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Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Baker-Henningham H, Bowers M, Francis T, Vera-Hernández M, Walker SP. The Irie Classroom Toolbox, a universal violence-prevention teacher-training programme, in Jamaican preschools: a single-blind, cluster-randomised controlled trial. *Lancet Glob Health* 2021; published online Feb 22. [http://dx.doi.org/10.1016/S2214-109X\(21\)00002-4](http://dx.doi.org/10.1016/S2214-109X(21)00002-4).

Webtable 1 Internal reliability and test-retest of teacher well-being, child inhibitory control, and child mental health measures

	Internal Reliability (Cronbach's alpha)	Test Retest ¹
Teacher Well-Being		
Depressive Symptoms	0.88	0.82
Teacher burn-out	0.88	0.81
Teaching self-efficacy	0.87	0.75
Child Inhibitory Control: test-retest (ICC)=0.82 (for composite of three tests)		
Big/little Stroop	..	0.64
Silly Sounds Stroop	..	0.41
Frog/Bear	..	0.58
Child Mental Health		
Behaviour Difficulties	0.83	0.80
Prosocial Skills	0.82	0.78
Clinical range for Behaviour Difficulties	..	0.85
Impact of Difficulties on Daily Life	..	0.83

¹Test re-test conducted over 2 weeks with non-study children, prior to baseline data collection, n=20 for all values; values are intraclass correlation coefficients (ICC).

Webtable 2 Distribution of the observational data of counts of violence against children by teachers at baseline, post-intervention, and one-year follow-up

Counts of violence against children by teachers	n (%) at baseline	n (%) at post-intervention	n (%) at one-year follow-up
0	37 (16)	39 (20)	45 (24)
1	15 (7)	13 (7)	22 (12)
2	15 (7)	17 (9)	10 (5)
3	12 (5)	15 (8)	8 (4)
4	12 (5)	4 (2)	15 (8)
5	7 (3)	6 (3)	8 (4)
6-10	43 (19)	22 (11)	27 (14)
11-15	28 (12)	21 (11)	19 (10)
16-20	13 (6)	12 (6)	12 (7)
21-25	12 (5)	8 (4)	5 (3)
26-30	9 (4)	8 (4)	7 (4)
31-50	12 (5)	17 (9)	9 (5)
>50	14 (6)	18 (9)	2 (1)

Webtable 3 Factor analyses of teacher well-being questionnaires and child inhibitory control tests at baseline, post-intervention, and one-year follow-up

	Baseline	Post-intervention	Follow-up
Teacher well-being			
Depressive symptoms (reverse coded)	0.73	0.78	0.81
Burn out (reverse coded)	0.82	0.85	0.82
Teaching self-efficacy	0.71	0.63	0.68
<i>Variance explained</i>	57%	58%	60%
Child inhibitory control			
Big/little test score	0.76	0.74	..
Silly sounds test score	0.74	0.74	..
Bear/frog score (reverse coded)	0.58	0.66	..
<i>Variance explained</i>	59%	51%	..

Webtable 4 below shows the variables that have been imputed, the non-imputed variables used in the imputation and the model used to obtain the multiple imputations. The non-imputed variables include group assignment, covariates (see table notes), and the value of the outcome variable at baseline when such does not have missing values (cases: 1,3,8,9,10,11,12). In some cases (2, 4, 5, 6, 7, 13), the outcome variable at baseline is missing for one teacher or child, in such case we also use the baseline value of another outcome variable for the imputation, and we impute the both the baseline and post-intervention or follow-up value jointly using chained equations. The sensitivity analysis replicates the main analysis but we also use interactions between the covariates and group assignment in the imputation model.

Case	Outcomes	Imputed variables	Non-imputed variables used in the imputation	Model used
Teacher/classroom outcomes - primary				
(1)	Violence against children (VAC) by teachers (counts)	Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (counts), group assignment, covariates	Negative Binomial
(2)	Class-wide aggression	Baseline (1), Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (counts), group assignment, covariates	Linear Regression
Teacher/classroom outcomes - secondary				
(3)	VAC by teachers (binary)	Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (binary), group assignment, covariates	Logit
(4)	Class-wide prosocial behaviour	Baseline (1), Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (counts), group assignment, covariates	Linear Regression
(5)	Emotional support	Baseline (1), Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (counts), group assignment, covariates	Linear Regression
(6)	Classroom organisation	Baseline (1), Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (counts), group assignment, covariates	Linear Regression
(7)	Instructional support	Baseline (1), Post-intervention (29) and Follow-up (43)	Baseline level of teachers' use of VAC (counts), group assignment, covariates	Linear Regression
(8)	Teacher wellbeing	Post-intervention (26) and Follow-up (40)	Baseline level of teachers' wellbeing, group assignment, covariates	Linear Regression
Child outcomes				
(9)	Prosocial skills	Post-intervention (83)	Baseline level of prosocial skills, group assignment, covariates	Linear Regression
(10)	Behaviour difficulties	Post-intervention (83)	Baseline level of behaviour difficulties, group assignment, covariates	Linear Regression
(11)	Clinical level behaviour problems	Post-intervention (83)	Baseline level of clinical level behaviour problems, group assignment, covariates	Logit
(12)	Impact of behaviour difficulties on daily life	Post-intervention (83)	Baseline level of impact of behaviour difficulties on daily life, group assignment, covariates	Logit
(13)	Inhibitory control	Baseline (1) and Post-intervention (83)	Baseline level of prosocial skills and behaviour difficulties, group assignment, covariates	Linear Regression

