)* | | | *Child -> Parent (N = 123)* | |
|  | Unstandardized | | Standardized | Unstandardized | | Standardized | Unstandardized | | Standardized | Unstandardized | | Standardized |
| P4 | 1.00 (-) | | .55 | 1.00 (-) | | .52 | 1.00 (-) | | .51 | 1.00 (-) | | .48 |
| P6 | 1.80 (.42) | | .90 | 1.76 (.34) | | .88 | 1.53 (.36) | | .71 | 1.90 (.41) | | .74 |
| P7 | 1.71 (.40) | | .80 | 1.90 (.38) | | .83 | 2.32 (.57) | | .89 | 2.41 (.52) | | .86 |
| P9 | 1.41 (.36) | | .64 | 1.55 (.36) | | .72 | 1.31 (.42) | | .55 | 1.62 (.36) | | .60 |
| χ2 (df) | 0.39 (2) | | | 0.29 (2) | | | 1.49 (2) | | | 1.21 (2) | | |
| CFI | 1.000 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| TLI | 1.000 | | | 1.00 | | | 1.00 | | | 1.00 | | |
| SRMR | 0.01 | | | 0.01 | | | 0.02 | | | 0.02 | | |

*Note*. Dashes (--) indicate the standard error was not estimated. Robust Fit indices reported.

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

**Table 3**

*Results from the Emotional Subscale Confirmatory Factor Analyses*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor loadings | | | | | | | | | | | | |
| Emotional solidarity | | | | | | | | | | | | |
| Item | | *Parent -> Parent (N= 137)* | | | *Child -> Child (N= 101)* | | | *Parent -> Child (N= 139)* | | | *Child -> Parent (N = 123)* | |
|  | Unstandardized | | Standardized | Unstandardized | | Standardized | Unstandardized | | Standardized | Unstandardized | | Standardized |
| E4 | 1.00 (-) | | .56 | 1.00 (-) | | .73 | 1.00 (-) | | .52 | 1.00 (-) | | .59 |
| E7 | 1.52 (.29) | | .79 | .98 (.18) | | .66 | 1.29 (.30) | | .65 | 1.15 (.38) | | .61 |
| E8 | 1.43 (.25) | | .75 | 1.03 (.17) | | .78 | 1.54 (.33) | | .79 | 1.27 (.36) | | .84 |
| E9 | 1.26 (.34) | | .73 | 0.95 (.10) | | .81 | 1.26 (.24) | | .75 | .97 (.13) | | .70 |
| χ2 (df) | 0.04 (2) | | | 3.68 (2) | | | 2.06 (2) | | | 16.59\*\*\* (2) | | |
| CFI | 1.00 | | | 0.99 | | | 1.00 | | | 0.91 | | |
| TLI | 1.00 | | | 0.97 | | | 1.00 | | | 0.71 | | |
| SRMR | 0.00 | | | 0.02 | | | 0.02 | | | 0.05 | | |

*Note*. Dashes (--) indicate the standard error was not estimated. Robust Fit indices reported.

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

**Online Supplemental Materials 4**

Below the R-code for the SRM analysis in part two of the paper can be found.

**Illustration**

**Read in the data**

em\_data <- read.csv("Z:/Studie\_1/Analyse/valid\_study/Scripts/SRM\_illustration/exampledataem\_SRMready\_81fam.txt",  
 sep = "")

We use the 81 stepfamilies for which the maximum amount of missing observed dyadic scores is 6 (out of 12).

**Descriptives**

library(psych)

## Warning: package 'psych' was built under R version 4.1.1

describe(em\_data[,c(122:134)])

## vars n mean sd median trimmed mad min max  
## SO 1 78 7.34 1.93 7.75 7.47 1.85 2.00 10  
## SY 2 55 7.73 1.80 8.00 7.87 2.22 3.00 10  
## SB 3 78 8.34 1.56 8.75 8.53 1.67 4.25 10  
## BO 4 78 8.46 1.30 8.50 8.60 1.48 4.25 10  
## BY 5 62 8.59 1.11 8.62 8.69 1.30 6.00 10  
## BS 6 77 8.20 1.38 8.50 8.33 1.48 4.00 10  
## OY 7 58 7.78 1.64 8.00 7.91 1.48 3.25 10  
## OS 8 68 6.68 1.85 6.50 6.75 2.04 2.25 10  
## OB 9 68 7.92 1.29 8.00 7.98 1.11 5.00 10  
## YO 10 62 7.36 1.82 7.75 7.54 1.48 1.50 10  
## YS 11 64 6.41 2.03 6.50 6.51 1.85 1.00 10  
## YB 12 68 7.70 1.57 8.00 7.77 1.85 3.50 10  
  
