# Violent Discipline and Parental Behavior: Short- and Medium-term Effects of Digital Parenting Support to Caregivers

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#### Motivation

- Approx. 3 in 4 children aged 2 to 4 worldwide regularly subjected to violent discipline by caregivers (UNICEF, 2017)
- Has short- and long-term implications:
  - ▶ Development and sense of self-worth in short-term (Boden et al., 2007; Fry et al., 2018; Mersky and Topitzes, 2010)
  - Risky behaviors (Hamby et al., 2011); school absenteeism, aggression, mental distress, and social problems (Lansford et al., 2002) as teenagers
  - Worse labor market outcomes (Doyle Jr and Aizer, 2018; Currie and Spatz Widom, 2010), involvement in crime (Currie and Tekin, 2012; Sviatschi, 2022) in adulthood
- Very little known on what works to decrease violent parenting
  - Results from global systematic review show high-quality parenting programs at scale needed globally (Jeong et al., 2021)



## **Key Question**

Can a virtually-delivered, scalable information intervention on positive parenting practices improve caregivers' attitudes and behaviors related to violence against children?

## Preview of Methodology

• Digital adaptation of Irie Homes in-person intervention (Francis and Baker-Henningham, 2020)

 RCT of virtually delivered, scalable information intervention on positive parenting practices in Jamaica

- Key features:
  - ► SMSes + App + virtual information sessions
  - ► Scalable: worked with Jamaica's Early Childhood Commission

## Preview of (Persistent) ITT Impacts

- Strong impact on the knowledge index
  - ▶ 0.52 SD in the short-term, 0.38 SD in the medium-term
  - ▶ Low take-up of App and virtual information sessions
- Effects on caregiver's violent attitudes and behaviors
  - ► Short-term: 0.2 SD improvement in attitudes toward physical and psychological VAC index; 0.12 SD reduction in physical and psychological VAC index
  - ► *Medium-term*: 0.14 SD improvement in attitudes toward physical VAC index; 0.13 SD reduction in physical VAC index
- Effects on secondary outcomes
  - ► Short-term: 0.17 SD reduction in emotional problems index for children
  - ▶ Medium-Term: 0.12-0.16 SD reduction in depression, anxiety, and parental stress



## Agenda

- 1 Intervention & Experimental Design
- Data & Summary Statistics
- 3 Short- and Medium-Term Impacts
- Policy Implications and Conclusion

#### Irie Homes Toolbox

- Irie Homes: parenting practices that reduce child behavior problems (Francis and Baker-Henningham, 2020)
- Four key concepts:
  - Build positive parent-child relationships (e.g. praise)
  - Prevent misbehavior (e.g. modelling appropriate behavior)
  - Manage misbehavior (e.g. setting limits)
  - Emotional self-regulation



#### Digitally Adapted Irie Homes Toolbox

- 3 SMS messages per week over 10 weeks
  - Example: Session 4 Giving Clear Instructions
  - ▶ SMS 1: Try to give your child clear instructions and praise them whenever they follow your instruction. Praise encourages positive behavior. Link to App

- App with weekly videos, Irie Challenge, Irie Tower
  - No phone data cost to user

- Weekly virtual information sessions with ECC officer
  - ► GoogleMeet video-calls, 8-9 participants per group

## Digitally Adapted Irie Homes Toolbox

- 10 key topics delivered over 10 weeks
  - 1. Praising your child

6. Reasons why children misbehave

2. Introducing Irie Time

- 7. Managing your emotions + helping children understand their emotions
- 3. Giving your child positive attention throughout the day
- 8. How to manage your child's misbehavior using withdraw attention + redirect

- 4. Giving clear instructions
- 9. How to manage your child's misbehavior using consequences + chillax

5. Teaching your child to follow instructions

10. Review of the Irie Tower

#### Recruitment of Participants

- Partnered with TrendMedia (Digicel) for recruitment
  - Primary mode of recruitment: SMS

▶ More details

- ▶ Other recruitment modes: Social media (inc. Loop Campaign, Google Display Network) and ECC push through principals
- Eligibility criteria:
  - Caregiver of a child aged 2-6 years
  - Access to smartphone or tablet
  - Interested in participating in the study
- 6,011 enrolled, 1,113 were eligible.



