Supplemental Online Content

Liu RT, Walsh RFL, Sheehan AE, Cheek SM, Sanzari CM. Prevalence and correlates of suicide and nonsuicidal self-injury in children: a systematic review and meta-analysis. *JAMA Psychiatry.* Published online May 25, 2022. doi:10.1001/jamapsychiatry.2022.1256

This supplemental material has been provided by the authors to give readers additional information about their work.

eMethods

The following search string was applied from inception through December 23, 2021:

(“early childhood” or “middle childhood” or “primary school” or “primary schoolers” or “elementary school” or “elementary schoolers” or preschool* or pre-school* or prepubertal or pre-pubertal or preadolescent* or pre-adolescent* or preadolescence or pre-adolescence or preteen* or “young children”)

AND

(suicid* or parasuicid* or self-harm or self-injur* or “self-mutilation”)

NOT

(“case study” or “case report” or commentary)

Selection of study characteristics for moderator analyses:

Commonly reported sample characteristics that would feasibly allow for moderator analyses were selected. These included mean age of sample, percentage of female participants in the sample, and sample type (community or clinical). SITB measurement characteristics that could reasonably affect prevalence estimates were also selected for moderator analyses. These included measure type (interview versus self-report) and respondent (child, parent, or both).

Although it would have been informative to evaluate the strength of the association between correlates and SITBs as a function of time, this was not possible, as only one study included a prospective longitudinal analysis of relevant constructs.[26] Similarly, given recent increases in preadolescent suicide, especially in certain demographic groups (i.e., Black youth), evaluating temporal trends in SITBs would have been of interest (i.e., by using study date as a moderator). These analyses would need to be stratified by sample type (community versus clinical) to yield meaningfully interpretable data. This consideration alone made such analyses unviable.

eTable 1. Study characteristics.

Study Author(s) (year)	N[a]	% Female[a]	Mean Age[a]	Sample Type	Self-Injurious Thoughts and Behaviors Assessment			
					Type(s)	Measure(s)	Format	Time-Frame(s)
Baetens et al. (2013)	1,439	54.83	12.00	Community	NSSI	SSM	SR	Lifetime
Bauer et al. (2018)	623	38.04	9.19	Mixed	SI	CDI/K-SADS	SR/I	1 Year
Borchardt & Meller (1996)	22	27.00	10.20	Clinical	SA	Medical Records	N/A	Current
Bridge et al. (2015)	560,940,284	48.84	—	Community	Suicide Death	Death Records	N/A	Lifetime
Cairns et al. (1988)	135	15.56	—	Clinical	SA	SSM	I	Lifetime
Carlson et al. (1987)	28	17.86	9.60	Clinical	SI/SA	Death/Suicide Interview	I	Lifetime
Causey et al. (1998)	137	23.36	3.78	Clinical	NSSI/SI/SA	Medical Records	N/A	Current
Chen et al. (in press)[1]	715	45.60	8.96	Community	SI	BSS	SR	Current
Chiang et al. (2013)	1,589	49.09	—	Community	SI	SSM	SR	1 Month
Cowell et al. (2005)	182	53.85	10.20	At-Risk	SI	CDI	SR	Current
DeVille et al. (2020)[2]	11,814	47.84	9.91	Community	NSSI/SI/SA	K-SADS	I	Lifetime
Greening et al. (2010)	179	27.93	9.49	Clinical	SA	SSM	I	Lifetime
Haavisto et al. (2003)	230	20.00	—	Clinical	SI/SA	SSBS	I	Not Reported
Hunsche et al. (2020)	178	17.42	—	Clinical	SI	CBCL	SR	6 Months
Husky et al. (2022)[3]	5,183	49.68	—	Community	SI	DI	SR	Current
James et al. (2021)	353	48.40	9.32	Community	SI	K-SADS	I	Lifetime
Kim et al. (2015)	199	57.79	11.01	At-Risk	SI	SIQ	SR	Current
Kovess-Masfety et al. (2015)[3]	7,062	49.08	8.73	Community	SI	DI	SR	Current
Larzelere et al. (2004)	73	—	—	At-Risk	SI/SA	CSRA	I	Lifetime
Lawrence et al. (2021)[2]	11,875	48.85		Community	SI	K-SADS	I	Current; Lifetime
Lee et al. (2020)	22	31.82	11.30	Clinical	Suicide Death	School Report	N/A	Lifetime
Lewis et al. (1983)	51	23.53	—	Clinical	SI/SA	Medical Records	N/A	Lifetime
Lin et al. (2014)	979	49.44	9.60	At-Risk	SI	DSSCA	SR	Current
Livingston & Bracha (1992)	90	28.89	9.90	Clinical	SI	DICA	I	Not Reported
Lo et al. (2017)	439	53.30	10.06	Community	SI	BSS	SR	1 Week
Luby et al (2019)	314	36.00	5.15	Mixed	NSSI/SA	K-SADS	I	6 Months
Marraccini et al. (2021)	121	47.50	10.56	Clinical	SI	Medical Records	N/A	Current
Martin et al. (2016)	360	27.50	5.23	Clinical	SI/SA	DIPA	I	Lifetime
Milling et al. (1996)	53	28.00	9.40	Clinical	SA	DISC	I	Lifetime
Min et al. (2012)	707	50.21	6.54	Community	SI	BASC-2	SR	6 Months
Mishra et al. (2013)	166	50.00	—	Clinical	Suicide Death	Medical/Death Records	N/A	Lifetime
Myers et al. (1985)	205	—	—	Clinical	SA	Medical Records	N/A	Current
O'Leary et al. (2006)	131	49.00	9.90	Mixed	SI	CDI	SR	Current