## range skew kurtosis se  
## SO 8.00 -0.61 -0.58 0.22  
## SY 7.00 -0.65 -0.57 0.24  
## SB 5.75 -0.84 -0.19 0.18  
## BO 5.75 -0.89 0.66 0.15  
## BY 4.00 -0.46 -0.69 0.14  
## BS 6.00 -0.86 0.52 0.16  
## OY 6.75 -0.74 0.18 0.21  
## OS 7.75 -0.31 -0.39 0.22  
## OB 5.00 -0.45 -0.60 0.16  
## YO 8.50 -1.16 1.65 0.23  
## YS 9.00 -0.50 -0.18 0.25  
## YB 6.50 -0.41 -0.61 0.19

round(cor(em\_data[,c(122:133)],use="complete.obs"),2)

## SO SY SB BO BY BS OY OS OB YO YS YB  
## SO 1.00 0.94 0.62 0.15 0.14 0.18 -0.12 0.40 0.05 0.04 0.09 -0.07  
## SY 0.94 1.00 0.73 0.24 0.23 0.25 -0.07 0.28 0.12 0.00 0.13 0.01  
## SB 0.62 0.73 1.00 0.05 0.02 0.27 -0.10 0.08 0.08 -0.07 0.06 0.00  
## BO 0.15 0.24 0.05 1.00 0.96 0.76 0.03 0.03 0.35 0.03 -0.03 0.18  
## BY 0.14 0.23 0.02 0.96 1.00 0.74 -0.03 -0.01 0.29 -0.04 0.01 0.20  
## BS 0.18 0.25 0.27 0.76 0.74 1.00 -0.14 -0.08 0.16 -0.06 -0.11 0.13  
## OY -0.12 -0.07 -0.10 0.03 -0.03 -0.14 1.00 0.38 0.62 0.53 0.23 0.35  
## OS 0.40 0.28 0.08 0.03 -0.01 -0.08 0.38 1.00 0.53 0.38 0.47 0.25  
## OB 0.05 0.12 0.08 0.35 0.29 0.16 0.62 0.53 1.00 0.37 0.35 0.50  
## YO 0.04 0.00 -0.07 0.03 -0.04 -0.06 0.53 0.38 0.37 1.00 0.49 0.65  
## YS 0.09 0.13 0.06 -0.03 0.01 -0.11 0.23 0.47 0.35 0.49 1.00 0.64  
## YB -0.07 0.01 0.00 0.18 0.20 0.13 0.35 0.25 0.50 0.65 0.64 1.00

**fSRM model**

We set the estimator to “MLR”: maximum likelihood estimation with robust (Huber-White) standard errors and a scaled test statistic, because of deviations from the normality assumption(See Online Supplemental Materials 1 for the descriptives). The “noNegVar” = TRUE command informs fSRM that there has to be put a constraint on the variance estimation. Full Information Maximum Likelihood (FIML) is fSRM’s default strategy to handle missing data.

The fSRM package requires data in long format (each row describes one directed dyadic relationship).

library(fSRM)

## Loading required package: lavaan

## Warning: package 'lavaan' was built under R version 4.1.3

## This is lavaan 0.6-11  
## lavaan is FREE software! Please report any bugs.

##   
## Attaching package: 'lavaan'

## The following object is masked from 'package:psych':  
##   
## cor2cov

long <- read.csv("Z:/Studie\_1/Analyse/valid\_study/Scripts/SRM\_illustration/exampledataem\_SRMready\_long\_81stepfamilies.txt", sep="")  
SRM\_em <- fSRM(value ~ actor.id\*partner.id | family.id,  
 data = long,noNegVar= T, means= T, missing = "fiml",  
 estimator="MLR")