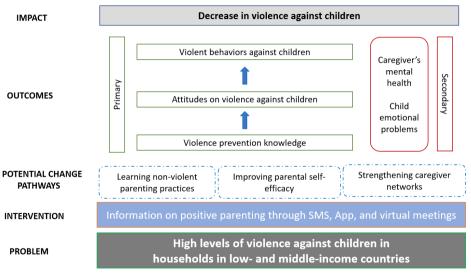


#### **Experimental Design**

- Key Dates:
  - ▶ Baseline Survey: Aug 2021
  - ► Intervention: Sep Nov 2021
  - ► Short-term Survey: Dec 2021
  - Medium-term Survey: Sep 2022
- Stratified individual-level randomization: 556 Control + 557 Treatment
- To keep control group engaged: caregivers received 3 SMSes per week with COVID-19 prevention tips
- AEA RCT Registry: https://doi.org/10.1257/rct.8266



#### Conceptual Framework



#### Outcomes & Mechanisms

- Caregiver outcomes
  - Attitudes to violence against children
    - \* Physical and psychological violence
  - Violence against children
    - ★ Physical and psychological violence
    - \* Focus on "target" child but also study other children in the HH
  - Caregiver mental health
    - ★ Parental stress, depression, and anxiety
- Child behavior
  - Conduct and emotional problems
- Mechanisms
  - Parental self-efficacy
    - ★ Discipline and acceptance
  - Caregiver's social networks
    - \* Parenting and borrowing support

## Take-up of Intervention Components

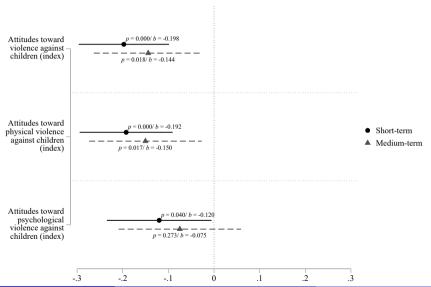
Variable	Mean	Std. Dev.	Min.	Max.	N
Panel A. SMS Delivery (Admin Data)					
Sent SMS (%)	92.28	6.42	69	98	30
Panel B. SMS/WhatsApp Receipt (Survey Data)					
Received any SMS/WhatsApp (%)	91.38	28.09	0	100	499
Read SMS/WhatsApp if received (%)	96.94	17.23	0	100	458
Found the SMS/WhatsApp useful if read (%)	98.20	13.32	0	100	444
Panel C. App usage (Admin Data)					
Number of sessions accessed	1.04	1.85	0	10	557
Total time in sessions (mins)	6.94	15.58	0	75	557
Panel D. Online sessions (Admin Data)					
Number of sessions attended	4.55	3.44	0	10	557

► Dose-response regressions

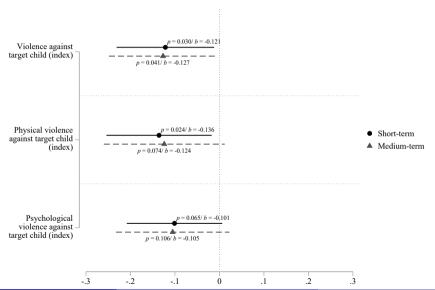
## ITT Impacts on Learning

		Information module							
	Praising children helps	Imp. for parents to play w/ child	Clear instructions help	Understand why child misbehaves	Calm down before disciplining	Withdraw attention from childś whining	Redirect rather than reprimand	Consequences and timeout appropriate	Information module (index)
Panel A: Short-term									
Treatment	0.189***	0.059	0.224***	0.063*	-0.011	0.624***	0.278***	0.080**	0.525***
	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.07)	(0.05)	(0.04)	(0.07)
Observations	978	979	978	974	974	971	973	971	979
Control mean	4.13	4.27	3.98	4.29	4.38	2.73	3.74	4.16	-0.00
Panel B: Medium-term									
Treatment	0.104**	0.039	0.248***	-0.058	-0.026	0.480***	0.165***	0.071	0.394***
	(0.05)	(0.04)	(0.06)	(0.04)	(0.04)	(80.0)	(0.06)	(0.04)	(0.08)
Observations	698	699	699	699	698	691	691	697	699
Control mean	4.196	4.290	3.989	4.408	4.450	2.743	3.810	4.164	0.000

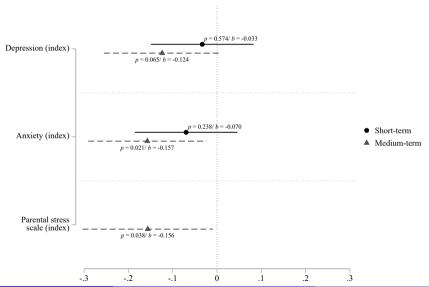
## ITT Impacts on Caregiver Attitudes to VAC



