**Supplementary Information**

**Table S1**

*Sample Characteristics and Dropout Analysis*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristics** | **Pre-Pandemic Baseline** (*N* = 102) |  | **First Lockdown** (*n* = 79) |  | **Reopening** (*n* = 77) |  | **Second Lockdown** (*n* = 73) |  | **Dropout Analysis** | |
|  |  |  |  | ***t*** | ***p*** |
| **Age** | 22.24 (2.76) |  | 22.80 (2.69) |  | 22.96 (2.69) |  | 23.40 (2.64) |  | 1.18 | .240 |
| **Gender identity** |  |  |  |  |  |  |  |  | 1.74 | .085 |
| Male | 36 (35.3) |  | 26 (32.9) |  | 25 (32.5) |  | 22 (30.1) |  |  |  |
| Female | 66 (64.7) |  | 53 (67.1) |  | 52 (67.5) |  | 51 (69.9) |  |  |  |
| **Race** |  |  |  |  |  |  |  |  | -0.29 | .772 |
| Asian | 18 (17.7) |  | 13 (16.5) |  | 13 (16.9) |  | 13 (17.8) |  |  |  |
| Black | 4 (3.9) |  | 2 (2.5) |  | 2 (2.6) |  | 2 (2.7) |  |  |  |
| White | 69 (67.6) |  | 57 (72.2) |  | 55 (71.4) |  | 52 (71.2) |  |  |  |
| Others | 11 (10.8) |  | 7 (8.8) |  | 7 (9.1) |  | 6 (8.3) |  |  |  |
| **Highest education** |  |  |  |  |  |  |  |  | 1.56 | .122 |
| GCSEs | 16 (15.8) |  | 10 (12.7) |  | 9 (11.7) |  | 8 (11.0) |  |  |  |
| A-Levels | 29 (28.4) |  | 23 (29.1) |  | 23 (29.9) |  | 21 (28.8) |  |  |  |
| Undergraduate degree | 39 (38.2) |  | 32 (40.5) |  | 32 (41.6) |  | 31 (42.5) |  |  |  |
| Postgraduate degree | 18 (17.6) |  | 14 (17.7) |  | 13 (16.9) |  | 13 (17.8) |  |  |  |
| **Housing** |  |  |  |  |  |  |  |  | 1.35 | .180 |
| Parent(s) | 30 (29.4) |  | 22 (27.8) |  | 21 (27.3) |  | 18 (24.7) |  |  |  |
| University housing | 33 (32.4) |  | 25 (31.6) |  | 25 (32.5) |  | 25 (34.2) |  |  |  |
| Rented room | 8 (7.8) |  | 7 (8.9) |  | 7 (9.1) |  | 7 (9.6) |  |  |  |
| Rented house or flat | 27 (26.5) |  | 21 (26.6) |  | 21 (27.3) |  | 20 (27.4) |  |  |  |
| Owned a house or flat | 4 (3.9) |  | 4 (5.1) |  | 3 (3.9) |  | 3 (4.1) |  |  |  |
| **Employment** |  |  |  |  |  |  |  |  | -0.03 | .976 |
| Full-time | 26 (48.1) |  | 24 (53.3) |  | 22 (51.2) |  | 20 (51.3) |  |  |  |
| Part-time | 20 (37.0) |  | 15 (33.3) |  | 15 (34.9) |  | 13 (33.3) |  |  |  |
| Self-employed | 8 (14.8) |  | 6 (13.3) |  | 6 (14.0) |  | 6 (15.4) |  |  |  |
| **Friendship quality** | 27.47 (3.55) |  | 28.29 (3.61) |  | 27.73 (3.49) |  | 28.04 (3.72) |  | -0.14 | .885 |
| **Childhood adversity** |  |  |  |  |  |  |  |  |  |  |
| Sexual abuse | 9.60 (22.10) |  | 7.06 (4.65) |  | 6.99 (4.61) |  | 6.85 (4.42) |  | -0.26 | .793 |
| Emotional abuse | 30.15 (24.12) |  | 11.06 (4.91) |  | 10.95 (4.92) |  | 11.03 (4.96) |  | -0.01 | .993 |
| Physical abuse | 7.82 (14.41) |  | 6.54 (2.89) |  | 6.48 (2.82) |  | 6.48 (2.88) |  | -0.48 | .635 |
| Emotional neglect | 36.80 (25.75) |  | 12.58 (5.55) |  | 12.44 (5.55) |  | 12.44 (5.60) |  | 0.25 | .804 |
| Physical neglect | 13.45 (15.24) |  | 7.83 (3.27) |  | 7.74 (3.19) |  | 7.75 (3.20) |  | 0.34 | .734 |
| Negative parenting | 40.68 (23.31) |  | 7.92 (2.93) |  | 7.87 (2.94) |  | 7.82 (2.96) |  | -0.34 | .733 |
| Poor parental involvement | 52.50 (24.55) |  | 9.25 (3.12) |  | 9.16 (3.10) |  | 9.04 (3.02) |  | -1.45 | .149 |
| Corporal punishment | 28.28 (25.86) |  | 6.38 (3.20) |  | 6.36 (3.23) |  | 6.38 (3.21) |  | -0.06 | .956 |
| Paternal abuse | 15.71 (23.86) |  | 7.49 (3.54) |  | 7.47 (3.57) |  | 7.37 (3.55) |  | 0.06 | .951 |
| Maternal abuse | 14.13 (21.13) |  | 7.31 (3.28) |  | 7.25 (3.27) |  | 7.36 (3.33) |  | 1.21 | .228 |
| Paternal overcontrol | 24.57 (25.39) |  | 7.16 (3.21) |  | 7.05 (3.08) |  | 7.03 (3.13) |  | 0.41 | .685 |
| Maternal overcontrol | 32.35 (27.03) |  | 7.86 (3.38) |  | 7.91 (3.40) |  | 8.03 (3.42) |  | 0.71 | .476 |
| Paternal indifference | 20.20 (26.33) |  | 9.77 (4.82) |  | 9.65 (4.83) |  | 9.75 (4.94) |  | 0.37 | .714 |
| Maternal indifference | 13.29 (20.58) |  | 8.56 (3.98) |  | 8.44 (3.91) |  | 8.55 (3.99) |  | 0.67 | .503 |

*Note*. Age (in years), friendship quality, and severity of CAs (%) are reported as *M* (*SD*). All other characteristics are reported as *n* (%). Compared to pre-pandemic baseline, sample characteristics did not significantly differ for any of the COVID-19 assessment timepoints. In addition, a dropout analysis was performed using two sample *t*-tests to compare characteristics between the second lockdown sample and all *n* = 29 participants that dropped out before then.

