



The Impact of a Positive Parenting Intervention on Child Maltreatment and Parent-Child Interactions: Results of a Randomized Controlled Trial in Monrovia, Liberia

Puffer, E.S., Green, E.P., Chase, R., Zayzay, J., & Finnegan, A. (2019, June). Paper presented at the 27th Annual Meeting of the Society for Prevention Research, San Francisco, CA. Preliminary results. Do not cite. For updates, see bit.ly/pmdupdates.

In Sub-Saharan Africa, **2 out of 3 children** are at risk of not reaching their developmental potential (43% globally, 2010)



Children reach **developmental potential** when they acquire developmental competencies for academic, behavioural, socio-emotional, and economic accomplishments.



Black, M. M., Walker, S. P., Fernald, L. C., Andersen, C. T., DiGirolamo, A. M., Lu, C., ... & Devercelli, A. E. [2017]. Early childhood development coming of age: science through the life course. *The Lancet*, 389[10064], 77-90.

REACH DEVELOPMENTAL POTENTIAL

NURTURING CARE

HEALTH

- Disease prevention and treatment
- Immunization and well child visits
- Water, sanitation, and hygiene

NUTRITION

- Dietary diversity
- Complementary food
- Macronutrients and micronutrients
- Breastfeeding

SECURITY AND SAFETY

- Reduce adversities (abuse, neglect, violence)
- Non-institutional family care and early intervention for vulnerable children
- Birth registration

RESPONSIVE CAREGIVING

- Responsive parenting, feeding
- Home visiting, parenting programs
- Caregiving routines
- Support emotional development
- Caregiver nurturance and continuity

EARLY LEARNING

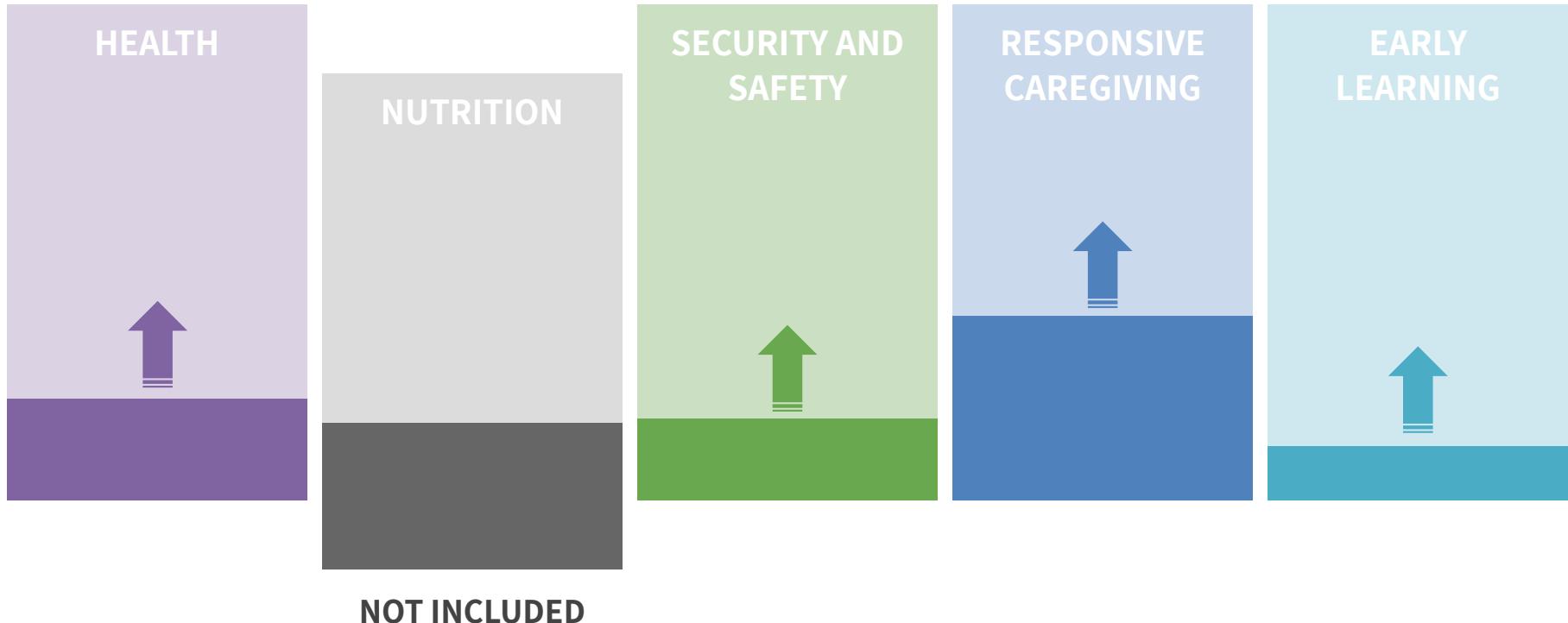
- Continuity to primary school
- Access to quality child care and preschool
- Home opportunities to explore and learn
- Books, toys, and play materials
- Home visit, parenting

BEGINS

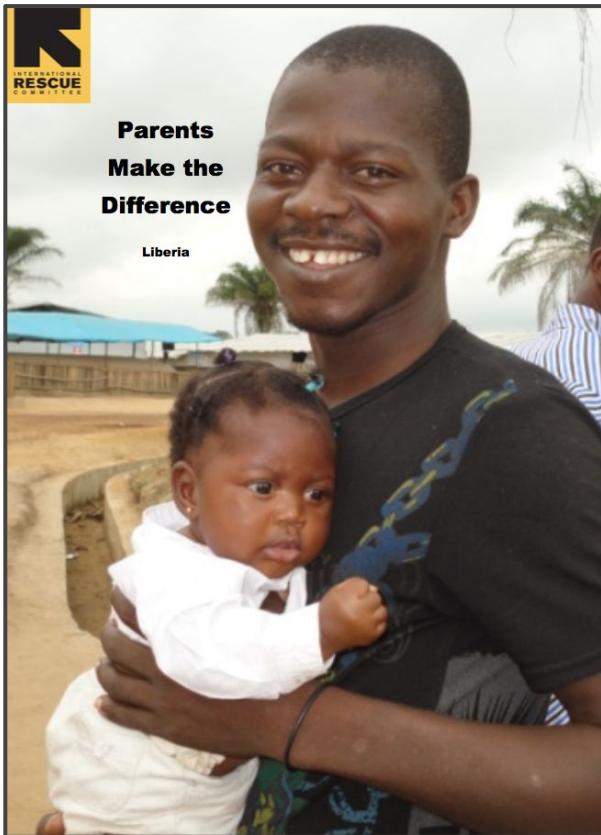
enabling environment for caregiver, family, and community

social, economic, political, climatic, and cultural contexts

"PARENTS MAKE THE DIFFERENCE"



PMD CURRICULUM, GROUP SESSIONS



1. Introduction: Becoming a positive parent
2. Child development: Appropriate expectations
3. Communicating and connecting with children
4. Discipline with dignity
5. Protecting children from disease: Handwashing that works
6. Preparing your child for school: Fun with words
7. Preparing your child for school: Fun with numbers and drawings
8. Nurturing rules and routines
9. Managing my feelings and creating a calm home
10. Closing ceremony: Public commitment to our children

GROUP SESSIONS

- 2 hours
- 2 facilitators (non-specialists) and 16 parents
- Interactive with emphasis on skills practice







3 HOME COACHING VISITS

- 1 facilitator from group session visits individual families after group sessions 3, 6, and 9
- Caregivers plus children and other family members encouraged to participate
- Hour-long visits
- Structured visit, emphasis on skills practice and coaching

Home Visit 1
Version 4.0

HHID	██████	PMD staff name	_____	Date of Visit	____ / ____ / ____
List the names of participants		Who	Engagement	Attendance	
		1 primary caregiver	1 Low	1 Partial	
		2 secondary care	2 Moderate	2 Complete	
		3 other adult	3 High		
		4 target child			
		5 other child			

Session Components (In each box, Write one: C=completed; P=partial; N=not completed)

1. **Introduction to both parent and child:** Thank the family for having you in their home and for being present for today's visit. Introduce yourself to the child. Explain to the child that you are coming to the house to get to know their family. Tell them you will learn some things from them, and they may learn some things from you.

2. **Introduction to parent:** Explain to the parent(s) that you will visit them at their home three times throughout the program (including today). The goal of the home visits is to learn more about their family and help them use the skills they are learning in the program at home with their child. Tell them that you are like a coach that can help them figure out how best to use the skills with the child.

3. **Learning about the family:** Tell parents you are going to ask them a few questions to learn about their family and their child. Tell them you might write down some things they say because it is important for you to remember.

