**Supplementary materials**

**Table S1 Indirect effects and bootstrap analysis of all Models**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Path | Effect value | 95%CI | | p |
| Lower bounds | Upper bounds |
| Instant model | Alienation towards mother→ Depression | 0.208 | 0.172 | 0.243 | 0.012 |
|  | Alienation towards father→ Depression | 0.145 | 0.105 | 0.171 | 0.019 |
|  | Life-event→ Depression | 0.095 | 0.074 | 0.121 | 0.008 |
| Accumulated model | T1 Alienation towards mother→T2 Depression | 0.234 | 0.182 | 0.274 | 0.013 |
|  | T1 Alienation towards father→T2 Depression | 0.133 | 0.093 | 0.174 | 0.009 |
|  | T2 Alienation towards mother→T2 Depression | 0.121 | 0.087 | 0.158 | 0.007 |
|  | T2 Alienation towards father→T2 Depression | 0.066 | 0.041 | 0.094 | 0.006 |
|  | T1 Life-event→T2 Depression | 0.25 | 0.211 | 0.29 | 0.009 |
|  | T1 Resilience→T2 Depression | -0.275 | -0.311 | -0.234 | 0.010 |
|  | T2 Life-event→T2 Depression | 0.089 | 0.074 | 0.118 | 0.002 |

Note: T1 = baseline, T2 = 12-months follow up.

**Table S2 Pathway coefficeints of different levels of leaving time of father and marital status of parents**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Leaving time of father | | | | | |
| Instant model | Path | No leaving | 6 months to 2 years | 2 to 3 years | 3 to 5 years | 6 years or longer | p |
|  | Alienation towards mother→ Life-events | 0.293 | 0.332 | 0.288 | 0.368 | 0.309 | 0.374 |
|  | Alienation towards mother→ Depression | 0.115 | 0.138 | 0.123 | 0.193 | 0.119 | 0.371 |
|  | Alienation towards mother→ Resilience | -0.20 | -0.25 | -0.256 | -0.283 | -0.273 | 0.255 |
|  | Alienation towards father→ Life-events | 0.189 | 0.164 | 0.145 | 0.192 | 0.164 | 0.335 |
|  | Alienation towards father→ Depression | 0.08 | 0.071 | 0.068 | 0.103 | 0.068 | 0.15 |
|  | Alienation towards father→ Resilience | -0.229 | -0.216 | -0.223 | -0.246 | -0.241 | 0.156 |
|  | Life-events→ Depression | 0.261 | 0.277 | 0.291 | 0.334 | 0.265 | 0.599 |
|  | Life-events→ Resilience | -0.215 | -0.239 | -0.283 | -0.236 | -0.27 | 0.928 |
|  | Resilience→ Depression | -0.422 | -0.391 | -0.358 | -0.476 | -0.327 | 0.745 |
|  | Alienation towards mother↔ Alienation towards father | 0.612 | 0.516 | 0.584 | 0.712 | 0.461 | **<0.001\*\*\*** |
|  |  | **Marital status of parents** | | | | | |
| Accumulated model | Path | Undivorced | Divorced | Father remarried | Mother remarried | Both remarried | p |
|  | Alienation towards mother→ Life-events | 0.292 | 0.338 | 0.362 | 0.406 | 0.336 | 0.32 |
|  | Alienation towards mother→ Depression | 0.126 | 0.159 | 0.209 | 0.155 | 0.152 | 0.214 |
|  | Alienation towards mother→ Resilience | -0.217 | -0.284 | -0.286 | -0.293 | -0.238 | **<0.001\*\*\*** |
|  | Alienation towards father→ Life-events | 0.144 | 0.149 | 0.140 | 0.153 | 0.191 | 0.261 |
|  | Alienation towards father→ Depression | 0.077 | 0.085 | 0.111 | 0.077 | 0.111 | **<0.001\*\*\*** |
|  | Alienation towards father→ Resilience | -0.22 | -0.244 | -0.308 | -0.259 | -0.279 | 0.181 |
|  | Life-events→ Depression | 0.285 | 0.311 | 0.374 | 0.26 | 0.317 | **<0.001\*\*\*** |
|  | Life-events→ Resilience | -0.253 | -0.273 | -0.323 | -0.28 | -0.252 | 0.076 |
|  | Resilience→ Depression | -0.379 | -0.356 | -0.429 | -0.339 | -0.397 | 0.069 |
|  | Alienation towards mother↔ Alienation towards father | 0.585 | 0.38 | 0.363 | 0.309 | 0.362 | 0.518 |
|  | T2 Alienation towards mother→ T2 Life-events | 0.141 | 0.174 | 0.168 | 0.213 | 0.184 | 0.29 |
|  | T2 Alienation towards mother→T2 Depression | 0.115 | 0.16 | 0.212 | 0.161 | 0.153 | 0.256 |
|  | T2 Alienation towards mother→T2 Resilience | -0.178 | -0.233 | -0.22 | -0.269 | -0.227 | **0.022\*** |
|  | T2 Alienation towards father→T2 Life-events | 0.095 | 0.094 | 0.098 | 0.103 | 0.12 | 0.288 |
|  | T2 Alienation towards father→T2 Resilience | -0.074 | -0.078 | -0.084 | -0.081 | -0.088 | 0.095 |
|  | T2 Life-events→T2 Depression | 0.223 | 0.243 | 0.337 | 0.207 | 0.232 | **0.020\*** |
|  | T2 Life-events→T2 Resilience | -0.238 | -0.247 | -0.266 | -0.248 | -0.231 | 0.194 |
|  | T2 Resilience→T2 Depression | -0.347 | -0.365 | -0.443 | -0.324 | -0.376 | 0.273 |
|  | T1 Depression→T2 Depression | 0.331 | 0.356 | 0.427 | 0.372 | 0.35 | 0.156 |
|  | T1 Life-events→T2 Life-events | 0.473 | 0.489 | 0.621 | 0.541 | 0.499 | 0.207 |
|  | T1 Life-events→T2 Resilience | 0.067 | 0.075 | 0.083 | 0.077 | 0.070 | 0.164 |
|  | T1 Resilience→T2 Depression | 0.133 | 0.043 | 0.183 | 0.130 | 0.156 | 0.115 |
|  | T1 Resilience→T2 Resilience | 0.401 | 0.434 | 0.376 | 0.565 | 0.433 | 0.210 |
|  | T1 Alienation towards mother→T2 Alienation towards mother | 0.251 | 0.254 | 0.286 | 0.273 | 0.261 | 0.163 |
|  | T1 Alienation towards father→T1 Alienation towards mother | 0.105 | 0.092 | 0.100 | 0.082 | 0.107 | 0.204 |
|  | T1 Alienation towards father→T2 Alienation towards father | 0.331 | 0.352 | 0.349 | 0.404 | 0.368 | 0.321 |
|  | T2 Alienation towards mother↔ T2 Alienation towards father | 0.576 | 0.585 | 0.726 | 0.616 | 0.608 | 0.489 |