## Warning in lav\_object\_post\_check(object): lavaan WARNING: some estimated lv  
## variances are negative

SRM\_em

## fSRM version 0.6.5  
## ================================  
##   
## SRM with roles (Roles: B, O, S, Y); DVs = value  
##   
## Model summary:  
## ----------------  
## lavaan 0.6-11 ended normally after 454 iterations  
##   
## Estimator ML  
## Optimization method NLMINB  
## Number of model parameters 52  
## Number of inequality constraints 21  
## Row rank of the constraints matrix 30  
##   
## Number of observations 81  
## Number of missing patterns 23  
##   
## Model Test User Model:  
## Standard Robust  
## Test Statistic 73.271 77.048  
## Degrees of freedom 47 47  
## P-value (Chi-square) 0.008 0.004  
## Scaling correction factor 0.951  
## Yuan-Bentler correction (Mplus variant)   
##   
## Model Fit:  
## ----------------  
## Chi2 (df=47) = 73.271, p = 0.008  
## CFI = 0.95  
## TLI / NNFI = 0.93  
## RMSEA = 0.083 [0.043;0.119]; Test of close fit: p(data | true value == .05) = 0.081  
##   
##   
## Variance decomposition:  
## ----------------  
## component estimate se z p.value sig ci.lower ci.upper  
## 1 FE ~~ FE 0.231 0.127 1.820 p = .034 \* 0.022 0.440  
## 2 A.B ~~ A.B 1.099 0.261 4.215 p < .001 \*\*\* 0.670 1.528  
## 3 A.O ~~ A.O 1.110 0.276 4.026 p < .001 \*\*\* 0.656 1.563  
## 4 A.S ~~ A.S 2.912 0.367 7.926 p < .001 \*\*\* 2.308 3.516  
## 5 A.Y ~~ A.Y 1.614 0.379 4.254 p < .001 \*\*\* 0.990 2.238  
## 6 P.B ~~ P.B 0.094 0.094 0.998 p = .159 -0.061 0.248  
## 7 P.O ~~ P.O 0.025 0.026 0.963 p = .168 -0.018 0.069  
## 8 P.S ~~ P.S 0.162 0.120 1.343 p = .090 † -0.036 0.360  
## 9 P.Y ~~ P.Y 0.000 0.000 NA NA 0.000 0.000  
## 10 R.B.O ~~ R.B.O 0.185 0.098 1.881 p = .030 \* 0.023 0.346  
## 11 R.B.S ~~ R.B.S 0.820 0.206 3.980 p < .001 \*\*\* 0.481 1.158  
## 12 R.B.Y ~~ R.B.Y 0.001 0.054 0.010 p = .496 -0.088 0.090  
## 13 R.O.B ~~ R.O.B 0.164 0.157 1.049 p = .147 -0.094 0.422  
## 14 R.O.S ~~ R.O.S 1.956 0.540 3.619 p < .001 \*\*\* 1.067 2.845  
## 15 R.O.Y ~~ R.O.Y 1.408 0.365 3.856 p < .001 \*\*\* 0.807 2.008  
## 16 R.S.B ~~ R.S.B 1.292 0.300 4.303 p < .001 \*\*\* 0.798 1.786  
## 17 R.S.O ~~ R.S.O 0.403 0.277 1.457 p = .073 † -0.052 0.858  
## 18 R.S.Y ~~ R.S.Y 0.000 0.000 NA NA 0.000 0.000  
## 19 R.Y.B ~~ R.Y.B 0.445 0.198 2.254 p = .012 \* 0.120 0.770  
## 20 R.Y.O ~~ R.Y.O 1.314 0.344 3.819 p < .001 \*\*\* 0.748 1.881  
## 21 R.Y.S ~~ R.Y.S 2.114 0.663 3.190 p < .001 \*\*\* 1.024 3.204  
##   
## (p-values are for one-sided tests for variances; confidence level for CIs is 90 %)  
##   
##   
##   
## Relative variance decomposition:  
## ----------------  
## Family Actor Partner Relationship Error Explained  
## B\_O 15 71 2 12 0 100  
## B\_S 10 48 