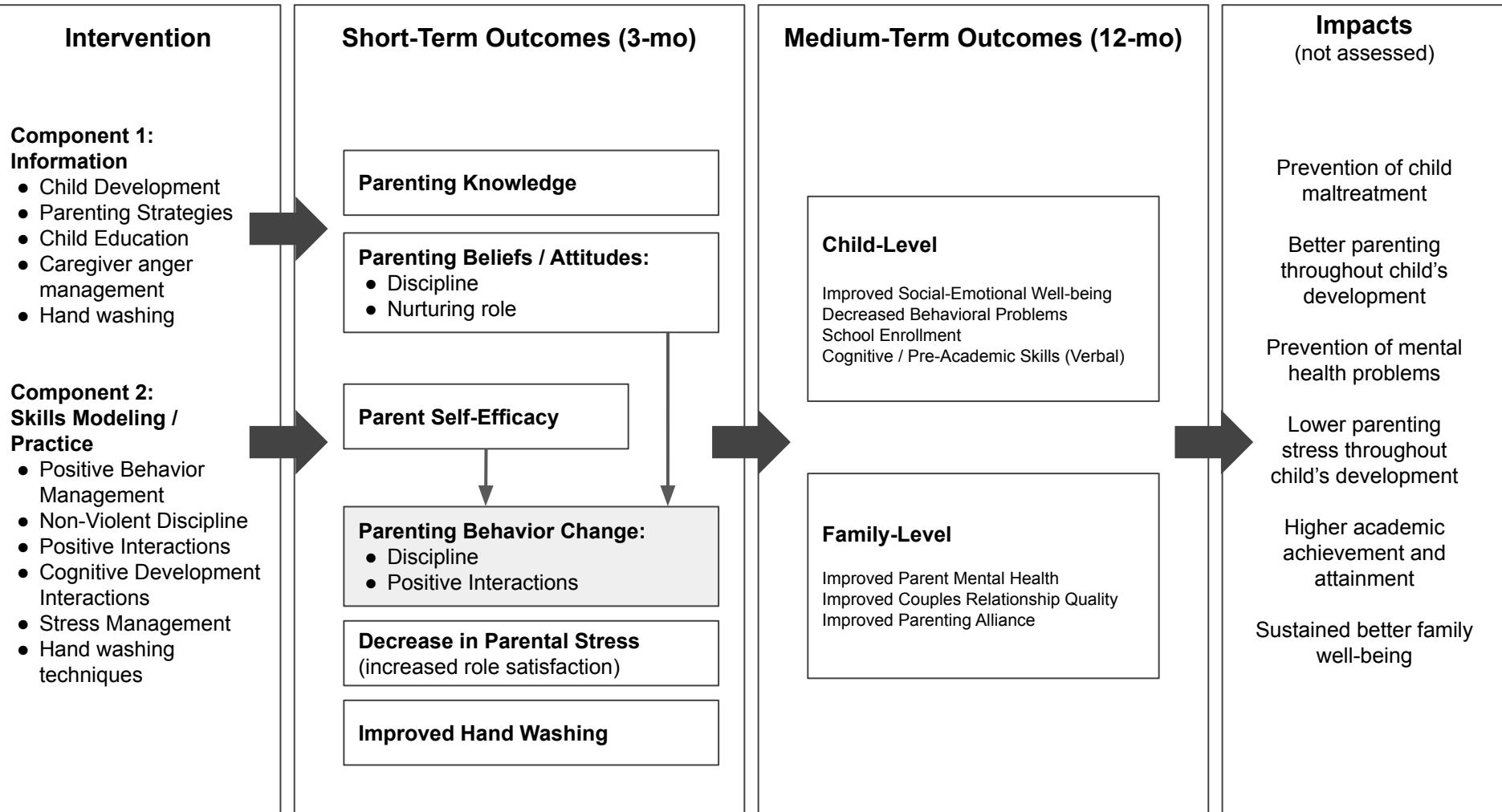
3A Is (child's name) going to school now?
If YES: Yes N
i. Where does s/he go to school? _____
ii. How is s/he doing in school now? _____
If NO: iii. Is there a plan for her/him to go to school? _____

3B Does your child have friends?
If YES: Yes N
i. Does s/he get along well with the friends? _____
If NO: ii. Why do you think s/he does not have friends? _____

3C What do you like about your child? What does s/he do well?

3D Are you having any challenges with your child right now? Is there anything you want help with relating to your child? *(If the parent says no, that is okay. Some of the children might be doing very well, and that is a good thing. We can still help the parents learn to use the skills of the program to promote all of the positive things about the child.)*

4. **Summarize Information and Note Strengths:** Summarize what the parent told you, listing at least two strengths about the family and the child. For example, you might say: *Thank you for all of this information. It is very helpful for me. There are a lot of good things about your child. You*



Previous Trial of PMD

- Rural Liberia
- 5 communities
- 270 Households (child aged 3-7)
- Group Sessions only
- Feasible in conflict-affected, rural setting
- Reduced Harsh Discipline
- Improved Parent-Child Interactions



Previous Trial Outcomes

55% REDUCTION IN HARSH DISCIPLINE

global mental health

INTERVENTIONS
ORIGINAL RESEARCH PAPER

Parents make the difference: a randomized-controlled trial of a parenting intervention in Liberia

E. S. Puffer^{1,2,*}, E. P. Green¹, R. M. Chase¹, A. L. Sim¹, J. Zayner², E. Freis¹,
E. Garcia-Rodriguez¹ and L. Boone¹

¹Department of Psychology and Neuroscience, Duke University, Box 90340, 427 Chapel Drive, Durham, NC, USA
²Duke Global Health Institute, Duke University, Box 90340, 427 Chapel Drive, Durham, NC, USA
<sup>*Correspondence: E.S.Puffer@duke.edu (E.S. Puffer).
†Present address: Department of Psychology, New York University, New York, NY, USA.
‡Department of Family Medicine, University of Wisconsin, Milwaukee, WI, USA.</sup>

Global Mental Health (2015), 2(4), page 1 of 13. doi:10.1017/gmh.2015.013

Background: The objective of this study was to evaluate the impact of a brief parenting intervention, "Parents Make the Difference" (PMD), on parenting behaviors, quality of parent-child interactions, children's cognitive, emotional, and behavioral well-being, and maternal mental health in rural Liberia.

Methods: A sample of 270 caregivers of children ages 3–7 were randomized into an immediate treatment group that received 8 weekly parent training intervention or a wait list control condition (11 additional weeks). All caregivers received a 1-month post-intervention follow-up interview and child behavior observations. Intent-to-treat analyses were conducted. Primary effects were calculated using ordinary least squares regression. This study was approved by the Institutional Review Board of the University of Wisconsin-Madison (IRB#2012-0000).

Results: The program led to a 55% reduction in caregiver use of harsh punishment practices ($p < 0.001$). The program also improved positive parenting management strategies and improved caregiver-child interactions. The average caregiver in the treatment group reported a 0.4% increase in positive parenting compared to the average age child or caregiver assigned to the treatment condition ($p = 0.001$). The program did not have a measurable effect on children's cognitive skills or household adoption of malnutrition prevention behaviors.

Conclusion: PMD is a promising approach for preventing child abuse and promoting positive parent-child relationships in low-resource settings.

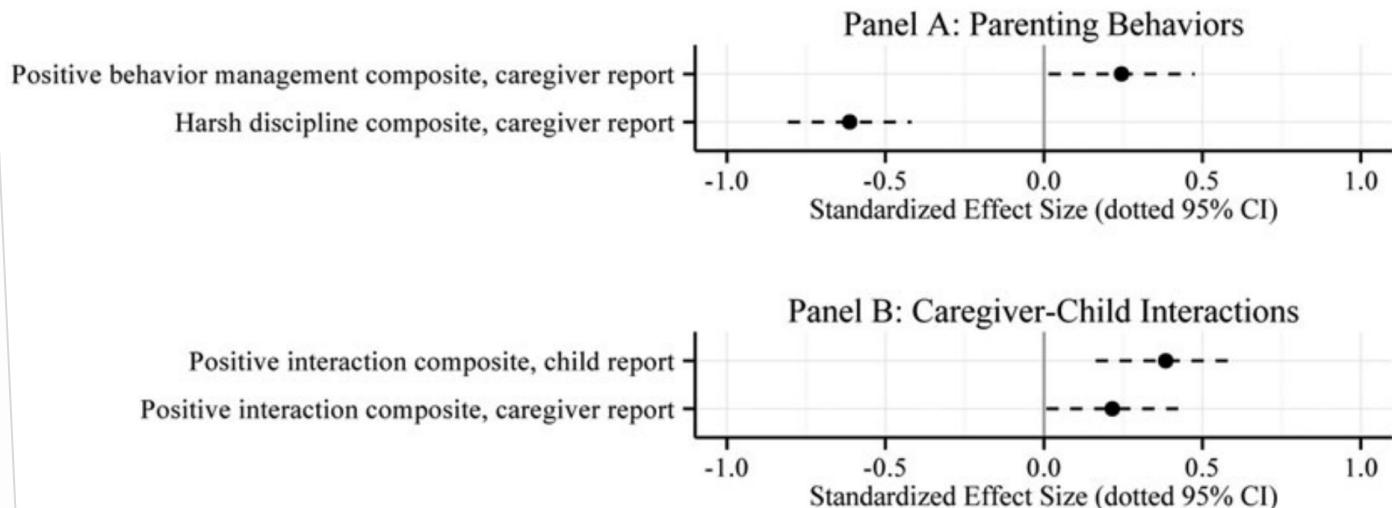
Received 30 September 2014; Revised 16 February 2015; Accepted 7 May 2015

Key words: Abuse prevention, Africa, family-based interventions, global mental health, Liberia, parenting.

