**Supplemental Material for:**

Common Genetic Contributions to High-Risk Trauma Exposure and

Self-Injurious Thoughts and Behaviors

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| Table S1*Odds Ratios Indicating the Associations Between Non-Suicidal Self-Injury, Suicidal Ideation, and Suicide Attempt, Prior to and After Controlling for High-Risk Trauma Exposure* |
|  |  | Cohort II (*n =* 6,237)a |  | Men (*n =* 2,791) |  | Women (*n =* 3,446) |
| Model |  | Baseline |
| NSSI -- Ideation |  | 8.20 [6.26, 10.76] |  | 5.83 [4.07, 8.36] |  | 12.30 [8.03, 18.84] |
| NSSI -- Attempt |  | 9.85 [7.34, 13.22] |  | 9.58 [6.03, 15.23] |  | 10.69 [7.27, 15.73] |
| Ideation – Attempt |   | 222.03 [82.76, 595.70] |  | 154.59 [38.02, 628.63] |  | 291.68 [71.98, > 999.99] |
| Model |  | Adjusted for High-Risk Trauma Exposure |
| NSSI -- Ideation |  | 6.15 [4.61, 8.20] |  | 4.74 [3.25, 6.91] |  | 8.52 [5.40, 13.45] |
| NSSI -- Attempt |  | 6.09 [4.44, 8.36] |  | 6.87 [4.21, 11.21] |  | 6.00 [3.95, 9.12] |
| Ideation – Attempt |   | 165.58 [61.46, 446.08] |  | 122.78 [30.00, 502.59] |  | 208.56 [50.75, 857.10] |

 Because trauma exposure was only assessed among Cohort II participants, both baseline and adjusted models were estimated in Cohort II.

 Nearly all individuals (430 [99.1%] of 434) who reported suicide attempt also reported suicidal ideation, resulting in very high associations between the phenotypes.

 a Includes 1,532 twins who also participated in the Childhood Trauma Study.

 95% confidence limits presented in brackets.

 NSSI = non-suicidal self-injury, Ideation = suicidal ideation, Attempt = suicide attempt.

Table S2

*Univariate Model Estimates for High-Risk Trauma Exposure*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Full Sample | Women | Men |
| Proportion of Variation |  |  |  |  |
|  Additive Genetic |  | .62 [.34, .90] | .70 [.42, .98] | .19 [.00, .50] |
|  Shared Environment |  | .02 [.00, .26] | .00 [.00, .28] | .20 [.00, .42] |
|  Unique Environment |  | .36 [.29, .44] | .30 [.21, .38] | .61 [.44, .77] |

 95% confidence limits presented in brackets.

 Bootstrapping was used to obtain confidence limits for estimates that were not statistically significant.

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| Table S3*Common Pathway Model Estimates of the Proportion of Variation in Self-Injurious Thoughts and Behaviors Attributable to Common and Specific Genetic, Shared Environmental, and Unique Environmental Factors* |
|
|  |  | Additive Genetic |  | Shared Environment |  | Unique Environment |
| Phenotype | CF | Sp | Total |  | CF | Sp | Total |  | CF | Sp | Total |
|  |  | Men |
| Common Factor |  | .54 | -- | .54 |  | .00 | -- | .00 |  | .46 | -- | .46 |
| NSSI |  | .19 | .33 | .52 |  | .00 | .00 | .00 |  | .16 | .32 | .48 |
| Suicidal Ideation |  | .39 | .00 | .39 |  | .00 | .00 | .00 |  | .33 | .28 | .61 |
| Suicide Attempt |   | .49 | .00 | .49 |  | .00 | .00 | .00 |  | .41 | .09 | .50 |
|  |  | Women |
| Common Factor |  | .51 | -- | .51 |  | .00 | -- | .00 |  | .49 | -- | .49 |
| NSSI |  | .24 | .46 | .70 |  | .00 | .00 | .00 |  | .23 | .07 | .30 |
| Suicidal Ideation |  | .45 | .07 | .52 |  | .00 | .00 | .00 |  | .43 | .05 | .48 |
| Suicide Attempt |   | .43 | .00 | .43 |  | .00 | .08 | .08 |  | .41 | .08 | .49 |

 Variance estimates do not always sum exactly to 1.00 due to rounding.

 CF = common factor, Sp = specific factor, NSSI = non-suicidal self-injury.

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| Table S4*Common Pathway Model Estimates of the Proportion of Variation in Self-Injurious Thoughts and Behaviors Attributable to Common and Specific Additive Genetic, Dominant Genetic, and Unique Environmental Factors* |
|
|  |  | Additive Genetic |  | Dominant Genetic |  | Unique Environment |
| Phenotype | CF | Sp | Total |  | CF | Sp | Total |  | CF | Sp | Total |
|  |  | Men |
| Common Factor |  | .41 | -- | .41 |  | .14 | -- | .14 |  | .45 | -- | .45 |
| NSSI |  | .14 | .00 | .14 |  | .05 | .36 | .41 |  | .15 | .29 | .44 |
| Suicidal Ideation |  | .30 | .00 | .30 |  | .10 | .00 | .10 |  | .32 | .28 | .60 |
| Suicide Attempt |   | .37 | .00 | .37 |  | .13 | .00 | .13 |  | .40 | .09 | .49 |
|  |  | Women |
| Common Factor |  | .25 | -- | .25 |  | .27 | -- | .27 |  | .48 | -- | .48 |
| NSSI |  | .12 | .41 | .53 |  | .13 | .05 | .18 |  | .22 | .07 | .29 |
| Suicidal Ideation |  | .23 | .00 | .23 |  | .25 | .09 | .34 |  | .43 | .01 | .44 |
| Suicide Attempt |   | .21 | .07 | .28 |  | .23 | .00 | .23 |  | .39 | .10 | .49 |

 Variance estimates do not always sum exactly to 1.00 due to rounding.

