

PACTR Results Summary

Trial identification

Trial title: ParentText Optimisation Trial

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Study design: Mixed-methods study incorporating a 2 × 2 factorial cluster-randomized controlled trial and qualitative interviews. The trial was conducted in Mpumalanga, South Africa, and tested two externally delivered components: in-person sessions with parents and adolescent girls (1 vs 4 sessions) and facilitated WhatsApp support groups for parents (yes vs no).

Study population: Parents of adolescent girls aged 10 to 17 years.

Study dates: August 21, 2023 to November 10, 2023.

Results posting date: 14 July 2026

Date of first journal publication: Not yet published

Publication URL(s): Not yet published

Protocol URL: <https://www.researchprotocols.org/2024/1/e52145/>. Published in JMIR Research Protocols on 3 May 2024.

Prospective registration: Open Science Framework - <https://doi.org/10.17605/OSF.IO/WFXNE> - Registered on August 17, 2023.

Brief summary

The ParentText Optimisation Trial was a mixed-methods 2 × 2 factorial cluster-randomized controlled trial conducted in Mpumalanga, South Africa, among parents of adolescent girls aged 10 to 17 years. Thirty-two clusters were randomly assigned to receive one of the four engagement packages: condition 1) ParentText chatbot plus an in-person onboarding session, condition 2) ParentText chatbot plus one in-person onboarding session plus six facilitated WhatsApp support sessions, condition 3) ParentText chatbot plus an in-person onboarding session, condition 2) ParentText chatbot plus one in-person onboarding session plus three in-person sessions for parents and adolescents, condition 4) ParentText chatbot plus one in-person onboarding session plus three in-person sessions for parents and adolescents plus six facilitated WhatsApp support sessions.

The trial evaluated two delivery modalities: human-delivered in-person sessions with parents and adolescent girls, and facilitated WhatsApp support groups for parents. It hypothesized that participants receiving human-delivered support would demonstrate higher engagement rates than those without facilitated support. This registry summary presents the trial's baseline characteristics, participant flow, adverse events, and outcome measures. No adverse events were reported or observed during the trial.

Baseline characteristics

A total of 1,464 caregivers and 1,013 adolescent girls were recruited and enrolled in the study, of whom 1,034 caregivers and 976 adolescent girls were matched to their baseline demographic and behavioural outcome surveys (Table 1, Figure 1). Caregivers were, on average, 38 years (SD9), 94.19% female and 646 initiated engagement with the ParentText chatbot. Engagement data were digitally tracked throughout the complete period of the intervention. To account for missing data (approximately 40% for baseline outcomes, n = 419) multiple chained equations using fully conditional specifications were conducted and pooled descriptive statistics were used for estimating baseline demographics and behaviour outcomes. Not recorded engagement data for participants who did not engage with ParentText were treated as structural zeros.

Table 1. Demographics and engagement across study arms.

Characteristic	Condition 1: n = 206 (19.9%)	Condition 2: n = 270 (26.1%)	Condition 3: n = 312 (30.2%)	Condition 4: n = 246 (23.8%)
Caregiver age, mean (SD)	37.55 (9.39)	39.03 (9.35)	38.63 (9.74)	38.10 (9.24)
Place of residence				
Ehlanzeni	157 / 206 (76.2%)	184 / 270 (68.1%)	204 / 312 (65.4%)	171 / 246 (69.5%)
Nkangala	49 / 206 (23.8%)	86 / 270 (31.9%)	108 / 312 (34.6%)	75 / 246 (30.5%)
Female Caregiver	196 / 206 (95.1%)	248 / 270 (91.8%)	291 / 312 (93.2%)	239 / 246 (97.2%)

Biological parent, n (%)	159 / 206 (77.0%)	234 / 270 (86.6%)	240 / 312 (76.9%)	213 / 246 (86.5%)
Female child, n (%)	206 / 206 (100%)	270 / 270 (100%)	240 / 240 (100%)	213 / 213 (100%)
Child Age	12.25 ± 1.76	13.07 ± 2.36	12.70 ± 2.46	12.40 ± 2.02
In a partnered relationship ^a , n (%)	102 / 206 (49.5%)	163 / 270 (60.3%)	252 / 312 (80.9%)	145 / 246 (59.0%)
Adolescent school enrolment, n (%)				
Grade 4–9				
Grade 10–12	198 / 206 (96.1%)	218 / 270 (80.7%)	234 / 312 (75.0%)	217 / 246 (88.2%)
	8 / 206 (3.9%)	52 / 270 (19.3%)	78 / 312 (25.0%)	29 / 246 (11.8%)
Caregiver disability ^c , n (%)	7 / 206 (3.4%)	12 / 270 (4.5%)	15 / 312 (4.7%)	44 / 246 (17.8%)
Total Positive Parenting (APQ)	24.55/36 (5.85)	20.16/36 (4.76)	18.78/36 (6.84)	21.82/36 (7.18)
Positive Involvement	8.82/12 (3.02)	7.70/12 (2.29)	6.39/12 (3.30)	7.62/12 (2.96)
Caregiver supervision	6.43/12 (1.74)	5.01/12 (2.06)	5.55/12 (2.25)	5.85/12 (1.90)
Positive Parenting	9.30/12 (2.72)	7.45/12 (2.68)	6.84/12 (3.33)	8.35/12 (3.43)
Parent-Child Communication (PCC)	7.84/8 (3.23)	6.32/8 (3.10)	5.75/8 (3.54)	6.97/8 (3.18)