Introduction
Children and adolescents worldwide experience high rates of verbal, physical, and sexual abuse, often perpetrated by their caregivers. Young people in certain parts of the world seem to be at increased risk, with multiple studies documenting higher rates of abuse (Luthar et al., 2008; Steinberg et al., 2013). Rates of family conflict, abuse, and a range of poor developmental outcomes seem to be associated with exposure to community-based violence and other risk factors for family stress and mental health.

* Address for correspondence: E. S. Puffer, Department of Psychology and Neuroscience, Duke University, Box 90340, 427 Chapel Drive, Durham, NC, USA and Duke Global Health Institute, Box 90340, 427 Chapel Drive, Durham, NC, USA.

© The Author(s) 2015. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The full-text may be used and given to third parties in electronic format without prior permission or charge, and given in print, provided that: (a) a full bibliographic reference is made to the original source; (b) a link is made to the metadata record in the Repository; (c) the full-text is not changed in any way; and (d) the full-text is not sold in any format or sold in part via commercial channels. The full-text must not be sold in print in any format. Inappropriateness of the article may be reported to repository@durham.ac.uk



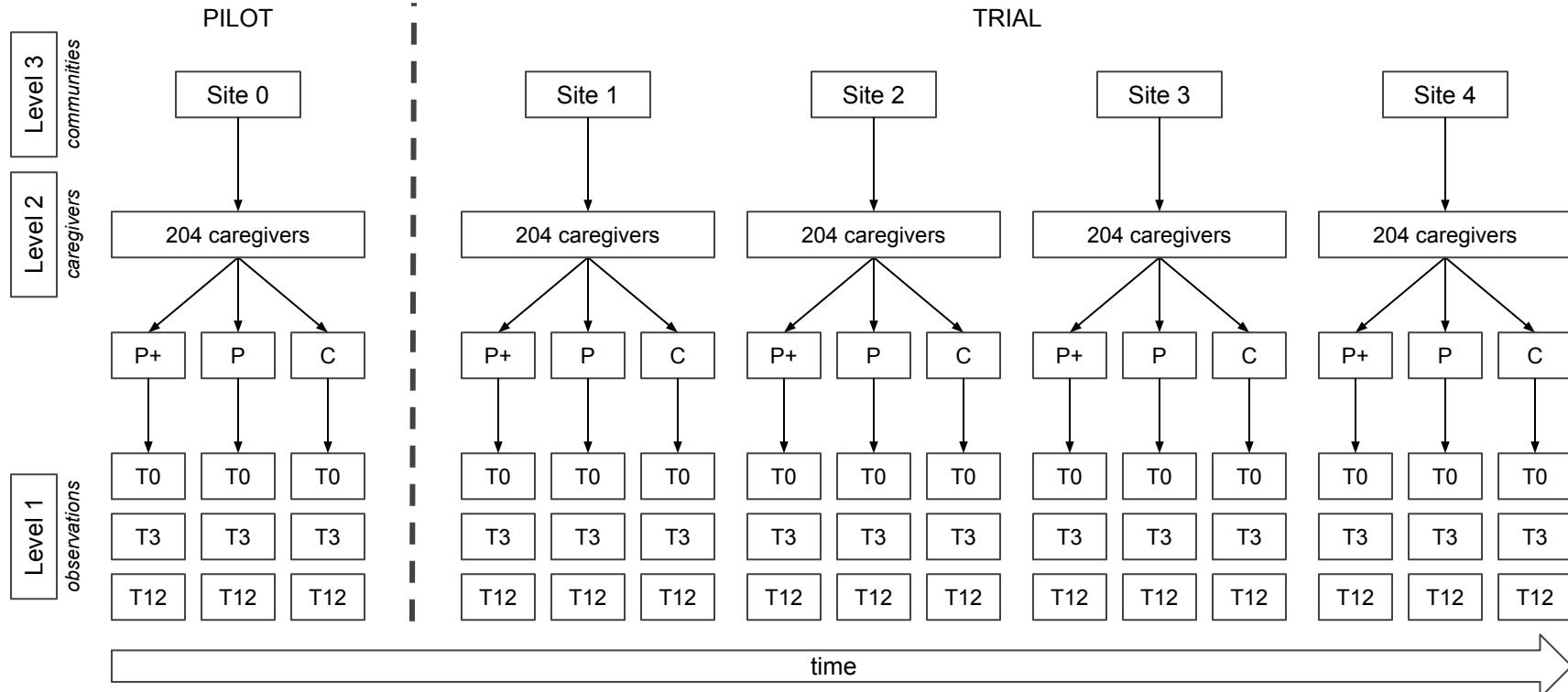
No impacts on secondary outcomes of child well-being or cognitive skills.

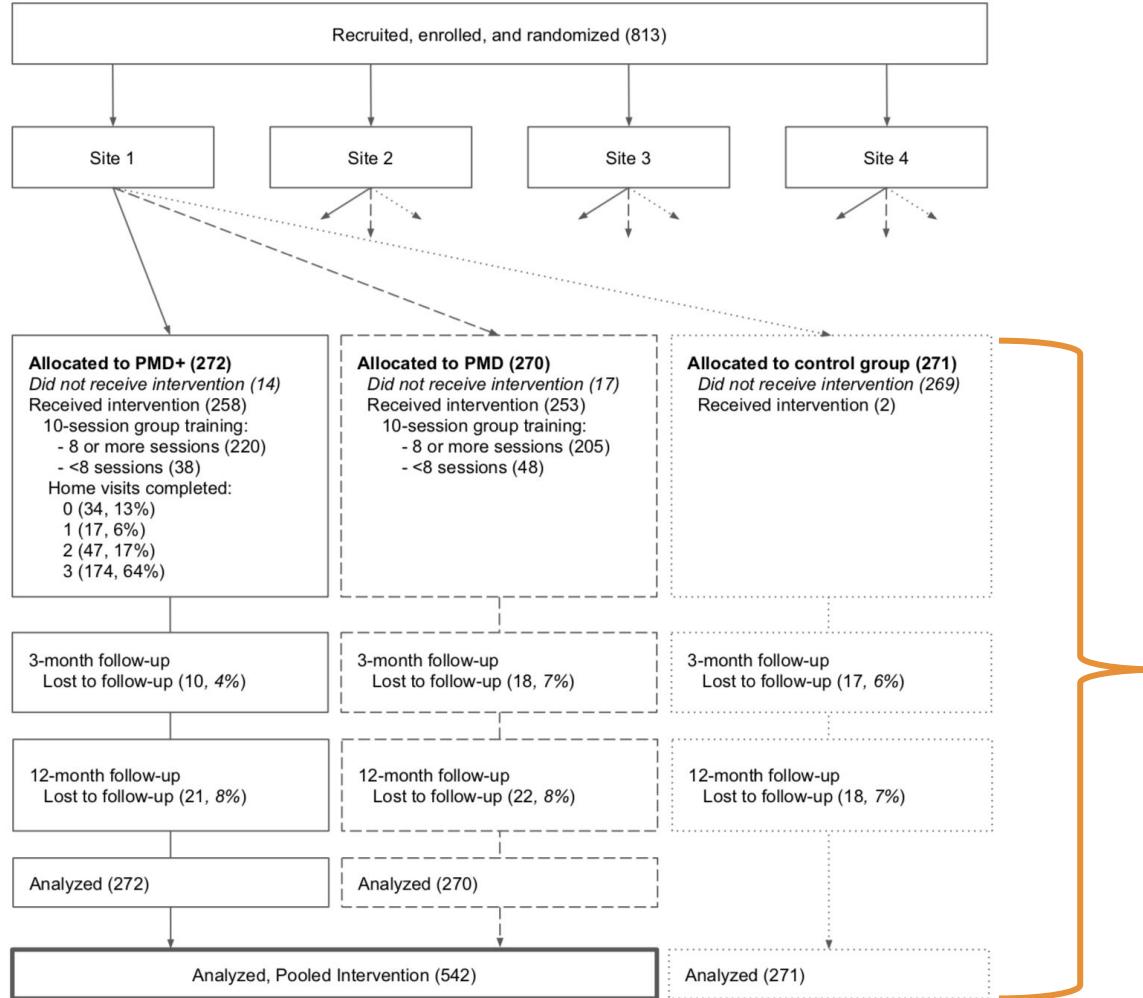
BUILDING ON RESULTS: CURRENT AIMS

1. Improve and refine PMD: Boost effect sizes?
2. Conduct a replication study in urban context
3. Add Home Visits: unique contribution?
4. Estimate short- (3 mth) and medium-term (12-mth) impacts
5. Estimate cost-effectiveness (with and without home visits)
6. Estimate treatment heterogeneity: Effects on highest risk?