Ong et al. (2021)	1,464	43.31	—	Clinical	SA	SSM	I	6 Months
Paul et al. (2017)[4]	1,090	—	6.00	At-Risk	SI	CBCL	SR	6 Months
Paul et al. (2019)	2,886	47.47	9.00	At-Risk	SI	CBCL	SR	6 Months
Perepletchikova et al. (2017)	43	44.19	9.23	Clinical	NSSI/SI	C-SSRS	I	Lifetime
Pfeffer et al. (1982)	31	25.81	—	Clinical	SI	SSBS	I	6 Months
Pfeffer et al. (1986)	93	21.51	—	Clinical	SI/SA	SSBS	I	6 Months
Puig-Antich et al. (1989)	68	51.79	9.53	Clinical	SA	K-SADS	I	Lifetime
Read et al. (2020)	222	27.03	7.80	Clinical	SI	Medical Records	N/A	Current
Rosenthal et al. (1984)[5]	32	25.00	3.50	Clinical	SA	Medical Records	N/A	Current
Rosenthal et al. (1986)[5]	41	—	—	Clinical	SA	SSM	I	Lifetime
Ryan et al. (1987)	95	37.89	9.60	Clinical	SI/SA	K-SADS	I	Current
Sheftall et al. (2016)	87	14.94	—	Clinical	Suicide Death	Medical/Death Records	N/A	Lifetime
Sheftall et al. (2020)[6]	21	50.00	7.55	Mixed	SA	C-SSRS	I	Lifetime
Sheftall et al. (2021)[6]	117	—	—	Mixed	SI	C-SSRS	I	Lifetime
Shinsugi et al. (2015)	65,076,000	48.68	—	Community	Suicide Death	Death Records	N/A	Lifetime
Sourander et al. (2006)	882	52.78	12.00	Community	SI	SSM	SR	6 Months
Studart-Bottó et al. (2020)	10,401	41.69	—	Clinical	Suicide Death	Medical Records	N/A	Lifetime
Taussig et al. (2014)	515	48.00	9.80	At-Risk	SI/SA	ARBS	SR/I	Lifetime
Thompson et al. (2005)[4]	1,051	52.40	8.00	At-Risk	SI	TSCC	SR	1 Month
Väli et al. (2007)	334,000	48.50	—	Community	Suicide Death	Death Records	N/A	Lifetime
Viñas et al. (2002)	361	49.86	9.00	Community	SI	CDI	SR	Current
Walsh et al. (2020)	89,107	50.16	11.63	Community	SI/SA	SSM	SR	1 Year, Lifetime
Weiner et al. (1986)	106	23.58	10.70	Clinical	SI/SA	SSBS	I	6 Months
Williams et al. (2018)	40	—	—	Clinical	NSSI	Crisis Assessment Tool	N/A	Current
Zhu et al. (2019)[1]	715	45.50	8.95	Community	SI	BSS	SR	Current