**Table S2**

*Missing Questionnaire Data*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **MFQ** | **RCMAS** | **CFQ** | **PSS** | **CTQ-SF** | **MOPS** | **APQ** |
| **Pre-Pandemic Baseline** (*N* = 102) | 0 (0%) | 3 (2.94%) | 0 (0%) | 0 (0%) | 5 (4.90%) | 0 (0%) | 6 (5.88%) |
| **First Lockdown** (*n* = 79) | 0 (0%) | 1 (1.27%) | 1 (1.27%) | 0 (0%) | *NA* | *NA* | *NA* |
| **Reopening** (*n* = 77) | 0 (0%) | 5 (6.49%) | 0 (0%) | 0 (0%) | *NA* | *NA* | *NA* |
| **Second Lockdown** (*n* = 73) | 0 (0%) | 2 (2.74%) | 1 (1.37%) | 1 (1.37%) | *NA* | *NA* | *NA* |

*Note.* Missing questionnaire data is reported as *n* (%). MFQ = Mood and Feelings Questionnaire; RCMAS = Revised Children’s Manifest Anxiety Scale; CFQ = Cambridge Friendship Questionnaire; PSS = Perceived Stress Scale; CTQ-SF = Short-Form of the Childhood Trauma Questionnaire; MOPS = Measure of Parental Style Questionnaire; APQ = Alabama Parenting Questionnaire. NA = Questionnaire data was not assessed at this timepoint.

**Table S3**

*Correlations Between Main Study Variables Across All Assessment Timepoints*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Variable** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** |
| 1. | Childhood adversity | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. | Sex | -.02 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3. | Age (BL) | .07 | .03 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4. | Age (L1) | .08 | .05 | .99 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5. | Age (RO) | .09 | .03 | .98 | .99 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6. | Age (L2) | .08 | .03 | .99 | .99 | .98 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7. | Anxiety (BL) | .04 | .09 | .01 | .04 | .03 | .03 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8. | Anxiety (L1) | .26 | .29 | .00 | .02 | .01 | .00 | .62 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9. | Anxiety (RO) | .23 | .16 | .05 | .06 | .08 | .05 | .48 | .70 | - |  |  |  |  |  |  |  |  |  |  |  |  |
| 10. | Anxiety (L2) | .28 | .36 | -.06 | -.04 | -.05 | -.04 | .66 | .80 | .68 | - |  |  |  |  |  |  |  |  |  |  |  |
| 11. | Depression (BL) | .11 | -.03 | .03 | .07 | .06 | .06 | .85 | .52 | .42 | .58 | - |  |  |  |  |  |  |  |  |  |  |
| 12. | Depression (L1) | .28 | .19 | -.03 | .01 | .00 | -.01 | .60 | .90 | .67 | .80 | .60 | - |  |  |  |  |  |  |  |  |  |
| 13. | Depression (RO) | .24 | .08 | .02 | .03 | .04 | .02 | .43 | .71 | .91 | .69 | .46 | .77 | - |  |  |  |  |  |  |  |  |
| 14. | Depression (L2) | .23 | .18 | -.01 | .01 | .00 | .01 | .61 | .78 | .61 | .90 | .60 | .86 | .73 | - |  |  |  |  |  |  |  |
| 15. | Friendship quality (BL) | -.31 | .12 | .07 | .07 | .06 | .06 | -.53 | -.30 | -.27 | -.21 | -.54 | -.30 | -.25 | -.17 | - |  |  |  |  |  |  |
| 16. | Friendship quality (L1) | -.35 | .29 | .14 | .15 | .13 | .13 | -.39 | -.32 | -.31 | -.26 | -.40 | -.35 | -.41 | -.33 | .72 | - |  |  |  |  |  |
| 17. | Friendship quality (RO) | -.34 | .16 | .24 | .23 | .23 | .22 | -.45 | -.42 | -.54 | -.41 | -.46 | -.44 | -.56 | -.39 | .68 | .77 | - |  |  |  |  |
| 18. | Friendship quality (L2) | -.38 | .05 | .22 | .22 | .22 | .21 | -.49 | -.44 | -.40 | -.48 | -.47 | -.46 | -.44 | -.43 | .65 | .71 | .82 | - |  |  |  |
| 19. | Perceived stress (L1) | .22 | .38 | -.05 | -.02 | -.04 | -.05 | .53 | .77 | .54 | .62 | .32 | .70 | .46 | .55 | -.31 | -.22 | -.33 | -.34 | - |  |  |
| 20. | Perceived stress (RO) | .26 | .24 | -.09 | -.06 | -.07 | -.09 | .42 | .63 | .84 | .70 | .38 | .67 | .82 | .63 | -.22 | -.30 | -.55 | -.46 | .61 | - |  |
| 21. | Perceived stress (L2) | .26 | .38 | -.09 | -.06 | -.07 | -.08 | .44 | .65 | .61 | .81 | .33 | .70 | .62 | .76 | -.04 | -.15 | -.31 | -.34 | .62 | .70 | - |

*Note.* BL = pre-pandemic baseline (August 2019 to March 2020; *N* = 102), L1 = first lockdown (April to May 2020; *n* = 79), RO = reopening (July to August 2020; *n* = 77), L2 = second lockdown (October to November 2020; *n* = 73).