7 35 0 100  
## B\_Y 17 83 0 0 0 100  
## O\_B 14 69 6 10 0 100  
## O\_S 7 32 5 57 0 100  
## O\_Y 8 40 0 51 0 100  
## S\_B 5 64 2 29 0 100  
## S\_O 6 82 1 11 0 100  
## S\_Y 7 93 0 0 0 100  
## Y\_B 10 68 4 19 0 100  
## Y\_O 7 51 1 41 0 100  
## Y\_S 6 39 4 51 0 100  
## mean 9 62 3 26 0 100  
##   
##   
## Generalized reciprocity (actor-partner covariances):  
## ----------------  
## component estimate se z p.value sig ci.lower ci.upper r  
## 1 A.B ~~ P.B -0.030 0.109 -0.271 p = .786 -0.244 0.184 -.092  
## 2 A.O ~~ P.O 0.063 0.069 0.913 p = .361 -0.072 0.197 .372  
## 3 A.S ~~ P.S 0.411 0.187 2.205 p = .027 \* 0.046 0.777 .599  
## 4 A.Y ~~ P.Y 0.011 0.054 0.194 p = .846 -0.095 0.117 NA  
##   
##   
## Dyadic reciprocity (relationship covariances):  
## ----------------  
## component estimate se z p.value sig ci.lower ci.upper r  
## 1 R.B.O ~~ R.O.B 0.109 0.087 1.255 p = .209 -0.061 0.279 .624  
## 2 R.B.S ~~ R.S.B 0.397 0.141 2.807 p = .005 \*\* 0.120 0.674 .386  
## 3 R.B.Y ~~ R.Y.B -0.004 0.052 -0.078 p = .938 -0.106 0.098 -.265  
## 4 R.O.S ~~ R.S.O 0.539 0.333 1.618 p = .106 -0.114 1.191 .607  
## 5 R.O.Y ~~ R.Y.O 0.593 0.261 2.272 p = .023 \* 0.081 1.105 .436  
## 6 R.S.Y ~~ R.Y.S 0.124 0.126 0.986 p = .324 -0.123 0.371 NA  
##   
##   
## Mean structure  
## ----------------  
## factor estimate se z p.value sig ci.lower ci.upper  
## 1 FE 7.675 0.095 80.377 p < .001 \*\*\* 7.518 7.833  
## 2 A.B 0.954 0.133 7.189 p < .001 \*\*\* 0.736 1.173  
## 3 A.O -0.276 0.130 -2.130 p = .033 \* -0.489 -0.063  
## 4 A.S -0.158 0.159 -0.992 p = .321 -0.419 0.104  
## 5 A.Y -0.521 0.143 -3.633 p < .001 \*\*\* -0.756 -0.285  
## 6 P.B 0.624 0.073 8.501 p < .001 \*\*\* 0.503 0.744  
## 7 P.O -0.054 0.066 -0.819 p = .413 -0.163 0.055  
## 8 P.S -0.659 0.088 -7.487 p < .001 \*\*\* -0.804 -0.514  
## 9 P.Y 0.090 0.053 1.683 p = .092 † 0.002 0.177  
## 10 R.B.O -0.113 0.058 -1.962 p = .050 \* -0.208 -0.018  
## 11 R.B.S 0.215 0.085 2.529 p = .011 \* 0.075 0.355  
## 12 R.B.Y -0.102 0.059 -1.732 p = .083 † -0.199 -0.005  
## 13 R.O.B -0.113 0.058 -1.955 p = .051 † -0.208 -0.018  
## 14 R.O.S -0.061 0.078 -0.790 p = .429 -0.189 0.066  
## 15 R.O.Y 0.174 0.079 2.201 p = .028 \* 0.044 0.305  
## 16 R.S.B 0.206 0.072 2.843 p = .004 \*\* 0.087 0.325  
## 17 R.S.O -0.134 0.049 -2.726 p = .006 \*\* -0.214 -0.053  
## 18 R.S.Y -0.072 0.047 -1.528 p = .127 -0.150 0.006  
## 19 R.Y.B -0.093 0.068 -1.373 p = .170 -0.205 0.018  
## 20 R.Y.O 0.247 0.077 3.186 p = .001 \*\* 0.119 0.374  
## 21 R.Y.S -0.154 0.089 -1.731 p = .084 † -0.300 -0.008

plot(SRM\_em,bw=TRUE,noNegVar=TRUE)

## Warning: In group 1 some variances are negative. Plot is not well-defined,  
## please consider setting `noNegVar = TRUE` in the fSRM() call.