Note. ARBS = Adolescent Risk Behavior Survey; BASC-2 = Behavior Assessment System for Children: Second Edition; BSS = Beck Scale for Suicide Ideation; CBCL = Child Behavior Checklist; CDI = Children's Depression Inventory; CSRA = Child Suicide Risk Assessment; C-SSRS = Columbia-Suicide Severity Rating Scale; DI = Dominic Interactive; DICA = Diagnostic Interview for Children and Adolescents; DIPA = Diagnostic Infant and Preschool Assessment; DISC = Diagnostic Interview Schedule for Children – Suicidality Scale; DSSCA = Depression Screen Scale for Children and Adolescents; K-SADS = Kiddie Schedule for Affective Disorders and Schizophrenia; SIQ = Suicidal Ideation Questionnaire; SSBS = Spectrum of Suicidal Behavior Scale; SSM = study-specific measure; TSCC = Trauma Symptom Checklist for Children
N/A = not applicable; I = interview; SR = self-report
NSSI = non-suicidal self-injury; SA = suicide attempt, SI = suicidal ideation
[1, 2, 3, 4, 5, 6] Studies with identical superscripts were drawn from same or overlapping samples but presented unique data included in this review.
[a] The sample size, mean age, and percentage female for participants included in relevant analyses, rather than of the entire study sample, are presented and were incorporated in moderator analyses whenever available. For ease of presentation, whenever the sample size, mean age, or percentage female varied across multiple relevant analyses within a study, data for the cumulative number of unique participants across these analyses are presented here, and the sample size used in each analysis was retained in the relevant meta-analysis for purposes of obtaining

weighted effect sizes. For studies with adolescent subsamples included in head-to-head comparisons between preadolescent and adolescent suicide, the sample size, mean age, and percentage female for only preadolescent participants are presented to be consistent with the presentation for all other studies.

eTable 2. Sensitivity analyses of prevalence rates of self-injurious thoughts and behaviors.

Self-Injury Type	Sample	Lifetime			
		k	**N**	**%**	**95% CI**
Suicide Attempts	Clinical	8	711	18.11%	08.37 – 34.86
Suicidal Ideation	Clinical	5	431	38.37%	16.21 – 66.69

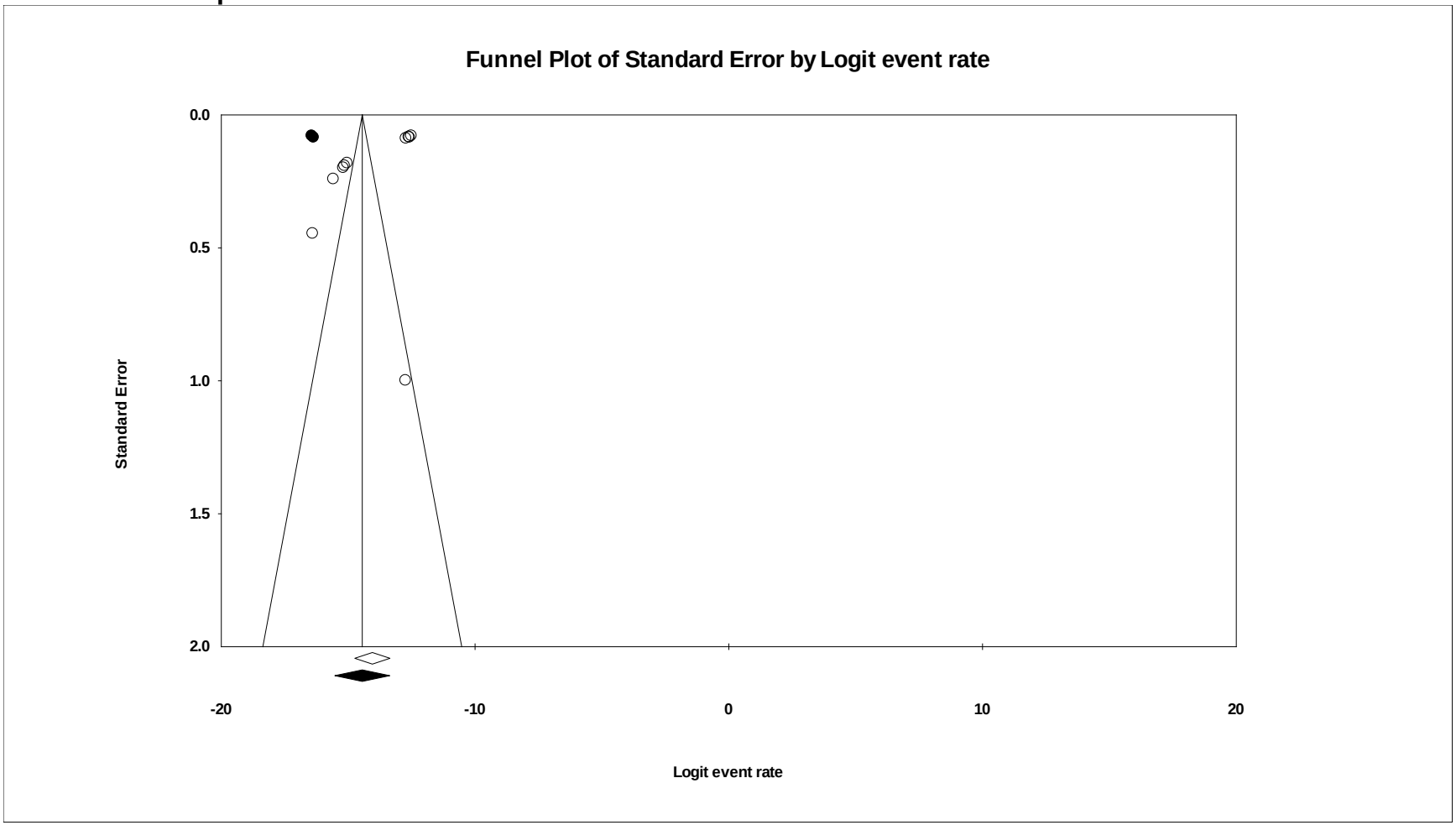
Note. CI = confidence interval; *k* = number of unique effects; N = total number of participants included in pooled analyses