Overall Child Maltreatment (ICAST)	7.85/32 (6.39)	9.44/32 (7.74)	7.43/32 (6.19)	9.07/32 (6.70)
Physical Abuse	3.30/16 (2.83)	4.25/16 (4.19)	3.06/16 (3.40)	4.14/16 (3.56)
Emotional Abuse	4.56/16 (4.02)	5.19/16 (4.07)	4.37/16 (3.64)	4.94/16 (4.01)
Poor Mental Health (PHQ)	1.88/12 (2.66)	3.69/12 (3.21)	3.91/12 (3.03)	3.69/12 (3.50)
Parental Stress (PSS)	7.23/24 (3.94)	8.40/24 (3.92)	8.82/24 (4.43)	9.73/24 (4.15)
Attitude Supporting Corporal Punishment (MICS)	1.18/4 (1.04)	1.76/4 (1.52)	1.43/4 (1.48)	2.02/4 (1.35)
Financial Stress (FSES)	2.08/3 (0.94)	1.69/3 (1.03)	1.48/3 (1.15)	1.66/ (1.09)
Gender Equitable Behaviour*	3.74/16 (5.23)	4.59/16 (5.23)	5.27/16 (4.73)	4.87/16 (5.29)
Presence of father in the house, n (%)				
Yes	51 / 206 (24.6%)	123 / 270 (45.4%)	122 / 312 (39.2%)	79 / 246 (32.0%)
Passed away	30 / 206 (14.3%)	50 / 270 (18.5%)	23 / 312 (7.5%)	25 / 246 (10.1%)
Lives elsewhere	126 / 206 (61.1%)	97 / 270 (36.0%)	166 / 312 (53.3%)	142 / 246 (57.9%)
Enrolled in ParentText	168 / 206 (81.6%)	128 / 270 (47.4%)	182 / 312 (58.3%)	168 / 246 (68.3%)
Modules completed, mean (SD)	26.80 ± 35.81	15.52 ± 31.09	16.04 ± 30.69	27.75 ± 38.50
Goals completed, mean (SD)	17.80 ± 31.64	10.91 ± 27.43	9.50 ± 24.60	16.34 ± 31.26