 CF = common factor, Sp = specific factor, NSSI = non-suicidal self-injury.

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| Table S5*Common Pathway Model-Fitting Results*  |
|  | Δχ2 |   | df |   | *p-*value |
|  | ACE Common Pathway  |
| I. ACE model | -- |  | 124 |  | -- |
| II. Model I without A | 51.14 |  | 132 |  | < .0001 |
| **III. Model I without C** | 0.49 |  | 132 |  | .9999 |
|  | ADE Common Pathway |
| I. ADE model | -- |  | 124 |  | -- |
| II. Model I without A | 5.70 |  | 132 |  | .68 |
| **III. Model I without D** | 4.24 |  | 132 |  | .83 |
| IV. Model I without A or D | 537.25 |   | 140 |  | < .0001 |

 Bold type indicates the best-fitting model.

 Nested models were compared using the Satorra-Bentler scaled chi-square difference test.

 A = additive genetic, D = dominant genetic, C = shared environment, E = unique environment.

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| Table S6*Tests of Sex Differences Within Common Pathway Models* |
|  | Δχ2 |   | df |   | *p-*value |
|  | ACE Common Pathway  |
| I. ACE model | -- |  | 124 |  | -- |
| II. Model I with common factor paths constrained | 1.82 |  | 127 |  | .61 |
| III. Model II with common ACE constraineda | 0.17 |  | 129 |  | .92 |
| IV. Model III with specific ACE constrained | 18.22 |  | 138 |  | .03 |
|  | ADE Common Pathway |
| I. ADE model | -- |  | 124 |  | -- |
| II. Model I with common factor paths constrained | 2.83 |  | 127 |  | .42 |
| III. Model II with common ADE constraineda | 0.47 |  | 129 |  | .79 |
| IV. Model III with specific ADE constrained | 18.42 |  | 138 |  | .03 |

 Nested models were compared using the Satorra-Bentler scaled chi-square difference test.

 A = additive genetic, D = dominant genetic, C = shared environment, E = unique environment.

 a Constraining the common A, C, and E or A, D, and E components across men and women comprised a 2 df test as the variance of the latent factor was fixed to 1.0 and the variance of E was computed as 1 – A – C or 1 – A – D.



*Figure S1.* Common pathway model for self-injurious thoughts and behaviors.

 For ease of presentation, this path diagram represents only one twin in a pair.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 NSSI = non-suicidal self-injury, A = additive genetic, C = shared environment, E = unique environment.



*Figure S2.* Correlated factors model for high-risk trauma exposure and self-injurious thoughts and behaviors.

 For ease of presentation, this path diagram represents only one twin in a pair.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 NSSI = non-suicidal self-injury, A = additive genetic, C = shared environment, E = unique environment, rG = genetic correlation, rC = shared environmental correlation, rE = unique environmental correlation.

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*Figure S3.* Standardized parameter estimates of the ACE common pathway model for men.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 95% confidence limits presented in brackets.

 Bolded estimates are statistically significant.

 NSSI = non-suicidal self-injury, A = additive genetic, C = shared environment, E = unique environment.



*Figure S4.* Standardized parameter estimates of the ACE common pathway model for women.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 95% confidence limits presented in brackets.

 Bolded estimates are statistically significant.

 NSSI = non-suicidal self-injury, A = additive genetic, C = shared environment, E = unique environment.



*Figure S5.* Standardized parameter estimates of the ADE common pathway model for men.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 95% confidence limits presented in brackets.

 Bolded estimates are statistically significant.

 NSSI = non-suicidal self-injury, A = additive genetic, D = dominant genetic, E = unique environment.

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*Figure S6.* Standardized parameter estimates of the ADE common pathway model for women.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 95% confidence limits presented in brackets.

 Bolded estimates are statistically significant.

 NSSI = non-suicidal self-injury, A = additive genetic, D = dominant genetic, E = unique environment.



*Figure S7.* Standardized parameter estimates of the AE correlated factors model for men.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 95% confidence limits presented in brackets.

 Bolded estimates are statistically significant.

 NSSI = non-suicidal self-injury, A = additive genetic, E = unique environment.



*Figure S8.* Standardized parameter estimates of the AE correlated factors model for women.

 Primed factors are specific to NSSI, suicidal ideation, and suicide attempt.

 95% confidence limits presented in brackets.

 Bolded estimates are statistically significant.

 NSSI = non-suicidal self-injury, A = additive genetic, E = unique environment.