eTable 3. Univariate moderator analyses for Lifetime self-injurious thoughts and behaviors.

Self-injury Type	*k*	N		*b*	SE		%	95% CI	*p*
Suicide Deaths									
Age[a]	—	—		—	—		—	—	—
% Female	14	626,360,685		-.01	.02		—	—	.56
Measure Type[b]	—	—		—	—		—	—	—
Respondent[b]	—	—		—	—		—	—	—
Suicide Attempts									
Age	11	101,581		-.03	.11		—	—	.76
% Female	17	101,767		-.02	.01		—	—	<.01
Measure Type	18	101,790		—	—		—	—	<.01
Interview	16	12,683		—	—		13.85%	5.37 – 31.31	—
Questionnaire	2	89,107		—	—		3.39%	3.28 – 3.51	—
Respondent	12	101,604		—	—		—	—	.17
Child	4	89,135		—	—		3.49%	3.10 – 3.94	—
Parent	3	436		—	—		1.97%	2.37 – 71.16	—
Child and Parent	5	12,033		—	—		8.24%	1.40 – 36.17	—
Suicidal Ideation									
Age	9	94,260		-.01	.06		—	—	.93
% Female	11	101,749		-.02	.01		—	—	<.001
Measure Type	12	101,819		—	—		—	—	<.01
Interview	10	12,780		—	—		28.18%	19.63 – 38.65	—
Questionnaire	2	89,039		—	—		15.56%	15.17 – 15.95	—
Respondent	9	101,480		—	—		—	—	.16
Child	4	89,067		—	—		15.71%	14.82 – 16.64	—
Parent[c]	—	—		—	—		—	—	—
Child and Parent	5	12,341		—	—		22.50%	13.52 – 35.02	—