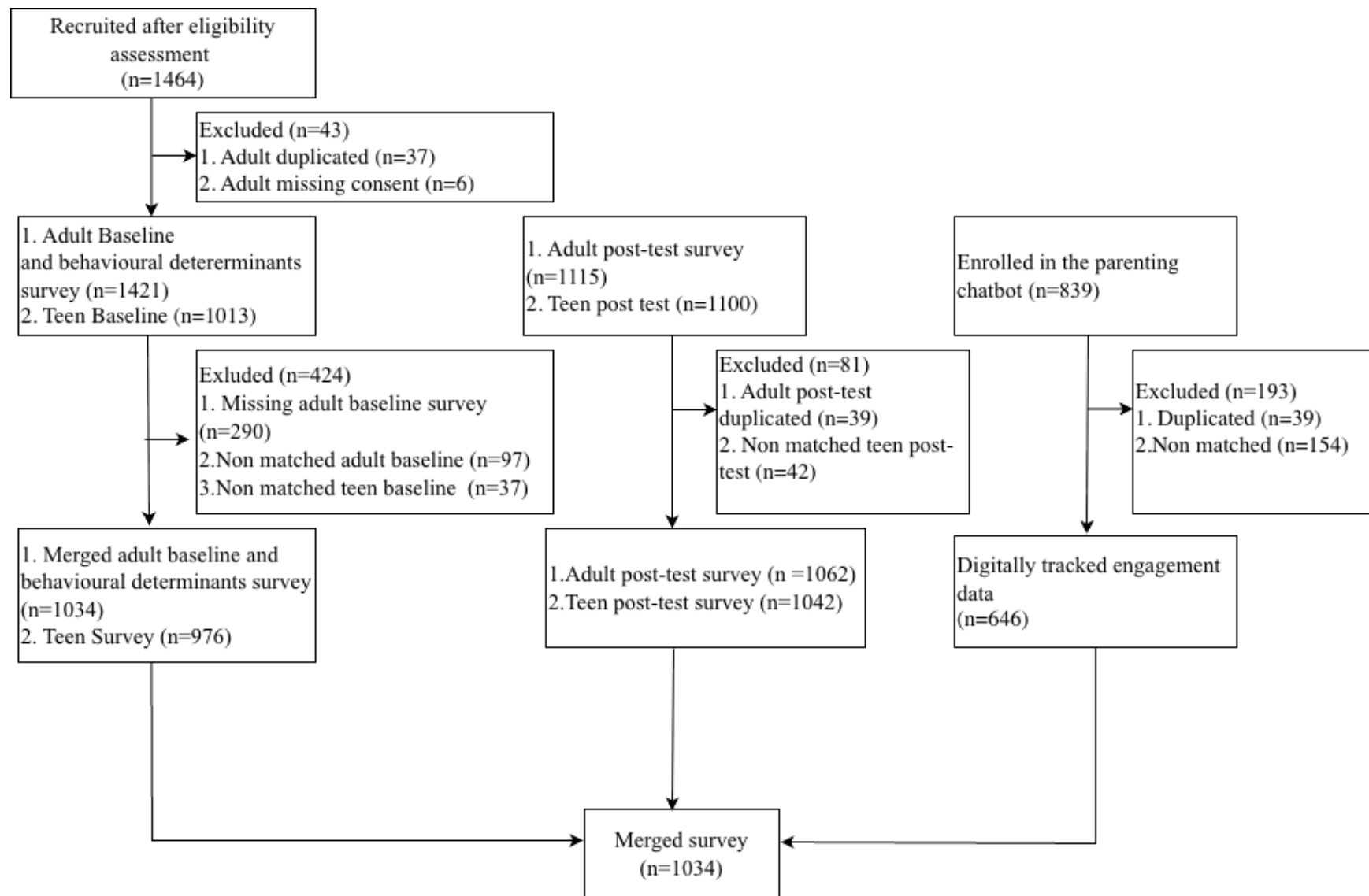
Home activity completed, mean (SD)	2.97 ± 6.25	1.59 ± 4.54	1.99 ± 5.34	3.59 ± 7.54
Number of days interacting, mean (SD)	35.85 ± 40.54	20.79 ± 37.00	22.23 ± 39.31	25.65 ± 31.80

Continuous variables are presented as pooled mean and SD; Self-reported behavior outcomes are reported as pooled mean, total response range and SD. categorical variables as pooled n / N (%). * Asked to partnered caregivers only. N = 1,034. ^a Partnered refers to married, civil or non-civil partnership status. ^c Includes caregiver-reported cognitive, learning, auditory, visual, physical (any motor limitations and difficulties in performing self-care activities such as getting dressed) and functional disabilities (any pre-existing non-communicable health conditions such as diabetes, cardiovascular disease and cancer).

Participant flow

The flow diagram below shows participant flow through the trial, including those assessed for eligibility, enrolled, allocated, followed up, and analysed.

Figure 1. Participant flow



Adverse events

No adverse events were reported or observed during this trial.

Outcome measures

Outcome results are presented as adjusted component effects from the factorial interaction model, with arm-level comparisons reported where applicable.

On average, caregivers interacted with ParentText for 25.38 days (SD 37.66), completed 20.83% (SD 34.26) of modules, 13.15% (SD 28.64%) of goals and 2.46% (SD 5.98%) of home activities. Component analysis indicates that caregivers enrolled in WhatsApp support groups completed a higher rate of modules and goals in the ParentText chatbot than caregivers who were not enrolled in WhatsApp support groups (Table 2). Caregivers enrolled in WhatsApp support groups showed lower rates of reduction in overall maltreatment (IRR = 1.58, 95% CI: 1.35 to 1.85), physical abuse (IRR = 2.53, 95% CI: 1.90 to 3.37), and emotional abuse (IRR = 1.40, 95% CI: 1.16 to 1.69) than those in no WhatsApp support groups. No differences in user engagement were observed between caregivers enrolled in the three in-person sessions compared to those who received only the onboarding session (Table 3). Participants receiving in-person delivered support presented lower rates of reduction in overall maltreatment (IRR = 1.43, CI: 1.23 to 1.67), physical abuse (IRR = 2.53, 95%CI: 1.92 to 3.33) and emotional abuse (IRR = 1.05, 95%CI: 0.87 to 1.27) than those who received only the onboarding session.