**C. The Impact of the COVID-19 Pandemic on Mental Health Symptoms**

**Table S4**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting (A) Depression and (B) Anxiety Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **A. Depression Symptoms** |  |  |  |  |  |
| **1. Time** | **636.43** | **658.93** |  |  |  |
| 2. Time + Age + Gender | 639.88 | 669.88 | 0.55 | 2 | .759 |
| **B. Anxiety Symptoms** |  |  |  |  |  |
| **1. Time** | **692.16** | **714.62** |  |  |  |
| 2. Time + Age + Gender | 694.72 | 724.66 | 1.44 | 2 | .486 |

*Note.* The best fitting models are highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S5**

*Model Estimates for the Best Fitting Linear Mixed-Effects Models Predicting (A) Depression and (B) Anxiety Symptoms*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **A. Depression Symptoms** | | | | |  | **B. Anxiety Symptoms** | | | | |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.29 | 0.08 | [-0.46, -0.13] | -3.49 | **< .001** |  | -0.13 | 0.10 | [-0.32, 0.06] | -1.34 | .182 |
| First lockdown | 0.30 | 0.08 | [0.14, 0.45] | 3.77 | **< .001** |  | 0.20 | 0.08 | [0.04, 0.37] | 2.41 | **.017** |
| Reopening | 0.33 | 0.08 | [0.17, 0.49] | 4.15 | **< .001** |  | 0.15 | 0.09 | [-0.02, 0.32] | 1.71 | .088 |
| Second lockdown | 0.18 | 0.08 | [0.02, 0.34] | 2.27 | **.024** |  | 0.12 | 0.09 | [-0.06, 0.29] | 1.33 | .184 |
|  | Marginal *R*2 = .027; Conditional *R*2 = . 649 | | | | |  | Marginal *R*2 = .007; Conditional *R*2 = .696 | | | | |

*Note.* Two linear mixed-effects models predicting (A) depression and (B) anxiety symptomatology as outcomes. Assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) has been added as an independent variable. Random effects for participants have been included in both models. Pre-pandemic baseline = August 2019 to March 2020; First lockdown = April to May 2020; Reopening = July to August 2020; Second lockdown = October to November 2020. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**D. The Impact of the COVID-19 Pandemic on Perceived Friendship Quality**

**Table S6**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting Perceived Friendship Quality*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **1. Time** | **740.62** | **763.32** |  |  |  |
| 2. Time + Age + Gender | 740.85 | 771.12 | 3.76 | 2 | .152 |

*Note.* The best fitting model is highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S7**

*Model Estimates for the Best Fitting Linear Mixed-Effects Models Predicting Perceived Friendship Quality*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.10 | 0.10 | [-0.29, 0.10] | -0.98 | .331 |
| First lockdown | 0.21 | 0.08 | [0.04, 0.38] | 2.47 | **.014** |
| Reopening | 0.07 | 0.09 | [-0.10, 0.23] | 0.78 | .436 |
| Second lockdown | 0.18 | 0.09 | [0.01, 0.35] | 2.08 | **.039** |
|  | Marginal *R*2 = .008; Conditional *R*2 = .709 | | | | |

*Note.* One linear mixed-effects model predicting perceived friendship quality as the outcome. Assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) has been added as an independent variable. Random effects for participants have been included in both models. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**E. The Impact of Childhood Adversity on Perceived Friendship Quality and Mental Health Symptoms Before and During the COVID-19 Pandemic**

**Table S8**

*Model Fit Statistics for Linear Mixed-Effects Model Predicting (A) Perceived Friendship Quality,   
(B) Depression Symptoms, and (C) Anxiety Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **A. Friendship Quality** |  |  |  |  |  |
| 1. Time | 740.62 | 763.32 |  |  |  |
| **2. Time + CA** | **737.21** | **763.70** | **5.40** | **1** | **.020** |
| 3. Time + CA + Time:CA | 742.32 | 780.15 | 0.89 | 3 | .827 |
| 4. Time + CA + Time:CA + Age + Gender | 740.91 | 786.32 | 5.41 | 2 | .067 |
| **B. Depression Symptoms** |  |  |  |  |  |
| **1. Time** | **636.43** | **658.93** |  |  |  |
| 2. Time + CA | 634.82 | 661.06 | 3.61 | 1 | .057 |
| 3. Time + CA + Time:CA | 636.43 | 673.92 | 4.39 | 3 | .223 |
| 4. Time + CA + Time:CA + Age + Gender | 639.37 | 684.37 | 1.06 | 2 | .590 |
| **C. Anxiety Symptoms** |  |  |  |  |  |
| **1. Time** | 692.16 | 714.62 |  |  |  |
| 2. Time + CA | 692.12 | 718.32 | 2.04 | 1 | .153 |
| 3. Time + CA + Time:CA | 690.86 | 728.29 | 7.26 | 3 | .064 |
| 4. Time + CA + Time:CA + Age + Gender | 693.02 | 737.94 | 1.84 | 2 | .399 |

*Note.* The best fitting model is highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion; CA = childhood adversity (cumulative).

**Table S9**

*Model Estimates for the Best Fitting Linear Mixed-Effects Model Predicting Friendship Quality*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.11 | 0.10 | [-0.30, 0.08] | -1.15 | .251 |
| CA | -0.42 | 0.18 | [-0.78, -0.07] | -2.36 | **.020** |
| First lockdown | 0.21 | 0.08 | [0.04, 0.38] | 2.49 | **.014** |
| Reopening | 0.07 | 0.09 | [-0.10, 0.23] | 0.78 | .436 |
| Second lockdown | 0.18 | 0.09 | [0.01, 0.35] | 2.07 | **.039** |
|  | Marginal *R*2 = .053; Conditional *R*2 = .708 | | | | |

*Note.* A linear mixed-effects model predicting friendship quality as the outcome. Childhood adversity and assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) have been added as independent variables. A random effect for participants has also been included in the model. CA = childhood adversity (cumulative). β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**Figure S1**

*Childhood Adversity Effects on Perceived Friendship Quality Across all Assessment Timepoints*

**A screenshot of a computer

Description automatically generated**

*Note*. Participants with more severe CA (x-axis) self-reported lower friendship quality (y-axis) across all assessment timepoints. Index scores of CA comprise two weighted and oblique rotated principal components (PCs). Both axes represent standardized scores. The shading of individual data points represents the four different assessment timepoints. The black line shows the best-fitting linear regression line after controlling for all assessment timepoints and the shaded region represents the 95% confidence interval. β = standardized coefficient; \**p* < .05.