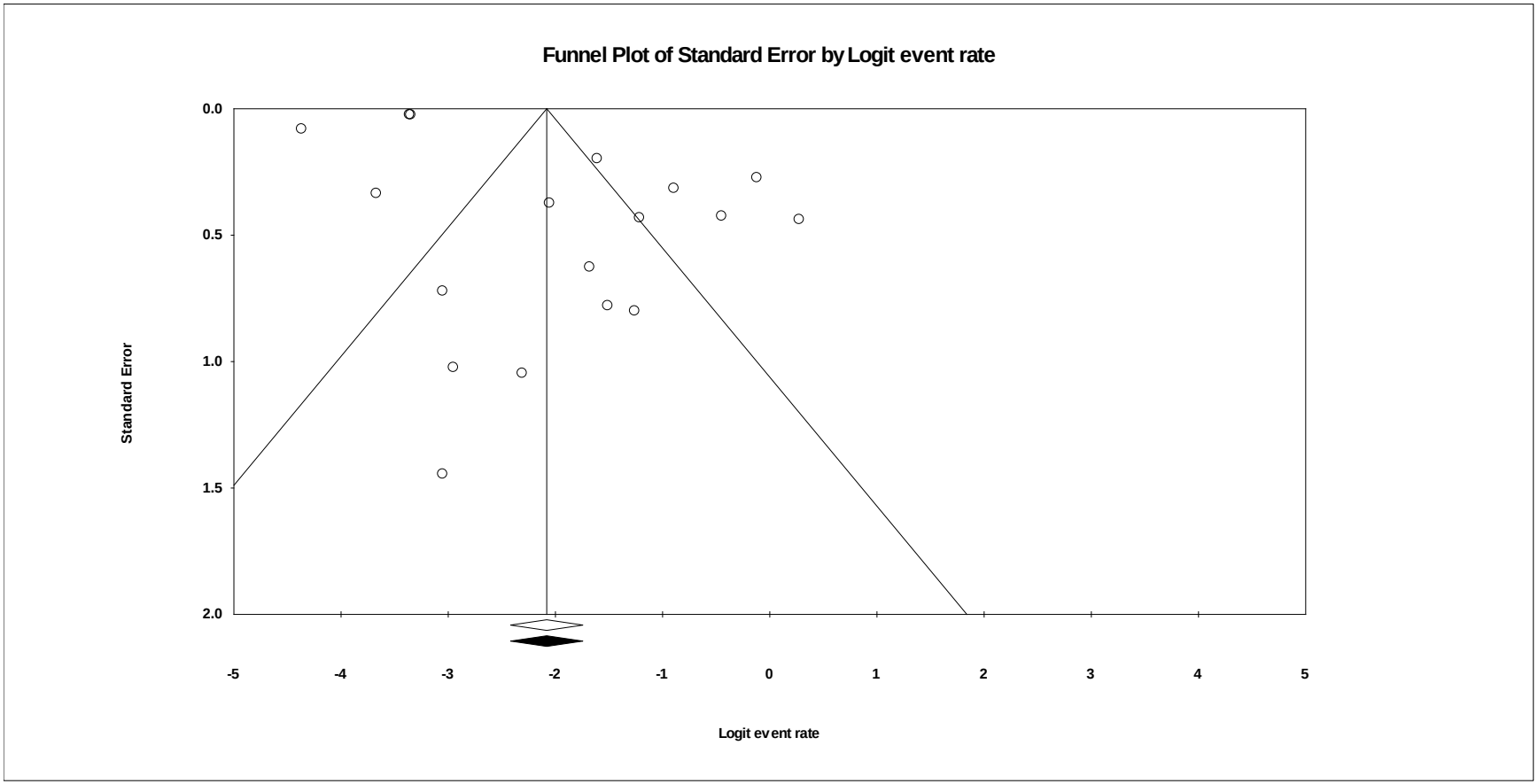
Note. CI = confidence interval; *k* = number of unique effects; N = total number of participants included in pooled analyses. Moderator analyses of Lifetime prevalence of non-suicidal self-injury were not conducted because there was an insufficient number of non-overlapping samples to do so.
[a] None of the studies of suicide death reported mean age.
[b] Moderator analyses of measure type and respondent for Lifetime prevalence of suicide were not applicable, as all data were obtained from death records.
[c] Only one report of Lifetime prevalence of suicidal ideation were based solely on parent response and so was not included in the moderator analysis.

eFigure. Funnel plots for effect sizes in the meta-analyses. The vertical line indicates the weighted mean effect. Open circles indicate observed effects for actual studies, and closed circles indicate imputed effects for studies believed to be missing due to publication bias. The clear diamond reflects the unadjusted weighted mean effect size, whereas the black diamond reflects the weighted mean effect size after adjusting for publication bias.
A. Prevalence of preadolescent suicide deaths