Table 2. Component Analysis: Engagement

Sample with missings recorded as structural "0" (N=1034) : Multilevel model - 2 levels

		N	β	SE	90% CI		p-value
Number of modules completed*	WhatsApp [1]	646	1.46	0.30	1.04	2.05	0.070
	In-person [1]		1.07	0.23	0.74	1.53	0.771
Percent of modules completed	WhatsApp [1]	646	7.14	4.38	-0.06	14.33	0.103
	In-person [1]		2.59	4.65	-5.06	10.23	0.578

Number of goals completed*	WhatsApp [1]	646	1.41	0.30	1.00	2.00	0.099
	In-person [1]		1.14	0.26	0.79	1.65	0.556
Percent of goals completed	WhatsApp [1]	646	7.35	4.28	0.31	14.39	0.086
	In-person [1]		2.60	4.56	-4.91	10.11	0.569
Number of days users engaged with the chatbot	WhatsApp [1]	646	1.00	4.50	-6.40	8.39	0.824
	In-person [1]		-4.91	4.38	-12.11	2.30	0.263

Table 3. Caregiver-reported behavioural and mental health outcomes

Outcome	N (analysed)	Baseline mean (SD)	Follow-up mean (SD)	WhatsApp effect	p-value	In-person effect	p-value	Interaction effect	p-value
ICAST physical violence	1747	3.67 (3.62)	0.84 (1.64)	IRR 2.53 (1.90 to 3.37)	<0.001	IRR 2.53 (1.92 to 3.33)	<0.001	IRR 0.30 (0.21 to 0.43)	<0.001

ICAST emotional abuse	1748	4.74 (3.95)	1.60 (2.47)	IRR 1.40 (1.16 to 1.69)	<0.001	IRR 1.05 (0.87 to 1.27)	0.595	IRR 0.89 (0.69 to 1.15)	0.373
ICAST total child maltreatment	1758	8.41 (6.89)	2.43 (3.65)	IRR 1.58 (1.35 to 1.85)	<0.001	IRR 1.43 (1.23 to 1.67)	<0.001	IRR 0.63 (0.52 to 0.78)	<0.001
Attitudes towards child punishment	1775	1.61 (1.41)	0.75 (1.10)	OR 0.51 (0.30 to 0.89)	0.017	OR 0.51 (0.30 to 0.85)	0.01	OR 0.63 (0.30 to 1.33)	0.224
Caregiver involvement	1746	7.52 (3.07)	10.41 (1.71)	β 1.57 (1.00 to 2.14)	<0.001	β 2.28 (1.75 to 2.81)	<0.001	β -2.03 (-2.79 to -1.26)	<0.001
Caregiver supervision	1735	8.68 (3.05)	9.77 (3.59)	β 0.31 (-0.40 to 1.02)	0.389	β 0.08 (-0.57 to 0.73)	0.81	β 0.08 (-0.87 to 1.03)	0.872
Caregiver positive parenting	1752	7.87 (3.23)	10.54 (2.03)	β 1.79 (1.14 to 2.45)	<0.001	β 3.01 (2.40 to 3.61)	<0.001	β -3.93 (-4.81 to -3.05)	<0.001
Total parenting score	1771	24.05 (7.26)	30.68 (5.10)	β 3.70 (2.35 to 5.06)	<0.001	β 5.40 (4.13 to 6.67)	<0.001	β -6.01 (-7.84 to -4.19)	<0.001
Parental stress	1729	10.97 (4.72)	7.03 (5.76)	β -3.25 (-4.42 to -2.07)	<0.001	β -1.58 (-2.65 to -0.50)	0.004	β 2.06 (0.49 to 3.63)	0.01
Parent support for education	1762	11.47 (4.47)	14.93 (1.84)	β 1.88 (1.10 to 2.66)	<0.001	β 2.86 (2.13 to 3.59)	<0.001	β -3.56 (-4.61 to -2.51)	<0.001

Parent-child communication	1772	10.18 (4.92)	16.01 (3.40)	β 3.38 (2.43 to 4.33)	<0.001	β 2.82 (1.94 to 3.70)	<0.001	β -3.44 (-4.72 to -2.16)	<0.001
Mental health	1654	3.75 (3.22)	2.57 (3.24)	β 3.38 (2.43 to 4.33)	<0.001	β 2.82 (1.94 to 3.70)	<0.001	β -3.44 (-4.72 to -2.16)	<0.001
Financial self-efficacy	1508	1.68 (1.08)	2.35 (0.93)	OR 3.31 (1.87 to 5.84)	<0.001	OR 9.09 (5.13 to 16.11)	<0.001	OR 0.11 (0.05 to 0.26)	<0.001
Gender equitable behaviours (partnered only)	1012	8.09 (4.25)	11.76 (3.41)	β -1.16 (-1.86 to -0.45)	0.001	β 0.02 (-0.62 to 0.67)	0.947	β 0.97 (-0.00 to 1.93)	0.05