**Exploratory: Dimensional Effects of Childhood Adversity**

**Table S10**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting Perceived Friendship Quality*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **A. Deprivation Dimension** |  |  |  |  |  |
| 1. Time | 740.62 | 763.32 |  |  |  |
| **2. Time + Deprivation** | **738.41** | **764.90** | **4.20** | **1** | **.040** |
| 3. Time + Deprivation + Time:Deprivation | 742.86 | 780.70 | 1.55 | 3 | .671 |
| 4. Time + Deprivation + Time:Deprivation + Age + Gender | 741.59 | 786.99 | 5.28 | 2 | .071 |
| **B. Threat Dimension** |  |  |  |  |  |
| **1. Time** | **740.62** | **763.32** |  |  |  |
| 2. Time + Threat | 739.15 | 765.64 | 3.46 | 1 | .063 |
| 3. Time + Threat + Time:Threat | 745.04 | 782.88 | 0.12 | 3 | .990 |
| 4. Time + Threat + Time:Threat + Age + Gender | 744.64 | 790.05 | 4.39 | 2 | .111 |

*Note.* The best fitting models are highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S11**

*Deprivation Dimension: Model Estimates for the Best Fitting Linear Mixed-Effects Model Predicting Perceived Friendship Quality*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.11 | 0.10 | [-0.30, 0.08] | -1.11 | .267 |
| Deprivation | -0.50 | 0.24 | [-0.97, -0.02] | -2.08 | **.040** |
| First lockdown | 0.21 | 0.09 | [0.04, 0.38] | 2.49 | **.014** |
| Reopening | 0.07 | 0.09 | [-0.10, 0.23] | 0.78 | .436 |
| Second lockdown | 0.18 | 0.09 | [0.01, 0.35] | 2.07 | **.040** |
|  | Marginal *R*2 = .043; Conditional *R*2 = .708 | | | | |

*Note.* A linear mixed-effects model predicting perceived friendship quality as the outcome. Deprivation experiences and assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) have been added as independent variables. A random effect for participants has also been included in the model. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**Table S12**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting Depression Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **A. Deprivation Dimension** |  |  |  |  |  |
| **1. Time** | **636.43** | **658.93** |  |  |  |
| 2. Time + Deprivation | 636.61 | 662.85 | 1.82 | 1 | .177 |
| 3. Time + Deprivation + Time:Deprivation | 640.36 | 677.86 | 2.25 | 3 | .523 |
| 4. Time + Deprivation + Time:Deprivation + Age + Gender | 643.45 | 688.44 | 0.91 | 2 | .634 |
| **B. Threat Dimension** |  |  |  |  |  |
| 1. Time | 636.43 | 658.93 |  |  |  |
| **2. Time + Threat** | **633.90** | **660.15** | **4.53** | **1** | **.033** |
| 3. Time + Threat + Time:Threat | 633.44 | 670.94 | 6.46 | 3 | .091 |
| 4. Time + Threat + Time:Threat + Age + Gender | 636.61 | 681.60 | 0.83 | 2 | .660 |

*Note.* The best fitting models are highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S13**

*Threat Dimension: Model Estimates for the Best Fitting Linear Mixed-Effects Model Predicting Depression Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.28 | 0.08 | [-0.45, -0.12] | -3.45 | **< .001** |
| Threat | 0.76 | 0.35 | [0.06, 1.46] | 2.15 | **.034** |
| First lockdown | 0.30 | 0.08 | [0.14, 0.45] | 3.77 | **< .001** |
| Reopening | 0.33 | 0.08 | [0.17, 0.49] | 4.16 | **< .001** |
| Second lockdown | 0.18 | 0.08 | [0.02, 0.34] | 2.27 | **.024** |
|  | Marginal *R*2 = .006; Conditional *R*2 = .651 | | | | |

*Note.* A linear mixed-effects model predicting depression symptoms as the outcome. Threat experiences and assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) have been added as independent variables. A random effect for participants has also been included in the model. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**Table S14**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting Anxiety Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **A. Deprivation Dimension** |  |  |  |  |  |
| **1. Time** | **692.16** | **714.62** |  |  |  |
| 2. Time + Deprivation | 693.52 | 719.72 | 0.64 | 1 | .423 |
| 3. Time + Deprivation + Time:Deprivation | 694.33 | 731.76 | 5.19 | 3 | .159 |
| 4. Time + Deprivation + Time:Deprivation + Age + Gender | 696.59 | 741.51 | 1.74 | 2 | .419 |
| **B. Threat Dimension** |  |  |  |  |  |
| 1. Time | 692.16 | 714.62 |  |  |  |
| **2. Time + Threat** | **690.20** | **716.40** | **3.96** | **1** | **.047** |
| 3. Time + Threat + Time:Threat | 689.23 | 726.66 | 6.98 | 3 | .073 |
| 4. Time + Threat + Time:Threat + Age + Gender | 691.66 | 736.57 | 1.57 | 2 | .457 |

*Note.* The best fitting models are highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S15**

*Threat Dimension: Model Estimates for the Best Fitting Linear Mixed-Effects Model Predicting Anxiety Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.12 | 0.09 | [-0.31, 0.07] | -1.27 | .205 |
| Threat | 0.84 | 0.42 | [0.01, 1.67] | 2.01 | **.048** |
| First lockdown | 0.20 | 0.08 | [0.04, 0.37] | 2.40 | **.017** |
| Reopening | 0.15 | 0.09 | [-0.02, 0.32] | 1.71 | .090 |
| Second lockdown | 0.12 | 0.09 | [-0.05, 0.29] | 1.34 | .183 |
|  | Marginal *R*2 = .039; Conditional *R*2 = .697 | | | | |

*Note.* A linear mixed-effects model predicting anxiety symptoms as the outcome. Threat experiences and assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) have been added as independent variables. A random effect for participants has also been included in the model. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**F. Friendship Effects on Mental Health Symptoms Before and During the COVID-19 Pandemic**

**Table S16**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting (A) Depression and (B) Anxiety Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| **A. Depression Symptoms** |  |  |  |  |  |
| 1. Time | 634.00 | 656.46 |  |  |  |
| 2. Time + Friendship quality | 592.08 | 618.29 | 43.92 | 1 | < .001 |
| **3. Time + Friendship quality + Time:Friendship quality** | **589.09** | **626.52** | 9.00 | **3** | **.029** |
| 4. Time + Friendship quality + Time:Friendship quality  + Age + Gender | 593.08 | 638.00 | 0.000 | 2 | .999 |
| **A. Anxiety Symptoms** |  |  |  |  |  |
| 1. Time | 690.16 | 712.58 |  |  |  |
| **2. Time + Friendship quality** | **640.07** | **666.23** | **52.09** | **1** | **< .001** |
| 3. Time + Friendship quality + Time:Friendship quality | 644.15 | 681.51 | 1.93 | 3 | .588 |
| 4. Time + Friendship quality + Time:Friendship quality  + Age + Gender | 645.22 | 690.06 | 2.93 | 2 | .231 |