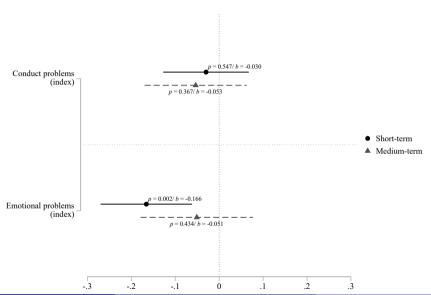
## ITT Impacts on Caregiver Behaviors Relating to VATC



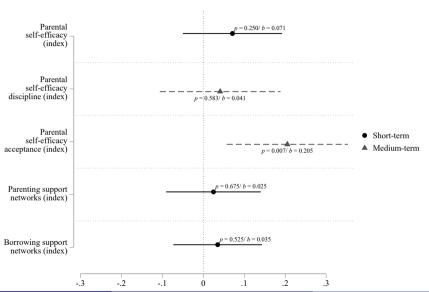
## ITT Impacts on Caregiver Depression, Anxiety, & Stress



#### ITT Impacts on Child Behaviors



#### **Mechanisms**



#### Addressing Alternative Interpretations

- Potential bias due to experimenter demand effects
- ► Exp.Demand

- Results robust to use of SDB control
- No heterogeneous treatment impacts by SDB
- Potential displacement of violence toward other children
- Figure

- ▶ Include violence against eldest child aged 7-12
- Impacts very similar when we study all children
- Openation Potential bias due to differential attrition
  - Differential attrition during short-term survey
  - ▶ Lee bounds (Lee, 2009)
  - ightharpoonup Balanced panel estimation ightharpoonup very similar results
- Sensitivity from the selection of controls
  - Double LASSO for selection of controls



## Policy Implications: Scaling Digital Parenting Interventions

- Parenting programs can prevent early violence. Digital delivery makes this feasible at scale (vIHT costs US\$62.4 vs US\$123 of the IHT).
- Embed in government systems and collaborate with private partners.
- Target the hardest-to-reach: Digital tools can reach parents who cannot attend in-person sessions, including in rural or fragile contexts.
- Improving engagement: SMS works well; further exploration of app design and usability.

#### Conclusion

- Experimental evidence of a virtually delivered information intervention on positive parenting practices
- Important results for policy given the low-cost, scalable nature of the intervention
  - lacktriangle Strong SMS take-up  $\rightarrow \uparrow$  knowledge index
  - ▶  $\downarrow$  attitudes to VAC  $\rightarrow$   $\downarrow$  VAC
  - ↓ depression + anxiety + stress for caregivers
  - ▶ Impacts persist 9 months after end of intervention
  - ▶ ↑ parental self-efficacy (self-acceptance) is a likely mechanism



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## Thank You!

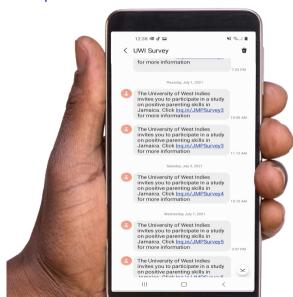
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#### Robustness Checks

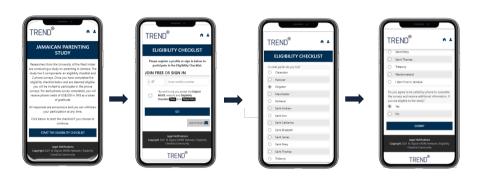
#### Heterogeneity by Social Desirability Bias

	Primary hypotheses			
	(1)	(2)	(3)	
	Attitudes to violence	Violence against	Violence against	
	against children	target child	children in the household	
Panel A: Short-term				
Treatment	-0.307***	-0.115	-0.188**	
	(0.08)	(0.11)	(0.09)	
High SDB score	-0.030	-0.093	-0.155*	
	(0.10)	(0.10)	(0.09)	
${\sf Treatment}  \times  {\sf High \; SDB \; score}$	-0.039	-0.090	0.019	
	(0.12)	(0.14)	(0.12)	
$Treat + Treat \times High \; SDB \; score$	-0.346***	-0.205**	-0.169**	
	(0.09)	(0.09)	(0.08)	
Observations	674	657	889	
Panel B: Medium-term				
Treatment	-0.243***	-0.128	-0.165**	
	(0.09)	(0.09)	(0.08)	
High SDB score	-0.223**	-0.138	< □ > < 40.138 € > < € >	