Adjusted intervention effects are from the component interaction model and are adjusted for district stratifier, caregiver age and gender, and adolescent age. Continuous outcomes are reported as β , count outcomes as IRR, and ordinal outcomes as OR. 95% CIs were derived from the model SEs / reported 90% CIs to match manuscript conventions.

Table 4. Adolescent-reported behavioural and mental health outcomes

Outcome	N (analysed)	Baseline mean (SD)	Follow-up mean (SD)	WhatsApp effect	p-value	In-person effect	p-value	Interaction effect	p-value
ICAST physical violence	1656	3.16 (3.13)	0.61 (1.34)	IRR 2.44 (1.83 to 3.24)	<0.001	IRR 1.07 (0.81 to 1.42)	0.615	IRR 0.20 (0.13 to 0.31)	<0.001
ICAST emotional abuse	1652	4.51 (3.95)	1.33 (2.25)	IRR 2.21 (1.76 to 2.77)	<0.001	IRR 1.10 (0.89 to 1.36)	0.361	IRR 0.36 (0.27 to 0.49)	<0.001
ICAST total child maltreatment	1659	7.69 (6.11)	1.94 (3.25)	IRR 2.35 (1.97 to 2.80)	<0.001	IRR 1.11 (0.94 to 1.31)	0.216	IRR 0.32 (0.25 to 0.40)	<0.001
Attitudes towards child punishment	1629	1.28 (1.32)	0.70 (1.04)	OR 0.17 (0.09 to 0.31)	<0.001	OR 0.16 (0.09 to 0.29)	<0.001	OR 9.21 (3.97 to 21.37)	<0.001
Caregiver involvement	1611	7.16 (2.98)	9.86 (2.37)	β 1.17 (0.53 to 1.81)	<0.001	β 0.74 (0.17 to 1.30)	0.011	β -1.44 (-2.29 to -0.59)	0.001
Caregiver supervision	1610	8.81 (3.01)	9.92 (3.21)	β 1.38 (0.67 to 2.10)	<0.001	β 1.52 (0.88 to 2.15)	<0.001	β -1.64 (-2.59 to -0.68)	0.001

Caregiver positive parenting	1601	7.22 (3.48)	10.24 (2.38)	β 0.23 (-0.51 to 0.97)	0.542	β 1.99 (1.33 to 2.64)	<0.001	β -1.75 (-2.73 to -0.77)	<0.001
Total parenting score	1636	23.11 (7.28)	29.93 (5.90)	β 2.90 (1.42 to 4.39)	<0.001	β 4.45 (3.11 to 5.78)	<0.001	β -4.86 (-6.84 to -2.88)	<0.001
Parent support for education	1660	10.72 (4.74)	14.14 (2.95)	β 1.41 (0.50 to 2.31)	0.002	β 2.83 (2.02 to 3.64)	<0.001	β -3.20 (-4.41 to -2.00)	<0.001
Mental health	1648	2.83 (2.73)	1.87 (2.47)	β -1.51 (-2.09 to -0.93)	<0.001	β -0.80 (-1.32 to -0.28)	0.003	β 0.71 (-0.06 to 1.49)	0.071
Risky behaviour	1662	4.40 (5.33)	1.04 (2.07)	β -1.63 (-2.60 to -0.65)	0.001	β -2.84 (-3.71 to -1.97)	<0.001	β 1.20 (-0.10 to 2.49)	0.07
Risk avoidance	1662	4.85 (4.28)	6.10 (5.10)	β 2.38 (1.32 to 3.43)	<0.001	β -1.15 (-2.10 to -0.20)	0.017	β -1.63 (-3.04 to -0.22)	0.023
Involvement in decision making	1608	2.19 (2.08)	2.84 (1.75)	β 0.28 (-0.19 to 0.74)	0.248	β 1.57 (1.15 to 1.99)	<0.001	β -1.84 (-2.47 to -1.22)	<0.001

Adjusted intervention effects are from the component interaction model and are adjusted for district stratifier, caregiver age and gender, and adolescent age. Continuous outcomes are reported as β , count outcomes as IRR, and ordinal outcomes as OR. 95% CIs were derived from the model SEs / reported 90% CIs to match manuscript conventions.