PMD 2 TRIAL DESIGN

3 ARM TRIAL: CONTROL, PMD (P), PMD+HOME VISITS (P+)





Allocated to PMD+ (272)

Did not receive intervention (14)

Received intervention (258)

 10-session group training:

- 8 or more sessions (220)
- <8 sessions (38)

Home visits completed:

 0 (34, 13%)

 1 (17, 6%)

 2 (47, 17%)

 3 (174, 64%)

Allocated to PMD (270)

Did not receive intervention (17)

Received intervention (253)

 10-session group training:

- 8 or more sessions (205)
- <8 sessions (48)

Allocated to control group (271)

Did not receive intervention (269)

Received intervention (2)

3-month follow-up

 Lost to follow-up (10, 4%)

3-month follow-up

 Lost to follow-up (18, 7%)

3-month follow-up

 Lost to follow-up (17, 6%)

12-month follow-up

 Lost to follow-up (21, 8%)

12-month follow-up

 Lost to follow-up (22, 8%)

12-month follow-up

 Lost to follow-up (18, 7%)

Analyzed (272)

Analyzed (270)

Analyzed (271)

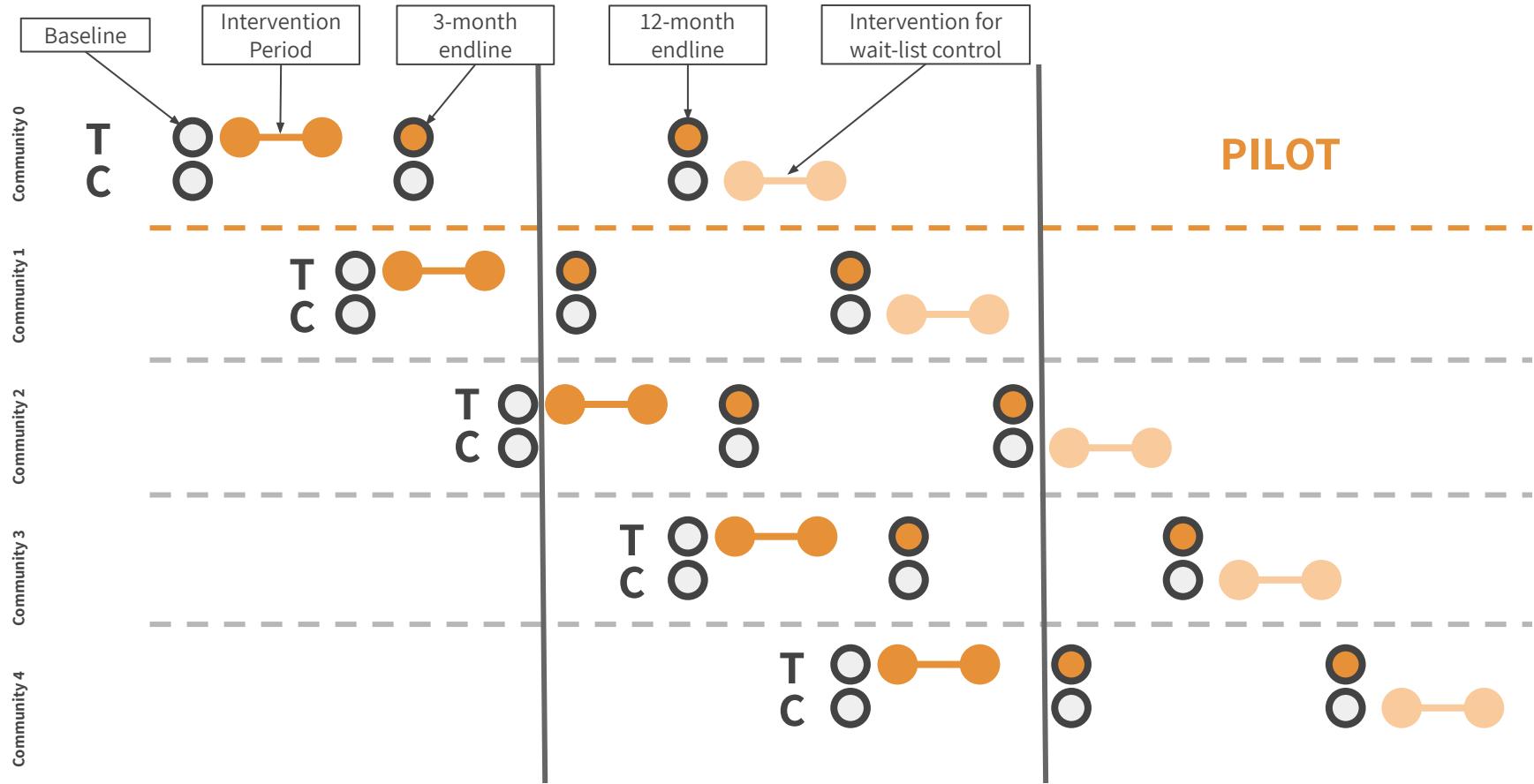
Analyzed, Pooled Intervention (542)

Analyzed (271)