#### **Enrollment of Participants**



#### **Enrollment of Participants**



▶ Return to recruitment

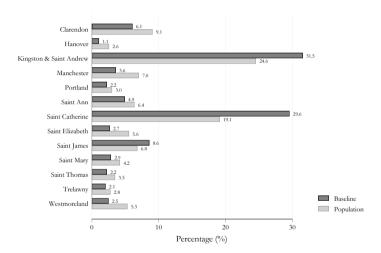
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#### **Enrollment of Participants**



▶ Return to recruitment

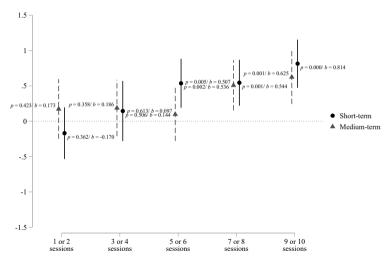
#### External Validity: Distribution of Participants vs Population



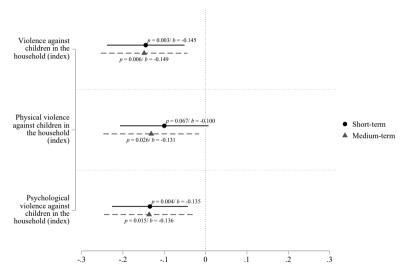


#### Dose-response Regressions

#### Dose-response Regressions on Learning by Number of Sessions Attended



## ITT Impacts on Caregiver Behaviors Relating to VAC



## Attrition Analysis

	First fo	llow-up	Second	follow-up
	(1) In endline	(2) In endline	(3) In endline	(4) In endline
Treatment	0.047**	-0.090	0.008	-0.273
	(0.02)	(0.18)	(0.03)	(0.24)
Treatment × Age (years)		0.003		0.004
		(0.00)		(0.00)
Treatment × Female (%)		-0.033		0.050
		(0.07)		(0.09)
Treatment × Education level completed (years)		0.009		0.001
		(0.01)		(0.01)
Treatment × Married (%)		-0.024		-0.038
		(0.05)		(0.07)
Treatment × Employed (%)		0.021		0.057
		(0.05)		(0.07)
Treatment × Income in the past month (USD)		-0.000		0.000
		(0.00)		(0.00)
Treatment × Household size (N)		-0.009		-0.016
		(0.02)		(0.02)
Treatment × Children 17 years or younger (N)		0.004		0.039
		(0.03)		(0.04)
Treatment × Violence against target child (index)		0.007		-0.027
		(0.02)		(0.03)
Treatment × Depression (index)		-0.025		-0.023
		(0.02)		(0.03)
Treatment × Anxiety (index)		-0.010		0.009
		(0.02)		(0.03)
Treatment × Conduct problems (index)		-0.016		-0.017
		(0.02)		(0.03)
Treatment × Emotional problems (index)		0.023		0.014
		(0.02)		(0.03)
Treatment × Attitudes toward violence against children (index)		-0.001		0.015
		(0.02)		(0.03)
Constant	0.843***	0.684***	0.633***	0.377*
	(0.02)	(0.15)	(0.02)	(0.20)
Observations	1113	1113	1113	1113
Q test pvalue		0.897		0.916

#### Robustness Checks

Lee (2009) Bounds for Attrition

		Prim	nary hypotheses	
	(1) Attitudes to violence against children (index) $\beta/\mathrm{se}$	(2) Violence against target child (index) $\beta/\mathrm{se}$	(3) Violence against children in the household (index) $\beta/\mathrm{se}$	(4) Caregiver involvement in play and learning activ. (index) $\beta/\text{se}$
Treatment				
lower	-0.301*** (0.07)	-0.291*** (0.08)	-0.202*** (0.07)	-0.049 (0.08)
upper	-0.168*** (0.06)	-0.110 (0.08)	-0.161** (0.06)	0.141 (0.09)
Observations	1111	1095	1273	1105



#### Robustness Checks

#### Double LASSO for Selection of Controls

		Prim	nary hypotheses	
	(1) Attitudes to violence against children (index)	(2) Violence against target child (index)	(3) Violence against children in the household (index)	(4) Caregiver involvement in play and learning activ. (index)
Panel A: First follow-up				
Treatment	-0.186***	-0.112**	-0.132***	0.017
	(0.05)	(0.06)	(0.05)	(0.06)
Observations	977	943	1265	945
# of controls selected	4	5	6	3
Control mean	-0.000	-0.000	0.003	0.000
Panel B: Second follow-up				
Treatment	-0.142**	-0.107*	-0.125**	0.011
	(0.06)	(0.06)	(0.05)	(0.07)
Observations	696	681	914	676
# of controls selected	3	4	5	3
Control mean	-0.000	0.000	-0.011	-0.000