*Note.* The best fitting models are highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S17**

*Model Estimates for the Best Fitting Linear Mixed-Effects Model Predicting Depression Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.31 | 0.07 | [-0.46, -0.16] | -4.11 | **< .001** |
| Friendship quality | -0.35 | 0.06 | [-0.48, -0.22] | -5.41 | **< .001** |
| First lockdown | 0.34 | 0.07 | [0.19, 0.48] | 4.51 | **< .001** |
| Reopening | 0.34 | 0.07 | [0.19, 0.49] | 4.55 | **< .001** |
| Second lockdown | 0.23 | 0.07 | [0.08, 0.38] | 2.99 | **.003** |
| First lockdown:Friendship quality | 0.11 | 0.08 | [-0.04, 0.26] | 1.44 | .152 |
| Reopening:Friendship quality | -0.10 | 0.08 | [-0.26, 0.06] | -1.27 | .207 |
| Second lockdown:Friendship quality | 0.09 | 0.08 | [-0.06, 0.25] | 1.18 | .238 |
|  | Marginal *R*2 = .189; Conditional *R*2 = .681 | | | | |

*Note.* A linear mixed-effects model predicting depression symptomatology as the outcome. Perceived friendship quality and assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) have been added as independent variables. A random effect for participants has also been included in the model. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**Figure S2**

*Friendship Effects on Depression Symptoms Across All Assessment Timepoints*

**A screenshot of a graph

Description automatically generated**

*Note.* Participants with higher friendship quality (x-axis) reported lower depression symptoms (y-axis) across all assessment timepoints. Both axes represent standardized scores. The shading of individual data points represents the four different assessment timepoints. The black line shows the best-fitting linear regression line after controlling for all assessment timepoints and the shaded region represents the 95% confidence interval. β = standardized coefficient; \*\*\**p* < .001.

**Table S18**

*Model Estimates for the Best Fitting Linear Mixed-Effects Model Predicting Anxiety Symptoms*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.17 | 0.09 | [-0.34, -0.01] | -2.04 | **.043** |
| Friendship quality | -0.38 | 0.05 | [-0.48, -0.28] | -7.59 | **< .001** |
| First lockdown | 0.29 | 0.08 | [0.13, 0.44] | 3.56 | **< .001** |
| Reopening | 0.18 | 0.08 | [0.02, 0.34] | 2.26 | **.025** |
| Second lockdown | 0.18 | 0.08 | [0.02, 0.35] | 2.21 | **.028** |
|  | Marginal *R*2 = .178; Conditional *R*2 = .714 | | | | |

*Note.* A linear mixed-effects model predicting anxiety symptomatology as the outcome. Friendship quality and assessment timepoint (dummy-coded: first lockdown, reopening, second lockdown, with pre-pandemic baseline as the reference group) have been added as independent variables. A random effect for participants has also been included in the model. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**Figure S3**

*Friendship Effects on Anxiety Symptoms Before and During the COVID-19 Pandemic*

A screenshot of a computer screen

Description automatically generated

*Note.* Participants with greater perceived friendship quality (x-axis) self-reported lower levels of anxiety symptoms (y-axis) across all assessment timepoints (*p*sFDR < .001). Both axes represent standardized score. The black lines show the best-fitting linear regression lines and the shaded regions around them represent the 95% confidence intervals. β = standardized coefficient; \*\*\**p*FDR < .001.

**Figure S4**

*Friendship Effects on Anxiety Symptoms Across All Assessment Timepoints*

**A screenshot of a computer

Description automatically generated**

*Note.* Participants with higher friendship quality (x-axis) reported lower anxiety symptoms (y-axis) across all assessment timepoints. Both axes represent standardized scores. The shading of individual data points represents the four different assessment timepoints. The black line shows the best-fitting linear regression line after controlling for all assessment timepoints and the shaded region represents the 95% confidence interval. β = standardized coefficient; \*\*\**p* < .001.

**G. Exploring the Interplay Between Perceived Friendship Quality and Mental Health Symptoms From Before to During the COVID-19 Pandemic**

Bivariate latent change score modeling was utilized to explore the interrelationship between perceived friendship quality and mental health symptomatology from before to during the COVID-19 pandemic (see Figure G1 below). Specifically, five parameters of interest were investigated in each model. First, did perceived friendship quality reported at (A) pre-pandemic baseline, (B) first lockdown, or (C) reopening predict the degree of change in friendship quality (autoregressive parameter) and/or mental health symptoms (coupling parameter). Second, did mental health symptoms at (A) pre-pandemic baseline, (B) first lockdown, or (C) reopening predict the degree of change in mental health symptoms (autoregressive parameter) and/or friendship quality (coupling parameter)? Third, did changes in friendship quality and mental health symptoms co-occur across individuals (correlated change)?

**Figure S5**

*Example of a Bivariate Latent Change Score Model Assessing the Interplay between Perceived Friendship Quality and Depression Symptoms From Pre-Pandemic Baseline to First Lockdown*A diagram of a diagram

Description automatically generated

*Note.* Means are omitted for visual clarity. This visualization and annotation is based on (Kievit et al., 2018). DEP = depression symptom domain, FQ = perceived friendship quality domain, BS = pre-pandemic baseline, L1 = first lockdown.

**Table S19**

*Model Fit Statistics for Bivariate Latent Change Score Models*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Domain** | ***χ*2(6)** | ***p*** | **RMSEA** | **CFI** |
| **1. Pre-Pandemic Baseline to First Lockdown** | | | | |
| A. Depression symptoms | 114.29 | < .001 | < .001 | 1.00 |
| B. Anxiety symptoms | 121.20 | < .001 | < .001 | 1.00 |
| **2. First Lockdown to Reopening** | | | | |
| A. Depression symptoms | 144.96 | < .001 | < .001 | 1.00 |
| B. Anxiety symptoms | 138.56 | < .001 | < .001 | 1.00 |
| **3. Reopening to Second Lockdown** | | | | |
| A. Depression symptoms | 144.96 | < .001 | < .001 | 1.00 |
| B. Anxiety symptoms | 138.56 | < .001 | < .001 | 1.00 |

*Note.* Models exploring interrelationships between changes in perceived friendship quality and (A) depression and (B) anxiety symptoms from (1) pre-pandemic baseline to first lockdown, (2) first lockdown to reopening, and (3) reopening to second lockdown. RMSEA = root mean square error of approximation; CFI = comparative fit index.