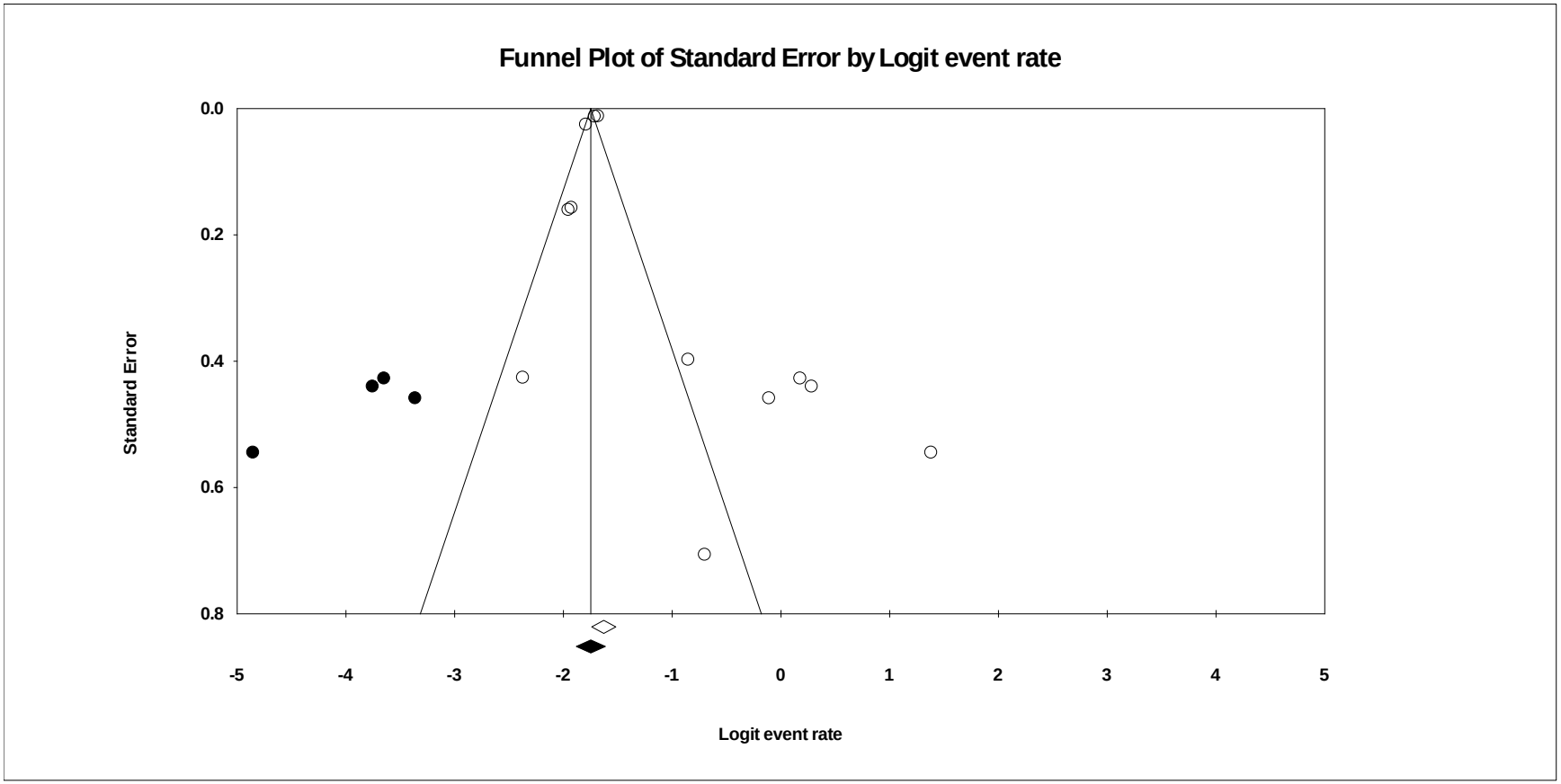
Modest asymmetry was present in the funnel plot and Egger's regression intercept test was statistically significant (2-tailed $p < .01$).

B. Prevalence of preadolescent suicide attempts



Although asymmetry was not present in the funnel plot, Egger's regression intercept test was statistically significant (2-tailed p = .02).

C. Prevalence of preadolescent suicidal ideation



Although asymmetry was present in the funnel plot, Egger's regression intercept test was not statistically significant (2-tailed p = .10).