#### Data: Outcomes & Instruments

Outcome	Instrument
1. Caregivers attitudes and behaviors	
Violent discipline	UNICEF MICS
Attitudes to violence against children	ELP-World Bank Instrument
Caregiver involvement in play and learning	MICS-UNICEF
2. Child behavior and development	
Child behavior difficulties	SDQ (Conduct/emotional problems subscales)
Child development	ASQ (for 2 - 6 yo children).
3. Caregiver's outcomes	
Caregiver's mental health	Depression: PHQ-2
	Anxiety: GAD-2
Parental self-efficacy	BPSES
Caregiver's social networks and economic anxiety	ELP-World Bank Instrument
4. Other outcomes or measures	
Attendance to virtual groups	ECC officers report
App use	TrendMedia report



## Data: Survey Modules

Survey	Baseline	Short-term	Medium-term
Modules		Follow up	Follow up
Caregivers Outcomes			
Attitudes towards violence against children	X	X	X
Violence against target child	X	X	X
Depression and anxiety	X	X	X
Parental Stress Scale			X
Child Outcomes			
Conduct and emotional problems (SDQ)	X	X	X
Mechanisms			
Brief Parental Self-Efficacy Scale (BPSES)		X	
Parental Self-Efficacy [From TOPSE - Discipline & Self-Acceptance]			X
Support networks	X	X	
Caregiver and target child socio-demographic characteristics			
Household Roster	X	X	X
Social Desirability Bias			X
Intervention take up and learning			
Learning module		X	X
Receipt of parenting support (+ take-up)		X	X



## ITT Impacts on Caregivers Attitudes and Behaviors

		Primary hypotheses					
	Attitudes towards violence against children (index)	Violence against target child (index)	Violence against children in the household (index)	Caregiver involvement in play and learning activ. (index)			
Panel A: First follow-up							
Treatment	-0.198***	-0.121**	-0.145***	0.019			
	(0.05)	(0.06)	(0.05)	(0.06)			
Observations	977	943	1265	945			
$R^2$	0.24	0.27	0.26	0.20			
Control mean	-0.000	-0.000	0.003	0.000			
Panel B: Second follow-up							
Treatment	-0.144**	-0.127**	-0.149***	0.006			
	(0.06)	(0.06)	(0.05)	(0.07)			
Observations	696	681	914	676			
$R^2$	0.26	0.18	0.18	0.23			
Control mean	-0.000	0.000	-0.011	-0.000			

▶ Return



## ITT Impacts on Caregivers Attitudes and Behaviors (Subindices)

		Primary hypotheses					
		owards violence o indices)	Violence against target child (sub indices)				
	Attitudes towards physical violence against children (index)	Attitudes towards pychological violence against children (index)	Physical violence against target child (index)	Psychological violenc d against target child (index)			
Panel A: First follow-up							
Treatment	-0.191***	-0.120**	-0.136**	-0.101*			
	(0.05)	(0.06)	(0.06)	(0.05)			
Observations	974	961	920	942			
$R^2$	0.21	0.11	0.17	0.27			
Control mean	-0.004	0.005	0.000	-0.000			
Panel B: Second follow-up							
Treatment	-0.150**	-0.075	-0.124*	-0.105			
	(0.06)	(0.07)	(0.07)	(0.06)			
Observations	694	685	676	681			
$R^2$	0.22	0.13	0.09	0.21			
Control mean	-0.000	-0.014	0.017	0.008			





#### ITT Impacts on Child Behaviors

	Secondary hypotheses			
	Conduct problems (index)	Emotional problems (index)		
Panel A: First follow-up				
Treatment	-0.030	-0.166***		
	(0.05)	(0.05)		
Observations	961	961		
$R^2$	0.40	0.23		
Control mean	0.00	0.00		
Panel B: Second follow-up				
Treatment	-0.053	-0.051		
	(0.06)	(0.07)		
Observations	685	685		
$R^2$	0.38	0.21		
Control mean	0.000	0.000		



