Online-only supplementary material

Authors’ contributions
ABB contributed to the study design, data collection, analysis and interpretation of data and drafting the manuscript. JMM contributed to the study design and data collection. RS contributed to the study design and data collection, analysis and interpretation. AB contributed to drafting the manuscript. AM contributed to the study design, data collection, analysis and interpretation, and drafting the manuscript. All authors read and approved the final draft.

Table S1 Characteristics of the 249 eligible studies, n (%)

| Characteristic                        | All studies (N=249) | Substance use (N=113) | Aggressiveness and violence (N=35) | Self-harm, depressive, suicidal behavior (N=54) | Multiple risk behavior (N=21) | Sexual risk behavior (N=26) |
|---------------------------------------|---------------------|-----------------------|------------------------------------|-----------------------------------------------|-------------------------------|-----------------------------|
| Country                               |                     |                       |                                    |                                               |                               |                             |
| USA                                   | 112 (45.0)          | 48 (42.0)             | 23 (65.7)                          | 19 (35.0)                                     | 7 (33.0)                      | 15 (57.6)                   |
| UK                                    | 37 (15.0)           | 14 (12.0)             | 2 (5.7)                            | 16 (29.6)                                     | 2 (9.5)                       | 3 (11.5)                    |
| Australia                             | 24 (10.0)           | 13 (12.0)             | 3 (8.6)                            | 4 (7.4)                                       | 2 (9.5)                       | 2 (7.9)                     |
| Other                                 | 76 (30.0)           | 38 (34.0)             | 7 (20.0)                           | 15 (28.0)                                     | 10 (48.0)                     | 6 (23.0)                    |
| Sample sex                            |                     |                       |                                    |                                               |                               |                             |
| Only male                             | 8 (3.2)             | 1 (1.0)               | 2 (5.7)                            | 3 (5.5)                                       | 1 (4.8)                       | 1 (3.8)                     |
| Only female                           | 17 (6.8)            | 3 (2.6)               | 1 (2.9)                            | 2 (3.8)                                       | 4 (19.0)                      | 7 (27.0)                    |
| Both                                  | 224 (90.0)          | 109 (96.4)            | 32 (91.4)                          | 49 (90.7)                                     | 16 (76.2)                     | 18 (69.2)                   |
| Sample age                            |                     |                       |                                    |                                               |                               |                             |
| 10-14                                 | 96 (38.5)           | 51 (45.1)             | 14 (40.0)                          | 18 (33.4)                                     | 8 (38.0)                      | 5 (19.0)                    |
| 15-19                                 | 78 (31.4)           | 29 (25.7)             | 9 (25.7)                           | 19 (35.1)                                     | 6 (28.5)                      | 15 (58.0)                   |
| other                                 | 75 (30.1)           | 33 (29.2)             | 12 (34.3)                          | 17 (31.5)                                     | 7 (33.5)                      | 6 (23.0)                    |
| Survey method                         |                     |                       |                                    |                                               |                               |                             |
| Personal interview                    | 57 (23.0)           | 22 (19.4)             | 5 (14.3)                           | 15 (27.8)                                     | 7 (33.5)                      | 8 (30.7)                    |
| Self report                           | 155 (62.2)          | 84 (74.4)             | 17 (48.5)                          | 32 (59.2)                                     | 9 (42.8)                      | 13 (50.0)                   |
| Parents report                        | 6 (2.4)             | ---                   | 5 (14.2)                           | ---                                           | 1 (4.8)                       | ---                         |
| Parents and self-report               | 18 (7.2)            | 7 (6.2)               | 3 (8.6)                            | 4 (7.5)                                       | 3 (14.2)                      | 1 (3.8)                     |
| Official data/other                   | 13 (5.2)            | ---                   | 5 (14.4)                           | 3 (5.5)                                       | 1 (4.7)                       | 4 (15.5)                    |
| Years of follow-up                    |                     |                       |                                    |                                               |                               |                             |
| ≤ 10 years                            | 193 (77.5)          | 90 (79.6)             | 22 (63.0)                          | 44 (81.5)                                     | 13 (62.0)                     | 24 (92.3)                   |
| > 10 years                            | 56 (22.5)           | 23 (20.4)             | 13 (37.0)                          | 10 (18.5)                                     | 8 (38.0)                      | 2 (7.7)                     |
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| Loss to follow up | N  | 100% | Study design | Publication year |
|-------------------|----|------|--------------|------------------|
| <20%              |    | 103 (41.4) | Retrospective | 1995-2019        |
| 20-50%            |    | 56 (22.5) | Retrospective | 1995-2019        |
| >=50%             |    | 9 (3.6) | Retrospective | 1995-2019        |
| Not reported      |    | 81 (32.5) | Retrospective | 1995-2019        |

| NOS quality       | N  | 100% | Study design | Publication year |
|-------------------|----|------|--------------|------------------|
| Good quality      |    | 151 (60.6) | Propective    | 1995-2019        |
| Fair quality      |    | 64 (25.7) | Propective    | 1995-2019        |
| Poor quality      |    | 34 (13.7) | Propective    | 1995-2019        |

| Exposure type     | N  | 100% | Study design | Publication year |
|-------------------|----|------|--------------|------------------|
| Sociodemographic factors |    | 44 (17.6) | Prospective  | 1995-2019        |
| Neighborhood/school/peers |    | 37 (15.0) | Prospective  | 1995-2019        |
| Maternal behavior and/or biological factors |    | 51 (20.4) | Prospective  | 1995-2019        |
| Early childhood experiences/factors |    | 16 (6.4) | Prospective  | 1995-2019        |
| Birth complications |    | 5 (2.0) | Prospective  | 1995-2019        |
| Child individual factors/experiences |    | 16 (6.4) | Prospective  | 1995-2019        |
| Adolescent individual factors (other risk behavior or mental disorder) |    | 62 (25.0) | Prospective  | 1995-2019        |
| Other adolescent individual factors |    | 38 (15.2) | Prospective  | 1995-2019        |

| Analysis adjusted for covariates | N  | 100% | Study design | Publication year |
|---------------------------------|----|------|--------------|------------------|
| Yes                             |    | 192 (77.0) | Prospective  | 1995-2019        |
| No                              |    | 57 (23.0) | Prospective  | 1995-2019        |

| Study design | N  | 100% | Publication year |
|--------------|----|------|------------------|
| Prospective  | 237 (95.0) | 1995-2019 |
| Retrospective| 12 (5.0)    | 1995-2019  |

| Publication year | N  | 100% | Study design | Publication year |
|-----------------|----|------|--------------|------------------|
| < 1995          |    | 16 (6.5) | Prospective  | 1995-2019        |
| 1995-1999       |    | 15 (6.0) | Prospective  | 1995-2019        |
| 2000-2018       |    | 218 (87.5) | Prospective  | 1995-2019        |