Notes: The number in parenthesis indicate the number of missing observations. In the analyses of teacher/classroom outcomes, the covariates include (all at baseline) number of children in the class, number of years teaching in the school, whether the teacher finished high school, whether the teacher has a formal teaching qualification. The covariates in the analyses of child outcomes include child's sex and age.

Webtable 5 Classroom, teacher, and child characteristics by loss at post-intervention and follow up

	Post-Intervention			One-Year Follow-Up		
	Lost <i>n</i> =29	Found <i>n</i> =200	P-Value	Lost <i>n</i> =39	Found <i>n</i> =190	P-Value
Number of years teaching	15.0 (7-21)	15 (8-24)	0.79	15.0 (6-22)	15 (9-23)	0.38
Number of years teaching at current school	7 (1-15)	12 (5-20)	0.04	6 (2-16)	12 (5-20)	0.04
Number of children in class	16.9 (8.8)	16.6 (6.2)	0.84	15.8 (8.2)	16.8 (6.2)	0.49
High school completed	24 (83%)	168 (84%)	0.87	31 (80%)	161 (85%)	0.45
Trained teacher	12 (41%)	69 (35%)	0.47	28 (72%)	117 (62%)	0.07
Currently attending teacher training college	5 (17%)	23 (12%)	0.58	8 (21%)	19 (10%)	0.19
Sex of teacher: female	28 (97%)	196 (98%)	0.62	39 (100%)	185 (98%)	0.31
Teachers' use of violence over 1 school day	6 (2-12)	7 (2-18)	0.54	9 (2-23)	7 (2-16)	0.32
Teacher used no violence over 2 school days	3 (10%)	24 (12%)	0.80	4 (10%)	23 (12%)	0.74
Rating of class-wide child aggression	2.2 (1.5-3.5)	2.4 (1.6-4.0)	0.59	2.2 (1.6-3.8)	2.4 (1.6-3.9)	0.61
Rating of class-wide prosocial behaviour	1.8 (1.2-2.3)	1.8 (1.4-2.2)	0.91	2.0 (1.2-2.2)	1.8 (1.4-2.2)	0.59
Rating of quality of classroom: Emotional support	4.4 (0.7)	4.2 (0.8)	0.28	4.21 (0.8)	4.3 (0.8)	0.75
Rating of quality of classroom: Classroom organisation	4.9 (0.8)	4.8 (0.8)	0.68	4.8 (0.8)	4.8 (0.8)	0.74
Rating of quality of classroom: Instructional support	1.5 (1.3-1.6)	1.4 (1.3-1.5)	0.18	1.4 (1.3-1.6)	1.4 (1.3-1.5)	0.56
Teacher well-being	0.08 (1.26)	-0.01 (0.96)	0.63	-0.11 (1.1)	0.02 (1.0)	0.46
<i>Child characteristics</i>	<i>n</i> =82	<i>n</i> =783				
Child age (in years)	4.9 (0.4)	4.9 (0.3)	0.41	..	..	..
Child sex: boys	39 (48%)	413 (53%)	0.31	..	..	..
Child inhibitory control	0.05 (0.97)	0.00 (1.00)	0.68	..	..	..
Behaviour difficulties	10 (7-14)	9 (5-13)	0.20	..	..	..
Prosocial behaviour	7 (5-9)	7 (5-9)	0.31	..	..	..
Behaviour difficulties in clinical range	18 (22%)	134 (17%)	0.27	..	..	..
Behaviour difficulties impact daily life	12 (15%)	100 (13%)	0.63	..	..	..

Data are median (interquartile range), mean (SD), or *n* (%).

Webtable 6 Sensitivity analyses showing effect of intervention on primary and secondary teacher and classroom outcomes at post-intervention and follow-up.^{1, 2}