## SMS Messages Sent to Control Group

• Encourage children to wash their hands often with soap and water

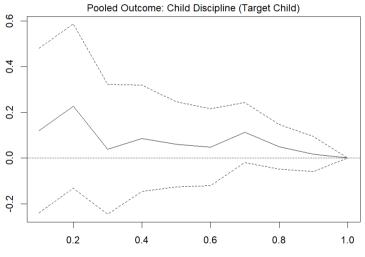
Wash your hands regularly when interacting with children

• Regularly disinfect or wash toys and resources of children

▶ Return

#### Heterogeneity in Treatment Impacts

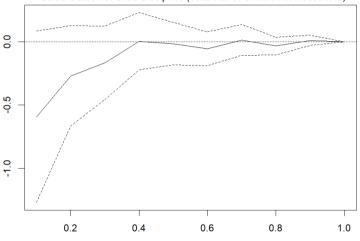
#### **Targeting Operator Characteristic**



#### Heterogeneity in Treatment Impacts

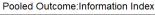
#### **Targeting Operator Characteristic**

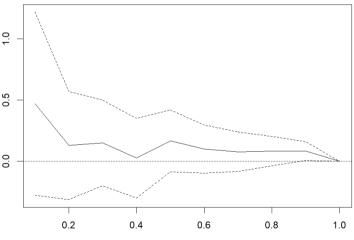
Pooled Outcome: Child Discipline (Total No. of Children in Household)



#### Heterogeneity in Treatment Impacts

#### **Targeting Operator Characteristic**





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#### Intervention Costs

Cost Category	Fixed Costs	Variable Costs	Total (USD)	Total per Caregiver Targeted (USD)
Panel A. Virtual Intervention Costs				
SMS	0.00	794.28	794.28	1.43
Costs to send SMS messages	0.00	794.28		
Арр	30,194.51	0.00	30,194.51	54.21
Consultant and staff costs	3,562.75	0.00		
Costs associated with filming videos for the App	18,903.76	0.00		
KnowHub App development costs	7,728.00	0.00		
Virtual sessions	14,730.44	19,235.25	33,965.69	60.98
Consultant and staff costs	10,688.25	0.00		
Training materials	404.69	0.00		
Data plans to ECC officers to administer sessions	3,637.50	0.00		
Data plans to caregivers to participate in sessions	0.00	19,235.25		
Total (USD)	44,924.95	20,029.53	64,954.48	116.61
Total per Caregiver Targeted (USD)	80.66	35.96	116.61	
Panel B. Face-to-Face Intervention Costs				
Staff costs	6,907.67	0.00		60.07
Training staff costs and materials	2,204.55	0.00		19.17
Lelys Dinarte-Diaz (The World Bank) Violent Discipline a	0.00	25 D6	< □ > <	October 15, 2025 44/

#### Face to Face Intervention Costs

Cost Category	Fixed Costs	Variable Costs	Total per Caregiver Targeted (USD)			
Staff costs	6907.67	0.00	60.07			
Training staff costs and materials	539.45	0.00	19.17			
Intervention materials for parents/children	0.00	25.06	25.06			
Transportation of facilitators to conduct sessions	44.21	0.00	7.37			
Data plans to caregivers to participate in sessions	0.00	12.28	12.28			
Total (USD)	7491.33	37.34	123.95			

▶ Return



## External Validity: Participants vs Representative Survey

	JLCS 2019				Study sample					_ p-value	
	Mean	Sd	Min.	Max.	N	Mean	Sd	Min.	Max.	N	. p-value
Panel A. Caregiver's characteristi	ics										
Age (years)	36.9	11.41	15	80	190087	33.24	7.49	18	69	1113	0.000
Female (%)	0.89	0.31	0	1	190087	0.85	0.35	0	1	1113	0.076
Education level completed (years)	13.35	2.64	4	22	190087	14.33	2.75	6	19	1113	0.000
Married (%)	0.21	0.41	0	1	190087	0.37	0.48	0	1	782	0.000
Employed (%)	0.62	0.48	0	1	190087	0.79	0.41	0	1	975	0.000
Household size (N)	4.61	1.86	2	14	190087	4.58	1.95	2	16	1113	0.793
Children 17 years or younger (N)	2.23	1.19	1	7	190087	1.91	1.03	1	8	1113	0.000
Panel B. Child's characteristics											
Age (years)	4.16	1.37	2	6	190629	4.12	1.43	2	6	1113	0.651
Female (%)	0.47	0.50	0	1	190629	0.49	0.50	0	1	1113	0.518

▶ Return

► Distribution of participants vs Population