2016

2017

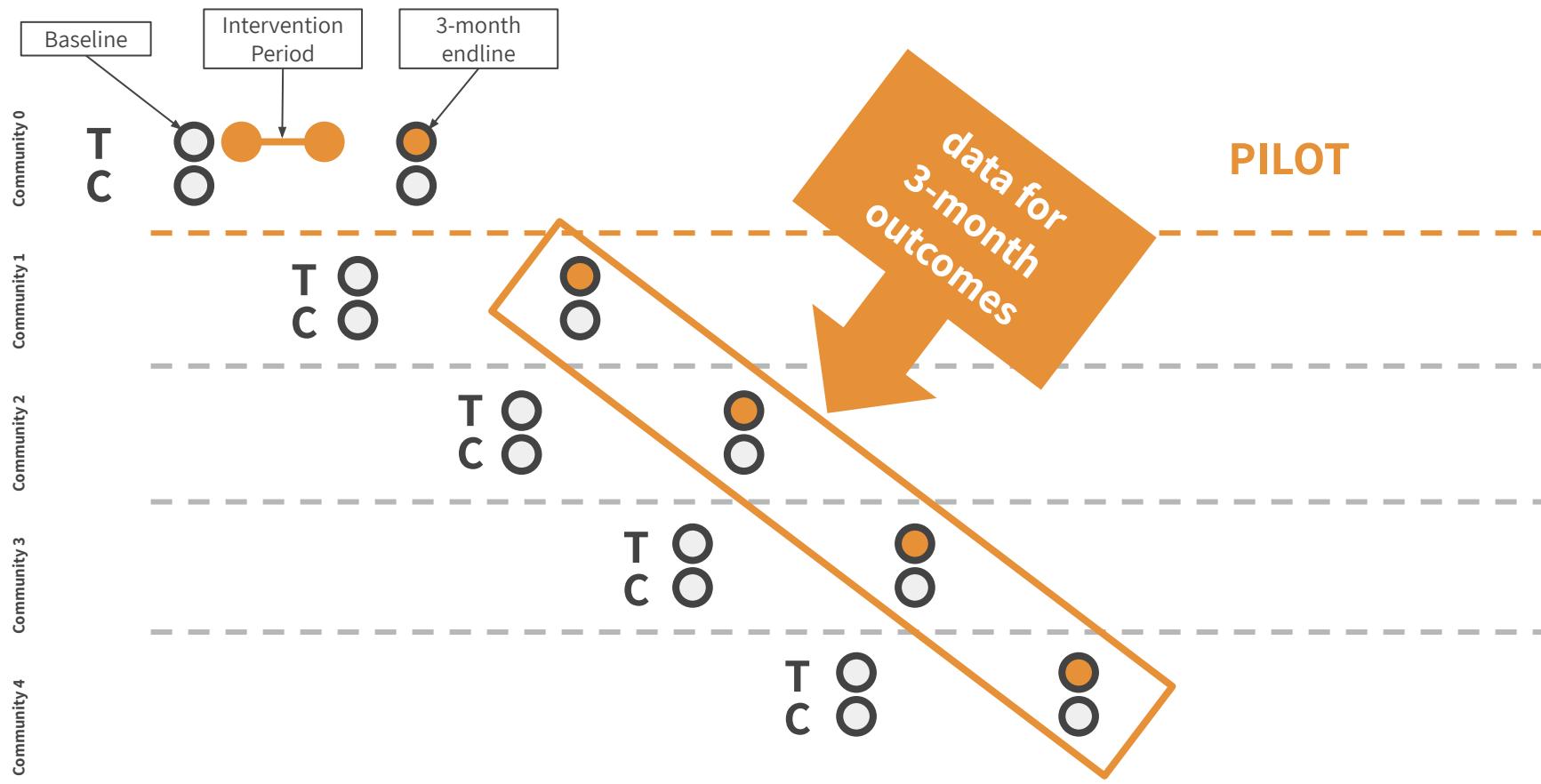
2018



2016

2017

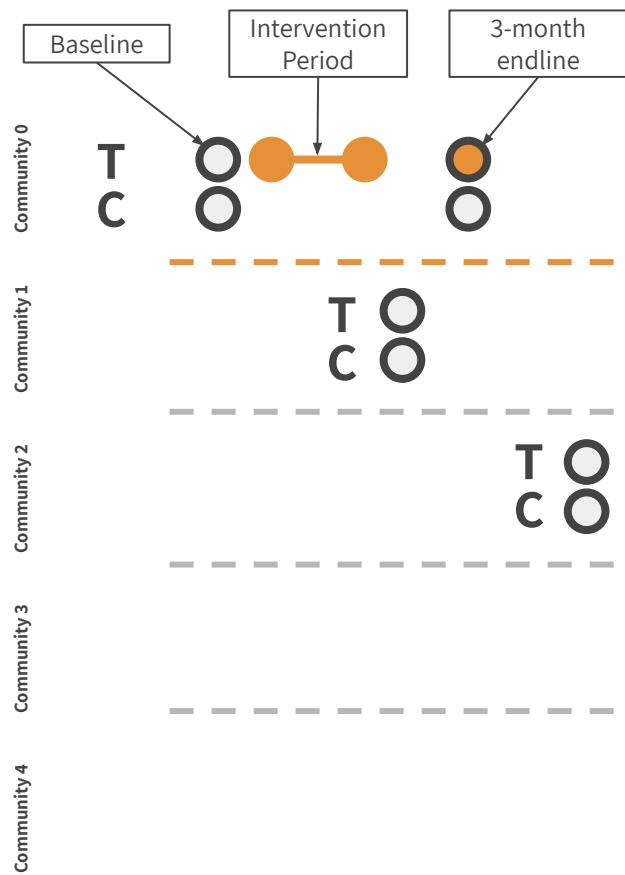
2018



2016

2017

2018



PILOT

data for
12-month
outcomes

RESULTS

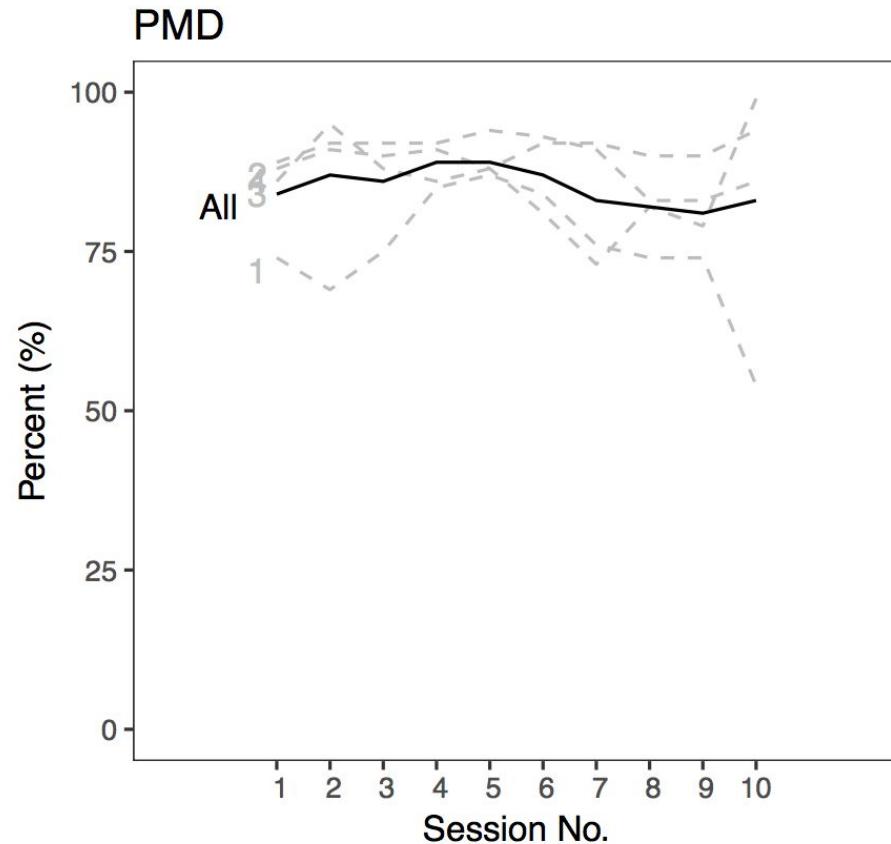
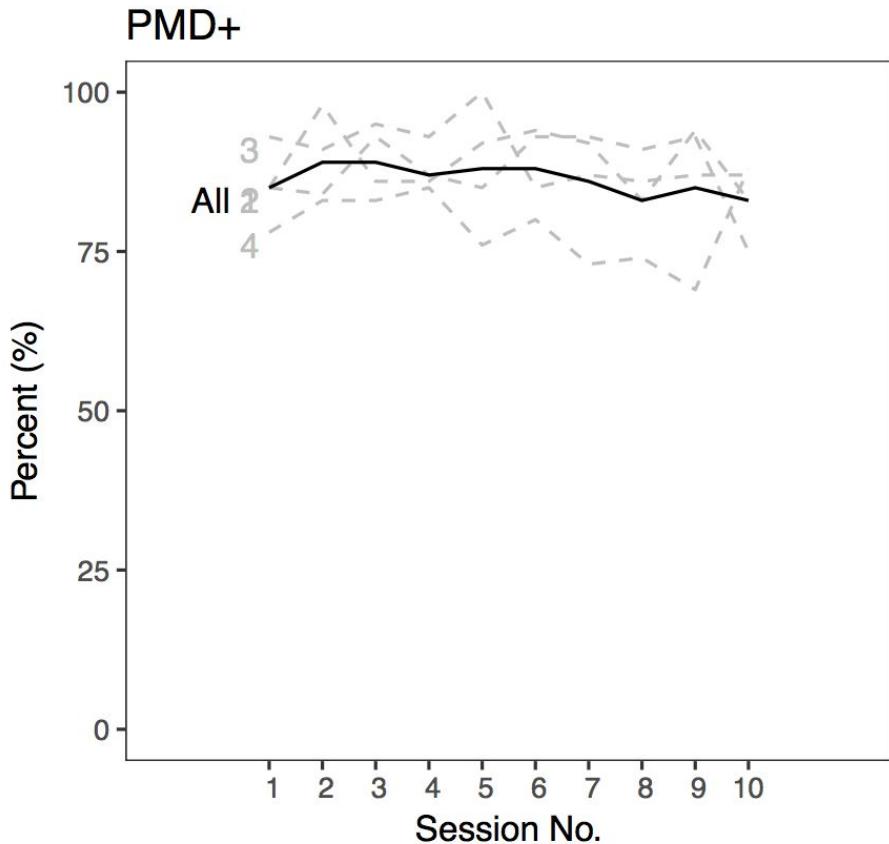
TRIAL PARTICIPANT CHARACTERISTICS

HIGHER PERCENTAGE SINGLE PARENTS COMPARED TO PMD 1 TRIAL IN LOFA

	PMD	PMD+	Control
Parents			
N	270	272	271
Female (%)	91.1	91.5	91.1
Mean Age (<i>SD</i>)	32.9 (10.0)	33.1 (9.8)	33.3 (10.1)
Completed primary (%)	6.3	9.9	11.1
Married or cohabitating (%)	52.2	54.8	53.1
Children			
N	270	272	271
Female (%)	50.7	54.8	47.6
Mean Age (<i>SD</i>)	3.6 (0.5)	3.5 (0.5)	3.5 (0.5)

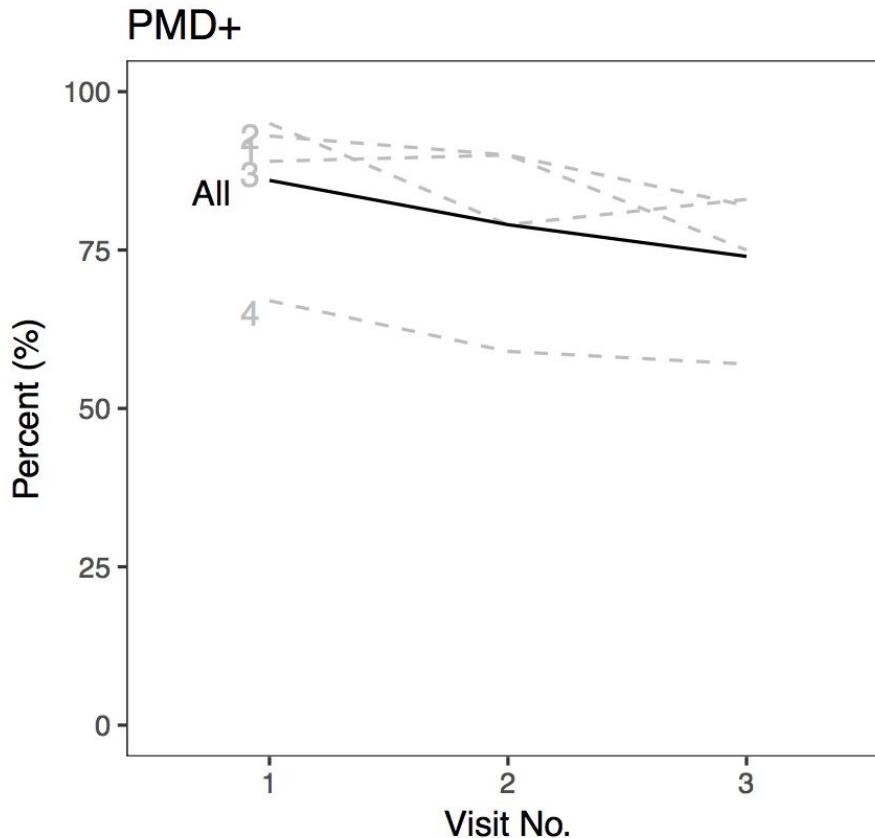
ATTENDANCE AT GROUP SESSIONS

OVERALL CONSISTENT, HIGH ATTENDANCE AT GROUP SESSIONS



HOME VISIT PARTICIPATION (PMD+)

HIGH PARTICIPATION IN HOME VISITS AS WELL



- Community 4 had lower home visit participation
- Caregivers generally harder to find at home
- Community situated near large business district

PROGRAM FIDELITY

Facilitators as well as external IRC staff observers completed detailed fidelity checklists that were specific to each session

Session 1 Fidelity Checklist					
Facilitators:		Date:		Group letter:	
	Session Component	Completed? Yes / Partial / No	Notes (If Partial or No, put specific reason)	Start time	End time
1	Introduction and Welcome				
2	Parent Introduction Activity: "Make a Friend"				

PROGRAM FIDELITY

- Weekly reviews of fidelity checklists from both the facilitators and external observers suggest very **high fidelity** to the intervention content, including both completion of components and quality of implementation (approaching 100% for majority of sessions)
- Notes recorded alongside the ratings further corroborate the completions by providing specific examples of facilitator activities and positive participant responses

MEASURES: KEY VARIABLES

- Parenting Behavior:
 - Covert measure of discipline preferences (we developed)
 - Self-report: Discipline Interview + Local items
- Parent-Child Interactions
 - Rhea fill in...
- Child Behavior
 - Local items...others?