**Table S20**

*Bivariate Latent Change Score Model Output Assessing the Interplay between Perceived Friendship Quality and (A) Depression and (B) Anxiety Symptoms From Pre-Pandemic Baseline to First Lockdown*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Domain** | | **Est** | **SE** | ***z*** | ***p*** |
| **A. Depression Symptoms** | | | | | |
| 1. | DEPBS→ΔDEP1 (β1) | -0.22 | 0.13 | -1.64 | .101 |
| 2. | DEPBS→ΔFQ1 (γ1) | 0.01 | 0.12 | 0.11 | .916 |
| 3. | FQBS→ΔFQ1 (β2) | -0.25 | 0.09 | -2.86 | **.004** |
| 4. | FQBS→ΔDEP1 (γ2) | 0.06 | 0.10 | 0.66 | .512 |
| 5. | DEPBS↔FQBS (φ) | -0.33 | 0.08 | -4.15 | **< .001** |
| 6. | ΔDEP1↔ΔFQ1 (ρ) | -0.15 | 0.06 | -2.72 | **.007** |
| 7. | σ2DEP1 | 0.55 | 0.08 | 6.55 | **< .001** |
| 8. | σ2FQ1 | 0.93 | 0.12 | 7.79 | **< .001** |
| 9. | σ2ΔDEP1 | 0.52 | 0.09 | 6.09 | **< .001** |
| 10. | σ2ΔFQ1 | 0.50 | 0.10 | 5.11 | **< .001** |
| **B. Anxiety Symptoms** | | | | | |
| 1. | ANXBS→ΔANX1 (β1) | -0.33 | 0.10 | -3.13 | **.002** |
| 2. | ANXBS→ΔFQ1 (γ1) | 0.01 | 0.10 | 0.11 | .913 |
| 3. | FQBS→ΔFQ1 (β2) | -0.29 | 0.09 | -3.29 | **.001** |
| 4. | FQBS→ΔANX1 (γ2) | -0.04 | 0.11 | -0.35 | .730 |
| 5. | ANXBS↔FQBS (φ) | -0.43 | 0.10 | -4.24 | **< .001** |
| 6. | ΔANX1↔ΔFQ1 (ρ) | -0.11 | 0.05 | -2.19 | **.028** |
| 7. | σ2ANX1 | 0.85 | 0.12 | 7.37 | **< .001** |
| 8. | σ2FQ1 | 1.00 | 0.13 | 7.66 | **< .001** |
| 9. | σ2ΔANX1 | 0.51 | 0.11 | 4.88 | **< .001** |
| 10. | σ2ΔFQ1 | 0.50 | 0.10 | 5.13 | **< .001** |

*Note.* Est = standardized parameter estimates. FQ = perceived friendship quality domain, DEP = depression symptom domain, ANX = anxiety symptom domain, BS = pre-pandemic baseline. β = autoregressive parameter, γ = cross-domain coupling, φ = covariance at pre-pandemic baseline, ρ = correlated change, σ2Δ = variance in the latent change score, → = directed relationship, ↔ = undirected relationship. Bold denotes significant effects.

**Table S21**

*Bivariate Latent Change Score Model Output Assessing the Interplay between Perceived Friendship Quality and (A) Depression and (B) Anxiety Symptoms From First Lockdown to Reopening*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Domain** | | **Est** | **SE** | ***z*** | ***p*** |
| **A. Depression Symptoms** | | | | | |
| 1. | DEPL1→ΔDEP1 (β1) | -0.33 | 0.09 | -3.57 | **< .001** |
| 2. | DEPL1→ΔFQ1 (γ1) | -0.17 | 0.08 | -2.08 | **.037** |
| 3. | FQL1→ΔFQ1 (β2) | -0.31 | 0.10 | -3.08 | **.002** |
| 4. | FQL1→ΔDEP1 (γ2) | -0.16 | 0.07 | -2.30 | **.022** |
| 5. | DEPL1↔FQL1 (φ) | -0.31 | 0.10 | -2.99 | **.003** |
| 6. | ΔDEP1↔ΔFQ1 (ρ) | -0.13 | 0.04 | -2.99 | **.003** |
| 7. | σ2DEP1 | 0.81 | 0.13 | 6.11 | **< .001** |
| 8. | σ2FQ1 | 1.00 | 0.17 | 5.88 | **< .001** |
| 9. | σ2ΔDEP1 | 0.32 | 0.11 | 2.92 | **.003** |
| 10. | σ2ΔFQ1 | 0.44 | 0.09 | 4.84 | **< .001** |
| **B. Anxiety Symptoms** | | | | | |
| 1. | ANXL1→ΔANX1 (β1) | -0.32 | 0.10 | -3.24 | **.001** |
| 2. | ANXL1→ΔFQ1 (γ1) | -0.13 | 0.08 | -1.54 | .123 |
| 3. | FQL1→ΔFQ1 (β2) | -0.30 | 0.10 | -2.92 | **.003** |
| 4. | FQL1→ΔANX1 (γ2) | -0.08 | 0.08 | -0.92 | .360 |
| 5. | ANXL1↔FQL1 (φ) | -0.36 | 0.11 | -3.39 | **.001** |
| 6. | ΔANX1↔ΔFQ1 (ρ) | -0.17 | 0.06 | -2.89 | **.004** |
| 7. | σ2ANX1 | 0.90 | 0.13 | 6.99 | **< .001** |
| 8. | σ2FQ1 | 0.99 | 0.17 | 4.97 | **< .001** |
| 9. | σ2ΔANX1 | 0.42 | 0.13 | 3.23 | **.001** |
| 10. | σ2ΔFQ1 | 0.43 | 0.09 | 4.97 | **< .001** |

*Note.* Est = standardized parameter estimates. FQ = perceived friendship quality domain, DEP = depression symptom domain, ANX = anxiety symptom domain, L1 = first lockdown. β = autoregressive parameter, γ = cross-domain coupling, φ = covariance at first lockdown, ρ = correlated change, σ2Δ = variance in the latent change score, → = directed relationship, ↔ = undirected relationship. Bold denotes significant effects.