Measure	Post-Intervention			One-Year Follow-Up		
	Regression Coefficient B (95% CI)	Effect Size ^a (95% CI)	P-value	Regression Coefficient B (95% CI)	Effect Size ^a (95% CI)	P-value
Primary Outcomes						
Violence against children (VAC) by teachers (number of times)	-1.12 (-1.55, -0.70)	-67.36% ^b (-81.29%, -53.42%)	<0.0001 ^c	-0.77 (-1.18, -0.37)	-53.71% ^b (-72.64%, -34.78%)	<0.0001 ^c
Class-wide child aggression ³	0.04 (-0.09, 0.16)	0.07 (-0.16, 0.29)	0.68 ^c	-0.07 (-0.21, 0.07)	-0.14 (-0.41, 0.14)	0.68 ^c
Secondary Outcomes						
Classroom and teacher outcomes						
Class-wide child prosocial behaviour ³	0.16 (0.06, 0.25)	0.46 (0.17, 0.72)	0.002	0.07 (-0.03, 0.18)	0.20 (-0.08, 0.50)	0.17
CLASS: emotional support	0.54 (0.35, 0.74)	0.63 (0.41, 0.87)	<0.0001	0.37 (0.13, 0.61)	0.47 (0.17, 0.78)	0.002
CLASS: classroom organisation	0.40 (0.20, 0.61)	0.48 (0.24, 0.73)	<0.0001	0.32 (0.10, 0.53)	0.41 (0.13, 0.68)	0.004
CLASS: instructional support ³	0.12 (0.06, 0.19)	0.63 (0.32, 1.00)	<0.0001	0.05 (-0.01, 0.10)	0.28 (-0.06, 0.57)	0.09
Teacher well-being ⁴	0.18 (-0.03, 0.38)	0.18 (-0.19, 0.40)	0.08	0.25 (0.02, 0.48)	0.26 (0.02, 0.50)	0.03
	Odds Ratio			Odds Ratio		
VAC by teachers over 2 school days (binary) ⁵	0.25 (0.08, 0.82)	..	0.02	0.61 (0.27, 1.39)	..	0.24
Individual child outcomes						
	Regression Coefficient B (95% CI)	Effect Size^a (95% CI)				
Child inhibitory control ⁶	52.57 (10.81, 94.32)	0.17 (0.04, 0.31)	0.01	..	..	..
Child behaviour difficulties ⁷	-0.09 (-0.59, 0.41)	-0.04 (-0.27, 0.19)	0.72	..	..	..
Child prosocial behaviour ⁶	-0.34 (-4.57, 3.88)	-0.02 (-0.24, 0.20)	0.87	..	..	..
	Odds Ratio					
Clinical range for behaviour difficulties ⁸	0.46 (0.22, 0.97)	..	0.04	..	..	..
Impact on daily living ⁹	0.55 (0.29, 1.06)	..	0.08	..	..	..

¹Analyses adjusting for baseline score, number of children in class, number of years teaching at current school, high school completed, and qualified teacher as fixed effects, and school as a random effect. Estimates are obtained using multiple imputation (20) to adjust for loss to post-intervention or follow-up. ²Intervention group = 1, control group = 0. ³Transformed using natural logarithm. ⁴Factor score comprising teacher reported depressive symptoms, burn-out, and self-efficacy. ⁵0=no violence, 1=violence.

⁶Transformed using Box-Cox of order 2. ⁷Transformed using Box-Cox of order 0.5. ⁸Above cut off (≥ 16) on Strengths and Difficulties Questionnaire (SDQ) behaviour difficulties scale, 0=normal, 1=abnormal. ⁹Above cut off (≥ 2) on impact supplement of SDQ, 0=normal, 1=abnormal.

^aThe effect size is the regression coefficient divided by standard deviation of control group at post-intervention and follow-up. ^bThe percentage change in the number of times that teachers used VAC. ^cP-values for primary outcomes were adjusted for multiple outcomes using Holms step-down procedure.

Webtable 7 Violence against children by teachers in the early morning, late morning, and early afternoon of one school day at baseline, post-intervention and follow-up by study group

Time of Day		Counts of observed VAC by teachers		Effect of intervention VAC by teachers % (95% CI)	P-value
		Intervention Median (IQR)	Control Median (IQR)		
Baseline	Early morning	1 (0-5)	1 (0-4)	..	..
	Late morning	3 (0-8)	3 (0-8)	..	..
	Early afternoon	1 (0-4)	1 (0-5)	..	..
Post-intervention	Early morning	0 (0-4)	2 (0-8)	-61.51 (-81.05, -41.96)	<0.0001
	Late morning	1 (0-4)	4 (0-14)	-76.33 (-89.04, -63.62)	<0.0001
	Early afternoon	1 (0-4)	4 (0-12)	-77.28 (-90.17, -64.39)	<0.0001
One-year follow-up	Early morning	0 (0-1)	1 (0-3)	-71.61 (-88.52, -54.71)	<0.0001
	Late morning	1 (0-4)	2 (0-8)	-51.89 (-76.47, -27.31)	<0.0001
	Early afternoon	1 (0-3)	2 (0-4)	-31.92 (-64.02, 0.17)	0.05

IQR = interquartile range. Analyses adjusting for baseline score, number of children in class, number of years teaching at current school, high school completed and qualified teacher as fixed effects and school as a random effect. Estimates are obtained using multiple imputation (20) to adjust for loss to post-intervention or follow-up. Intervention group = 1, control group = 0.

The p-values of the joint hypothesis that the effect of intervention in the late morning and early afternoon is the same as the early morning are p=0.30 for post intervention and p=0.14 at one-year follow-up