COVERT MEASURE OF PREFERENCES

Presented 12 digital illustrations depicting a child misbehaving.

Scenes varied on four attributes:

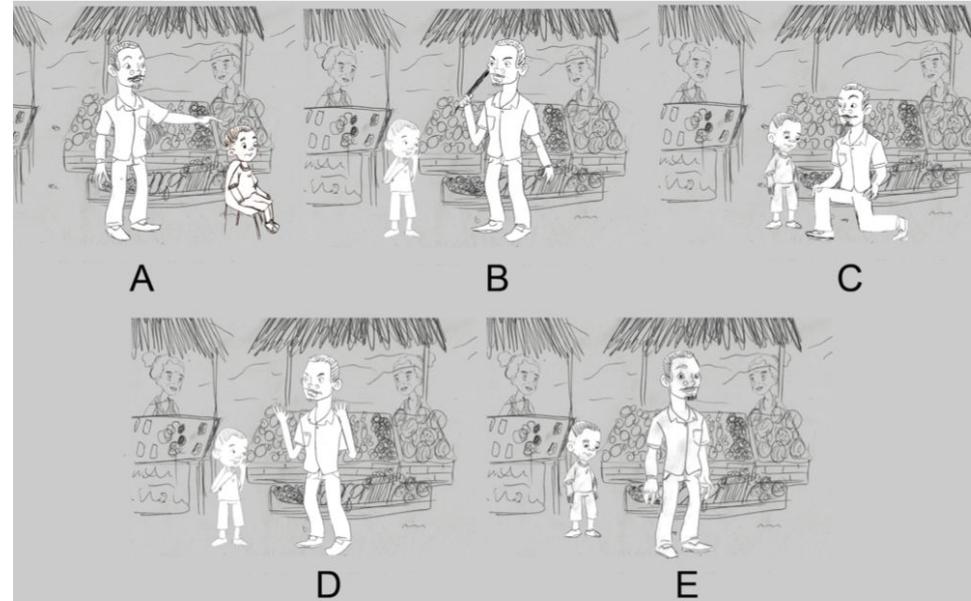
- child gender (boy, girl);
- child offense (spilling drink, whining, kicking parent);
- setting (home, market);
- number of adults present (one, two)



COVERT MEASURE OF PREFERENCES

For each scene, participants indicated how they would respond if they were the parent in the story. Response options were presented as a set of five drawings:

- time out
- **beating**
- discussing
- **yelling**
- ignoring





ANALYSES: ITT and TOT

- Intent to Treat (“ITT”) - all assigned
- Treatment on the Treated (“TOT”) - those who “complied”
 - PMD = attending 8 or more group sessions
 - PMD+ = attending 8 or more group sessions and participating in 3 home visits

76% of parents assigned to PMD were "treated"

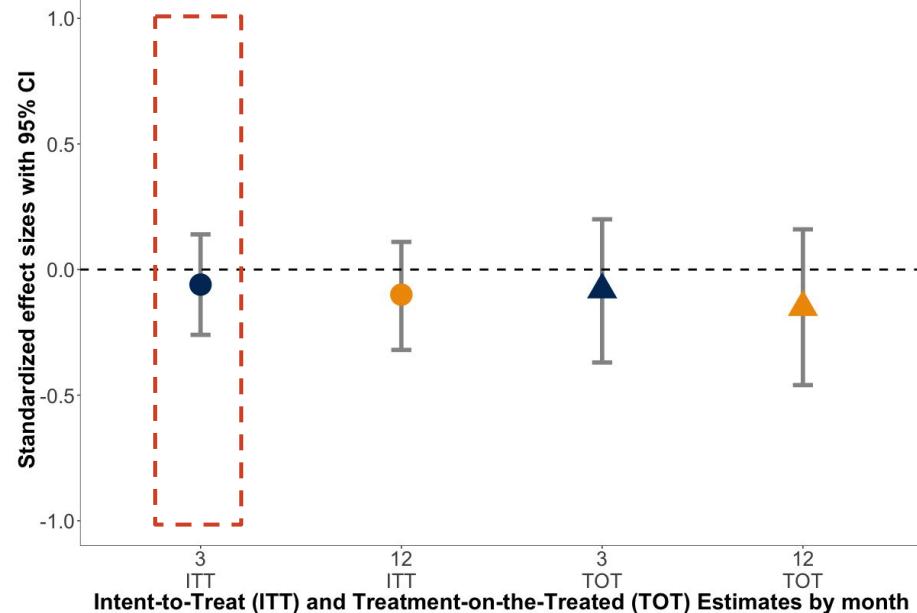
63% of parents assigned to PMD+ were "treated"

-

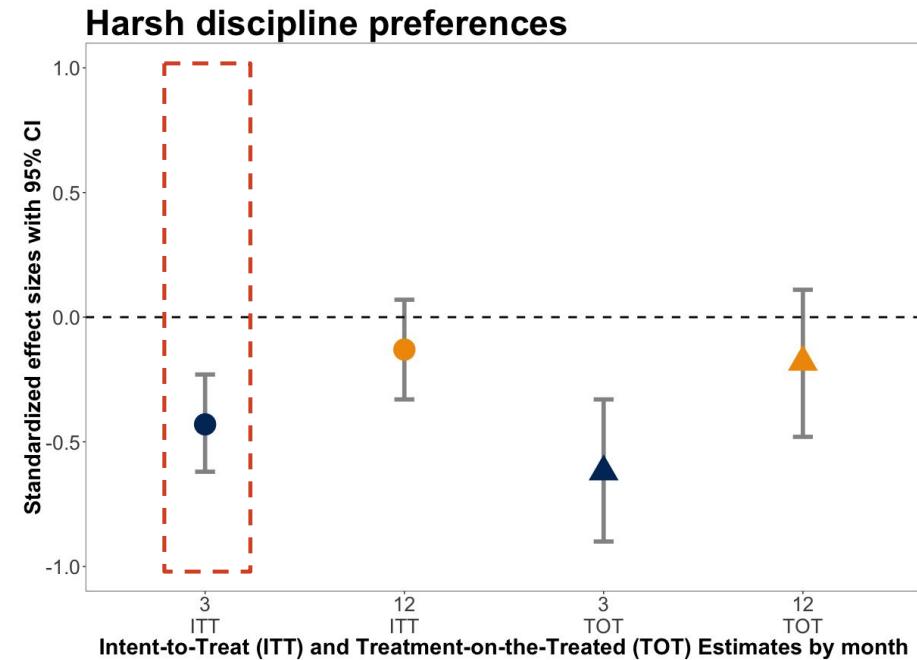
CHILD MALTREATMENT

REDUCED CHILD MALTREATMENT AT 3-MTHS, AS MEASURED BY COVERT INSTRUMENT

Harsh discipline practices



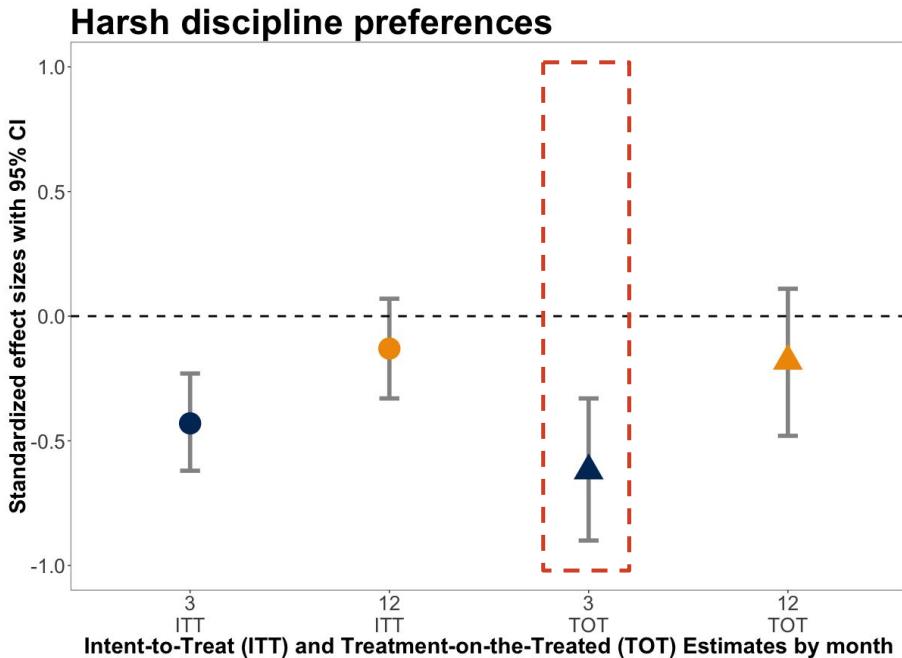
Harsh discipline preferences



“TREATED”: HARSH DISCIPLINE

THE AVERAGE TREATMENT EFFECT ON "COMPLIERS" IS EVEN LARGER (TRIANGLES)