**Table S22**

*Bivariate Latent Change Score Model Output Assessing the Interplay between Perceived Friendship Quality and (A) Depression and (B) Anxiety Symptoms From Reopening to Second Lockdown*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Domain** | | **Est** | **SE** | ***z*** | ***p*** |
| **A. Depression Symptoms** | | | | | |
| 1. | DEPRO→ΔDEP2 (β1) | -0.38 | 0.13 | -2.97 | **.003** |
| 2. | DEPRO→ΔFQ2 (γ1) | 0.03 | 0.10 | 0.30 | .764 |
| 3. | FQRO→ΔFQ2 (β2) | -0.25 | 0.06 | -3.87 | **< .001** |
| 4. | FQRO→ΔDEP2 (γ2) | -0.03 | 0.07 | -0.41 | .682 |
| 5. | DEPRO↔FQRO (φ) | -0.48 | 0.11 | -4.31 | **< .001** |
| 6. | ΔDEP2↔ΔFQ2 (ρ) | -0.08 | 0.06 | -1.48 | .140 |
| 7. | σ2DEP2 | 0.78 | 0.15 | 5.39 | **< .001** |
| 8. | σ2FQ2 | 1.02 | 0.17 | 6.16 | **< .001** |
| 9. | σ2ΔDEP2 | 0.31 | 0.08 | 3.93 | **< .001** |
| 10. | σ2ΔFQ2 | 0.41 | 0.11 | 3.68 | **< .001** |
| **B. Anxiety Symptoms** | | | | | |
| 1. | ANXRO→ΔANX2 (β1) | -0.27 | 0.14 | -1.89 | .059 |
| 2. | ANXRO→ΔFQ2 (γ1) | -0.06 | 0.12 | -0.47 | .642 |
| 3. | FQRO→ΔFQ2 (β2) | -0.29 | 0.07 | -4.09 | **< .001** |
| 4. | FQRO→ΔANX2 (γ2) | -0.02 | 0.07 | -0.29 | .770 |
| 5. | ANXRO↔FQRO (φ) | -0.51 | 0.12 | -4.35 | **< .001** |
| 6. | ΔANX2↔ΔFQ2 (ρ) | -0.20 | 0.09 | -2.35 | **.019** |
| 7. | σ2ANX2 | 0.93 | 0.17 | 5.50 | **< .001** |
| 8. | σ2FQ2 | 1.00 | 0.16 | 6.22 | **< .001** |
| 9. | σ2ΔANX2 | 0.43 | 0.13 | 3.39 | **.001** |
| 10. | σ2ΔFQ2 | 0.40 | 0.10 | 3.94 | **< .001** |

*Note.* Est = standardized parameter estimates. FQ = perceived friendship quality domain, DEP = depression symptom domain, ANX = anxiety symptom domain, RO = reopening. β = autoregressive parameter, γ = cross-domain coupling, φ = covariance at reopening, ρ = correlated change, σ2Δ = variance in the latent change score, → = directed relationship, ↔ = undirected relationship. Bold denotes significant effects.

**Figure S6**

*The Interplay between Perceived Friendship Quality and Anxiety Symptoms from Before to During the COVID-19 Pandemic*

A diagram of a algorithm

Description automatically generated with medium confidence

*Note*. Each path shows standardized parameter estimates. FQ = friendship quality domain, ANX = anxiety symptom domain, BS = pre-pandemic baseline, L1 = first lockdown, RO = reopening, L2 = second lockdown. Δ = latent change score, → = directed relationship, ↔ = undirected relationship. Path in black denote significant effects. B1 = Correlation between change in friendship quality and change in anxiety symptoms from the first lockdown to reopening. \**p* < .05, \*\**p* < .01, \*\*\**p* < .001.

**H. Exploring Perceived Stress as a Potential Mechanism Linking Perceived Friendship Quality with Mental Health Symptoms**

**Table S23**

*Model Fit Statistics for Linear Mixed-Effects Models Predicting Perceived Stress*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **AIC** | **BIC** | ***χ*2** | ***df*** | ***p*** |
| 1. Time | 546.55 | 563.63 |  |  |  |
| **2. Time + Age + Gender** | **541.80** | **565.71** | **8.75** | **2** | **.013** |

*Note.* The best fitting model is highlighted in bold. Random effects for participants have been included in all models. AIC = Akaike information criterion; BIC = Bayesian information criterion.

**Table S24**

*Model Estimates for the Best Fitting Linear Mixed-Effects Models Predicting Perceived Stress*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fixed Effects** | **β** | **SE** | **95% CI** | ***t*** | ***p*** |
| Intercept | -0.39 | 0.17 | [-0.74, -0.05] | -2.28 | **.025** |
| Reopening | -0.07 | 0.09 | [-0.25, 0.12] | -0.73 | .467 |
| Second lockdown | -0.03 | 0.10 | [-0.23, 0.16] | -0.35 | .727 |
| Age | -0.04 | 0.09 | [-0.22, 0.15] | -0.43 | .667 |
| Gender | 0.61 | 0.20 | [0.21, 1.00] | 3.03 | **.003** |
|  | Marginal *R*2 = .083; Conditional *R*2 = .656 | | | | |

*Note.* One linear mixed-effects model predicting perceived stress as the outcome. Assessment timepoint (dummy-coded: reopening, second lockdown, with first lockdown as the reference group) has been added as an independent variable and age and gender identity have been added as covariates. Random effects for participants have also been included. β = standardized coefficient; 95% CI = 95% confidence interval. Bold denotes significant effects.

**Figure S7**

*Perceived Stress During the COVID-19 Pandemic*

**A screenshot of a computer

Description automatically generated**

*Note.* Compared to the first lockdown, participants did not self-report changes in perceived stress. However, participants who identified as female reported significantly elevated levels of perceived stress across all assessment timepoints during the COVID-19 pandemic, compared to participants who identified as male (*p* = .003). This raincloud plot displays standardized perceived stress scores (y-axis) across all assessment timepoints during the COVID-19 pandemic (x-axis). To emphasize the main effect of time, we first plotted the mean and 95% confidence intervals for each assessment timepoint and connected these with a dashed line. Second, we added box plots showing the median (solid vertical line) and interquartile range. The black dots represent individual raw datapoints. Third, we added violin plots to visualize the probability distribution. \*\**p* < .01.

