

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	Risk behavior					
	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)

Loss to follow up							
<20%	103 (41.4)	42 (37.1)	15 (42.8)	22 (40.7)	12 (57.0)	12 (46.0)	
20-50%	56 (22.5)	26 (23.0)	5 (14.2)	19 (35.2)	3 (14.0)	3 (11.5)	
>=50%	9 (3.6)	5 (4.5)	2 (6.0)	1 (1.9)	---	1 (4.0)	
Not reported	81 (32.5)	40 (35.4)	13 (37.0)	12 (22.2)	6 (29.0)	10 (38.5)	
Exposure							
Distal risk factor	56 (22.5)	24 (21.2)	15 (43.0)	8 (14.8)	7 (33.0)	2 (7.7)	
Distal protective factor	3 (1.2)	2(1.8)	---	---	---	---	
Proximal risk factor	191 (76.0)	88 (78.0)	20 (57.0)	44 (81.5)	14 (67.0)	25 (96.2)	
Proximal protective factor	5 (2.0)	2 (1.8)	1 (3.0)	2 (3.7)	---	---	
Exposure type							
Sociodemographic factors	44 (17.6)	21 (18.6)	8 (22.8)	4 (7.4)	5 (23.8)	6 (23)	
Neighborhood/school/ peers	37 (15.0)	17 (15.0)	6 (17.0)	9 (16.6)	3 (14.3)	2 (7.7)	
Family patterns	51 (20.4)	29 (25.7)	6 (17.0)	7 (12.9)	5 (23.8)	4 (15.4)	
Maternal behavior and/or biological factors	25 (10.0)	14 (12.4)	7 (20.0)	2 (3.7)	2 (9.5)		
Early childhood experiences/factors	16 (6.4)	5 (4.4)	4 (11.4)	4 (7.4)	1 (4.7)	2 (7.7)	
Birth complications	5 (2.0)	---	4 (11.4)	1 (1.8)	---	---	
Child individual factors/experiences	16 (6.4)	4 (3.5)	6 (17.0)	2 (3.7)	1 (4.8)	3 (11.5)	
Adolescent individual factors (other risk behavior or mental disorder)	62 (25.0)	32 (28.3)	3 (8.5)	18 (33.3)	2 (9.5)	7 (27.0)	
Other adolescent individual factors	38 (15.2)	13 (11.5)	2 (5.7)	12 (22.2)	4 (19.0)	7 (27.0)	
Analysis adjusted for covariates							
Yes	192 (77.0)	85 (75.2)	24 (68.5)	45 (83.4)	19 (90.4)	19 (73.0)	
No	57 (23.0)	28 (24.8)	11 (31.5)	9 (16.6)	2 (9.6)	7 (27.0)	
NOS quality							
Good quality	151 (60.6)	64 (56.6)	17 (48.5)	40 (74.0)	13 (62.0)	17(65.3)	
Fair quality	64 (25.7)	29 (25.7)	13 (37.0)	11 (20.0)	4 (19.0)	7 (27.0)	
Poor quality	34 (13.7)	20 (17.7)	5 (14.5)	3 (6.0)	4 (19.0)	2 (7.7)	
Study design							
Prospective	237 (95.0)	109 (96.5)	31 (88.5)	53 (98.0)	20 (95.0)	24 (92.3)	
Retrospective	12 (5.0)	4 (3.5)	4 (11.5)	1 (2.0)	1 (5.0)	2 (7.7)	
Publication year							
< 1995	16 (6.5)	8 (7.0)	5 (14.0)	1 (1.8)	2 (9.5)	---	
1995-1999	15 (6.0)	5 (4.5)	3 (9.0)	5 (9.2)	---	2 (7.7)	
2000-2018	218 (87.5)	100 (88.5)	27 (77.0)	48 (89.0)	19 (90.5)	24 (92.3)	