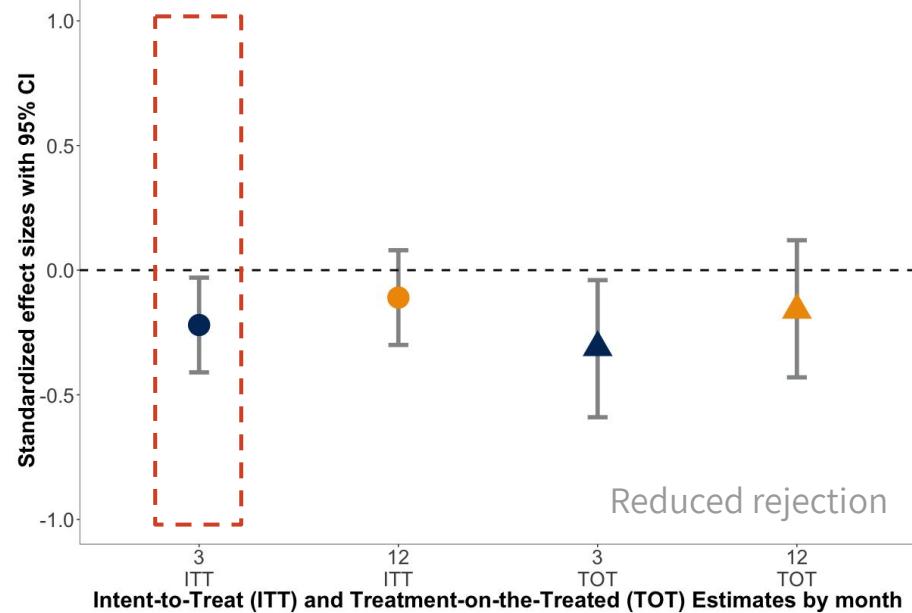
The program led to a decrease in parents' preference for harsh punishment of 0.43 SD in the more conservative ITT analysis, but when taking account actual program participation in the TOT analysis, the estimate of the pooled treatment effect is 44.2% larger at 0.62 SD.



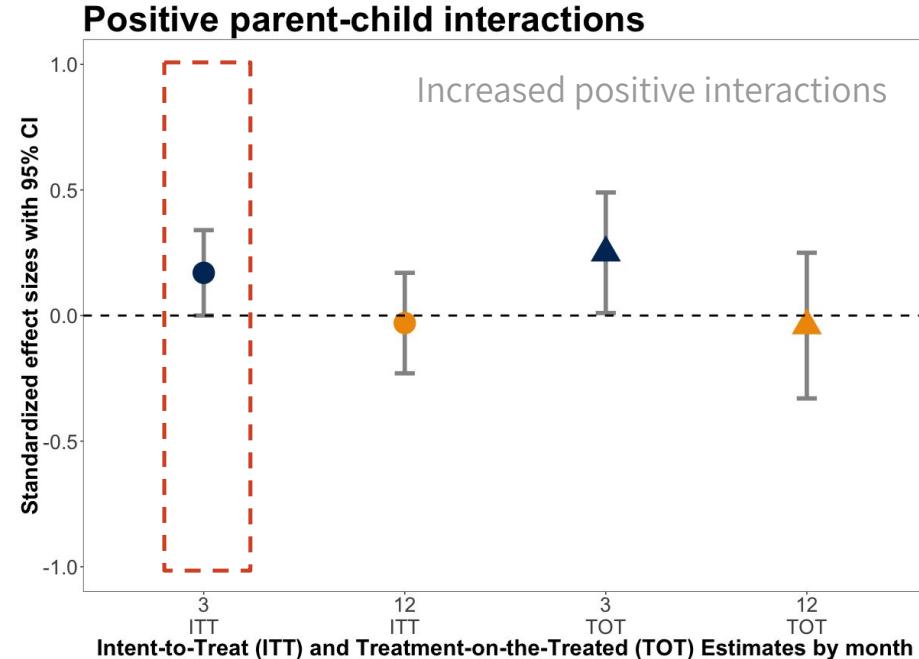
PARENT-CHILD RELATIONSHIPS

IMPROVED PARENT-CHILD RELATIONSHIPS, ITT, 3 MONTHS

Parental Acceptance-Rejection



Positive parent-child interactions

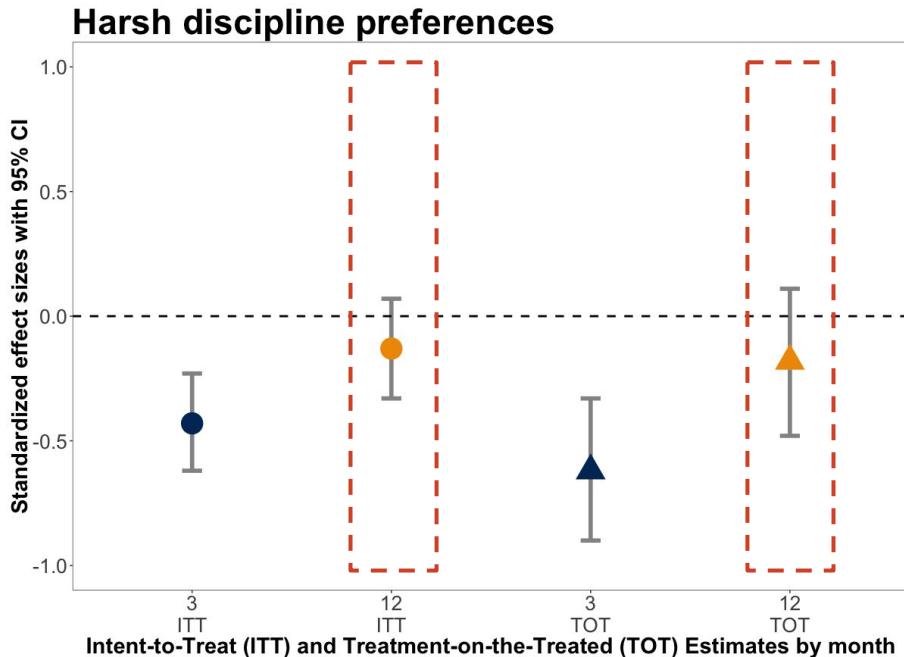


DURABILITY OF EFFECTS, 12 MONTHS

ESTIMATED EFFECTS SHRINK TOWARD ZERO

We re-assessed study participants 12 months after the intervention arms completed the program, just before the wait-list control arm was treated.

12-month intervention effect estimates mostly shrank toward zero as *the control group caught up to the gains made by the intervention groups.*



POSSIBLE SPILLOVER?

Potential for "spillover" because participants came from densely populated neighborhoods and randomization was conducted at the individual-level

15-meter radius shown



WHY DO WE CARE ABOUT SPILLOVER?

1. From a **research perspective**, we want to get as close as possible to the "right" answer. When you randomize individuals to different study arms and these individuals can interact, those assigned to the intervention arm can "contaminate" those assigned to the delayed intervention arm.
2. From a **policy perspective**, it would be good to know if there are positive indirect effects of a program. For instance, if exposing 1 person to the program benefits a neighbor's family indirectly, without being treated