**Table S25**

*Depression Symptoms: Parameter Estimates Mediation Model*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **β** | **SE** | **95% CI** | ***z*** | ***p*** |
| a path | -0.31 | 0.10 | [-0.50, -0.10] | -2.97 | **.003** |
| b path | 0.42 | 0.09 | [0.25, 0.59] | 4.87 | **< .001** |
| direct effect (c’) | -0.14 | 0.10 | [-0.34, 0.06] | -1.37 | .172 |
| indirect effect (ab) | -0.13 | 0.05 | [-0.25, -0.05] | -2.57 | **.010** |

*Note.* β = standardized coefficient; 95% CI = 95% bootstrapped confidence interval. Bold denotes significant effects.

**Table S26**

*Anxiety Symptoms: Parameter Estimates Mediation Model*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **β** | **SE** | **95% CI** | ***z*** | ***p*** |
| a path | -0.36 | 0.10 | [-0.55, -0.14] | -3.43 | **< .001** |
| b path | 0.51 | 0.08 | [0.34, 0.67] | 6.15 | **< .001** |
| direct effect (c’) | -0.14 | 0.09 | [-0.31, 0.05] | -1.54 | .123 |
| indirect effect (ab) | -0.18 | 0.06 | [-0.32, -0.08] | -2.99 | **.003** |

*Note.* β = standardized coefficient; 95% CI = 95% bootstrapped confidence interval. Bold denotes significant effects.

**Figure S8**

*Perceived Stress Mediates the Relationship between Perceived Friendship Quality and Anxiety Symptoms*

A diagram of a diagram

Description automatically generated

*Note.* Path a shows the standardized regression coefficient of the relationship between perceived friendship quality during the pre-pandemic baseline and perceived stress during the first lockdown. Path b shows the standardized regression coefficient of the relationship between perceived stress during the first lockdown and anxiety symptoms during reopening, while controlling for gender identity. Paths ab (indirect effect) and c’ (direct effect) show the standardized regression coefficient of the relation between friendship quality during the pre-pandemic baseline and anxiety symptoms during reopening without and while controlling for perceived stress during the first lockdown, respectively. Pre-pandemic baseline = August 2019 to March 2020 (*N* = 100 after outlier removal); First lockdown = April to May 2020 (*n* = 77 after outlier removal); Reopening = July to August 2020 (*n* = 70 after outlier removal). β = standardized coefficient. Dashed line denotes non-significant effect. \*\**p* < .01, \*\*\**p* < .001.

Please note that the mediation effects remained consistent when assessing depression- or anxiety symptoms during the second lockdown. In other words, perceived stress during the first lockdown continued to fully mediate the relationship between pre-pandemic friendship quality and depression symptoms (indirect effect: β = -0.14, SE = 0.05, 95% CI [-0.26, -0.05], *p* = .009) or anxiety symptoms (indirect effect: β = -0.18, SE = 0.07, 95% CI [-0.34, -0.07], *p* = .009) during the second lockdown.

**I. Monte Carlo Power Analyses**

Two post-hoc simulation-based power analyses were performed. First, we used the mixedpower R package (version 0.1.0; (Kumle et al., 2021)) to estimate power in our linear mixed-effects model examining the main effect of friendship quality on depression symptoms before and during the COVID-19 pandemic (Marginal *R*2 = .178; Conditional *R*2 = .668). The following specifications were used to estimate power: fixed effect = 1 (main predictor: perceived friendship quality), simvar = subID (random effect for participants), steps = c(50, 60, 70) (sample sizes we estimated power for), critical\_value = 2 (significance threshold for coefficients; α = .05), n\_sim = 1000 (number of single simulations used to estimate power). Results of these Monte Carlo simulations indicated that a sample size of *N* = 70 corresponds to more than 80% power for the main effect. Hence, our smallest available sample size (second lockdown with *n* = 70 participants after outlier removal) is sufficient to ensure adequate power.

Second, to estimate sample size and power for our sequential mediation model, we followed the recommendations by (Schoemann et al., 2017) and ran Monte Carlo simulations via the Shiny App (available at <https://schoemanna.shinyapps.io/mc_power_med/>; developed by (Schoemann et al., 2017)). Standardized model parameters have been estimated based on the current dataset. Specifically, we set a = -0.32, b = 0.58, and c’ = -0.32. Moreover, we set *N* = 73 (reopening sample size after outlier removal), specified the total number of replications (# of Replications = 1,000), the number of draws for computing Monte Carlo confidence intervals (Monte Carlo Draws per Rep = 20,000), a random seed to ensure the exact replicability of the results, and the confidence levels of 95%. This analysis revealed that a sample of *N* = 73 participants results in 80% power for the indirect effect (ab path).

**J. Exploratory: Psychosocial Experiences during the COVID-19 Pandemic**

Four items from the *COVID-19 Adolescent Symptom and Psychological Experience Questionnaire* (CASPE; (Ladouceur, 2020)) were selected to explore self-reported psychosocial experiences at each follow-up assessment timepoint. First, participants were asked about (A) “what event or change has been the most positive” and (B) “[…] most negative” (Figure J1). Second, participants were asked about “[…] how [they] stay connected with friends (Figure J2). Third, participants were asked about “how [they] are coping or dealing with the stress or anxiety related to the COVID-19 outbreak (Figure J3). Although utilized in previous studies (e.g., (Porter et al., 2021), the CASPE has not yet been validated.

**Figure S9**

*Notable (A) Positive and (B) Negative Events or Changes during the COVID-19 Pandemic*

A graph of a number of people

Description automatically generated with medium confidence

*Note.* At each assessment timepoint during the COVID-19 pandemic, participants reported (**A**) the most positive and (**B**) the most negative events or changes during the COVID-19 pandemic.

**Figure S10**

*Tools Used to Maintain Social Connections with Friends during the COVID-19 Pandemic*

**A graph of a number of people

Description automatically generated with medium confidence**

*Note.* At each assessment timepoint during the COVID-19 pandemic, participants reported all approaches they used to stay connected with friends.

**Figure S11**

*Coping Strategies for Dealing with Pandemic-Related Stress or Anxiety*

**A graph of a graph with text

Description automatically generated with medium confidence**

*Note.* At each assessment timepoint during the COVID-19 pandemic, participants reported approaches to deal with pandemic-related stress or anxiety.

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