QUALITATIVE: POSSIBLE SPILLOVER

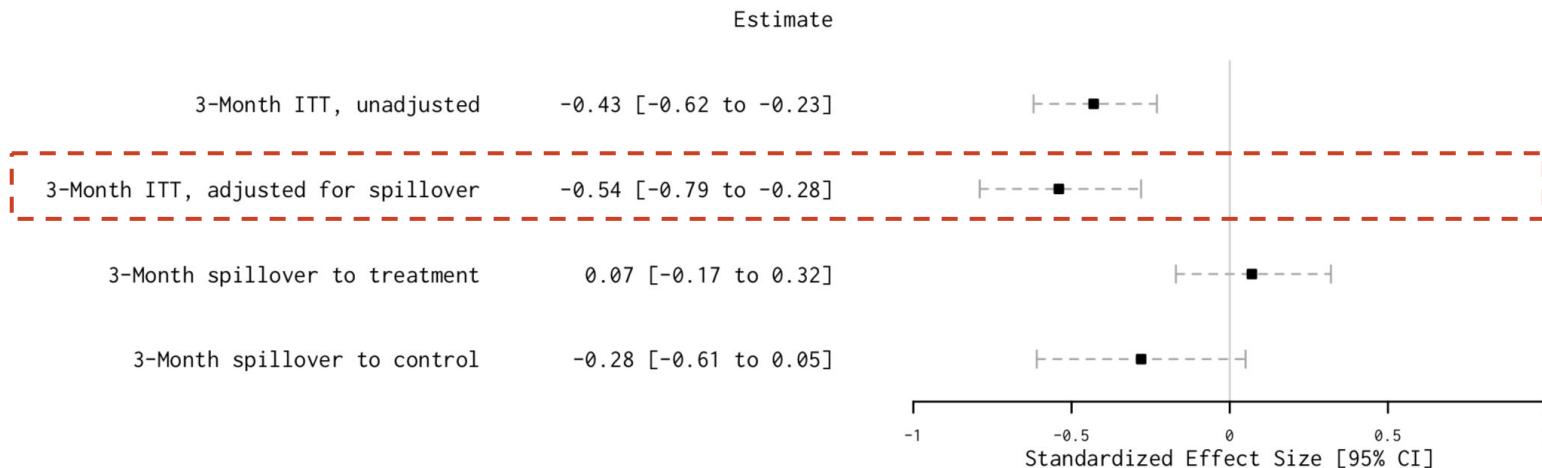
"Sometimes when I am passing by I see somebody doing things that not supposed to do, I stop them. I advice them and make them to understand that is not the way..."

we should share with our neighbors because when one child spoil in the neighborhood, it will affect everybody...

we must help to make changes in the community...in the society or in our community, in our world.."

ITT ADJUSTED FOR SPILLOVER

PREFERENCE FOR HARSH DISCIPLINE



- Adjusted effect size increases to 0.54 standard deviations after adjusting for spillover

QUALITATIVE FINDINGS

Primary outcomes

HARSH DISCIPLINE

PARENTS DESCRIBED MOVING AWAY FROM HARSH DISCIPLINE

"I used to buy rattan on the market. When the child misbehave I laid them down and give them fifty on their butt ...I beat on them severely and I see the mark of the rattan. Or sometimes I asked the mother to fix pepper soup, put enough pepper inside, we put it in the child nose straight. We suffocate them with that soup so that tomorrow when you remembered what we did to you, you will not do what you have done. And that's the way I thought was the best way to treat the child. But when I came to the PMD study, they told me ...discipline means to teach the child, direct the child, protect them, guide them and so forth . . . And so this is how I have been treating my children when it comes to discipline this time around . . . PMD told us about empathy, putting yourself in the shoes of the child."

FINDING POSITIVE ALTERNATIVES

"We went through the program and...we seeing some changes in our lives...One time my heart cut [I got angry]. I look at that little girl, I beat on her until blood start coming from her head...I never knew at that time what they call training and things [I never knew about PMD training]. All I know I want control my own child...I must beat on her. But when I went to PMD, PMD start to tell us that when child do something, you don't have to beat on them but you can talk to the child. The child will be able to come down [calm down]; when you pet that child, the child will be able to change. That how we started using that method; until today, we are dealing with our own children in a flexible manner, we all almost looking like friends..."

BEHAVIOR CHANGES: USING PRAISE

"I praise him yesterday because when he came from school, he said, 'mama, we learned new thing' [lesson]. Then after saying the ABC, he started singing. He say that [this] song the teacher was teaching us. I say, 'Thank you, the song is fine, this boy clever. Come teach me the song.' And he started singing the song to me too."

QUALITY OF RELATIONSHIPS

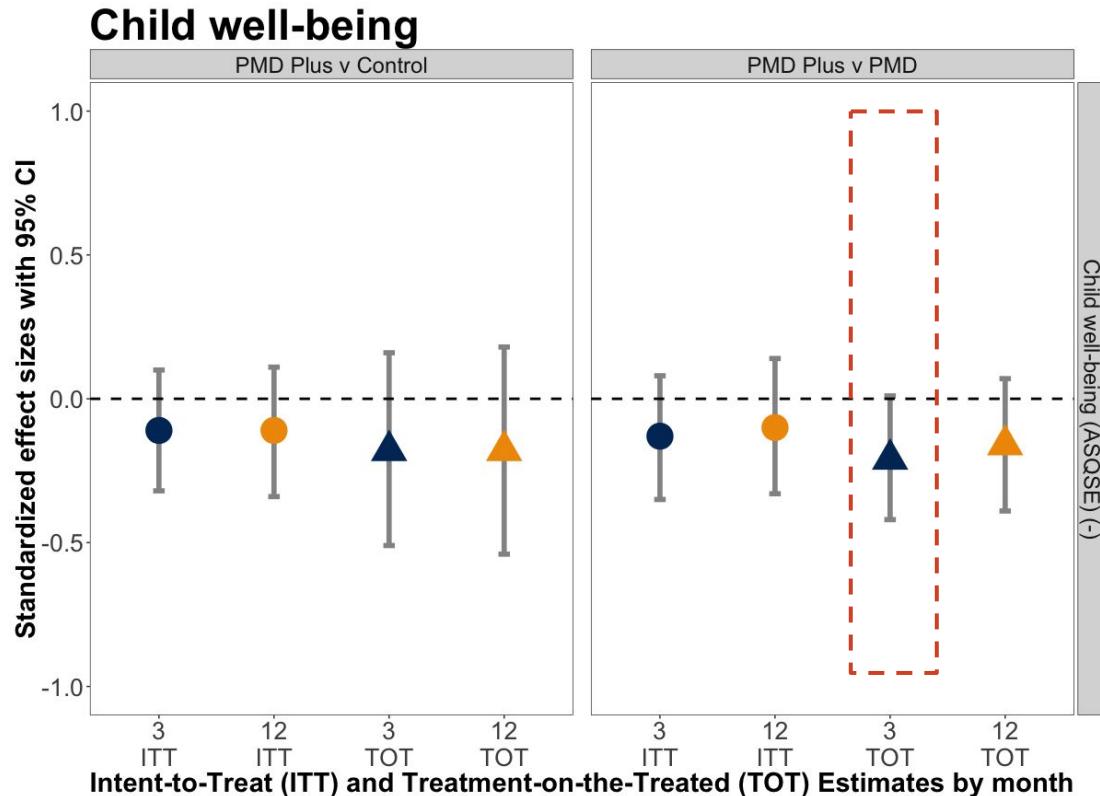
PARENTS TALKED ABOUT IMPROVED QUALITY OF RELATIONSHIPS

"When I come from somewhere I will go to them and speak to them, I will bring them close to me, when they come from school I ask them how was school, what they teach you in school, everything I start bringing them close to me and I start...because they told us that we should try to talk with them."

IMPACT OF HOME VISITS

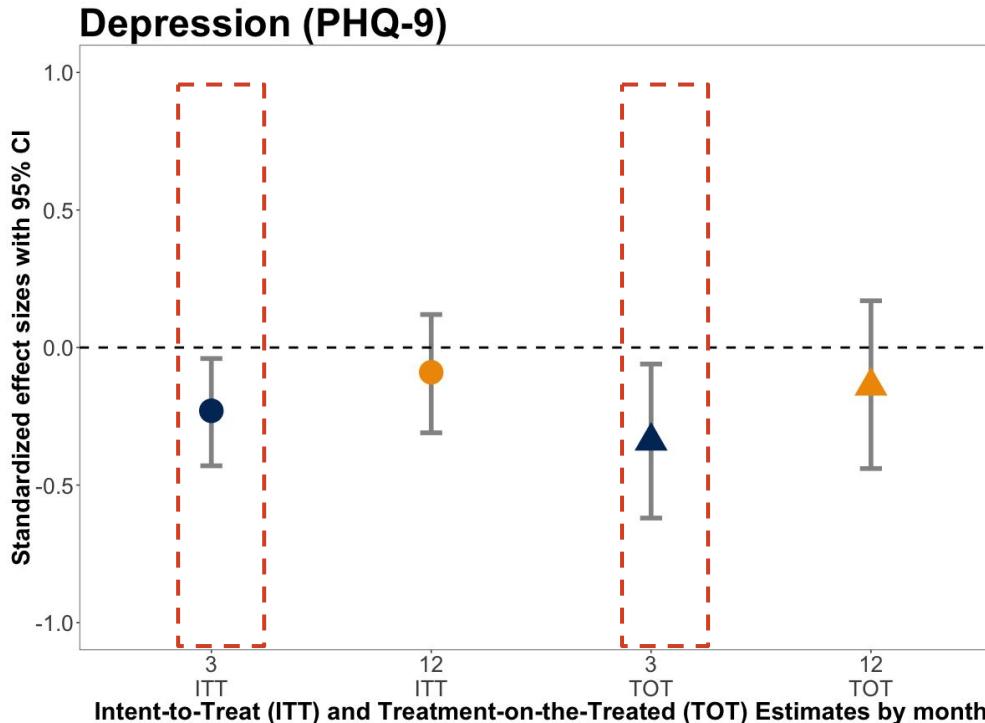
NOT MUCH EVIDENCE OF ADDITIONAL IMPACT OF THIS EXPENSIVE COMPONENT

There is not strong evidence to suggest that the home visit component had an additional impact on the primary outcomes above and beyond the group sessions alone; home visits may be driving positive effect on parent's concerns child's social-emotional well-being



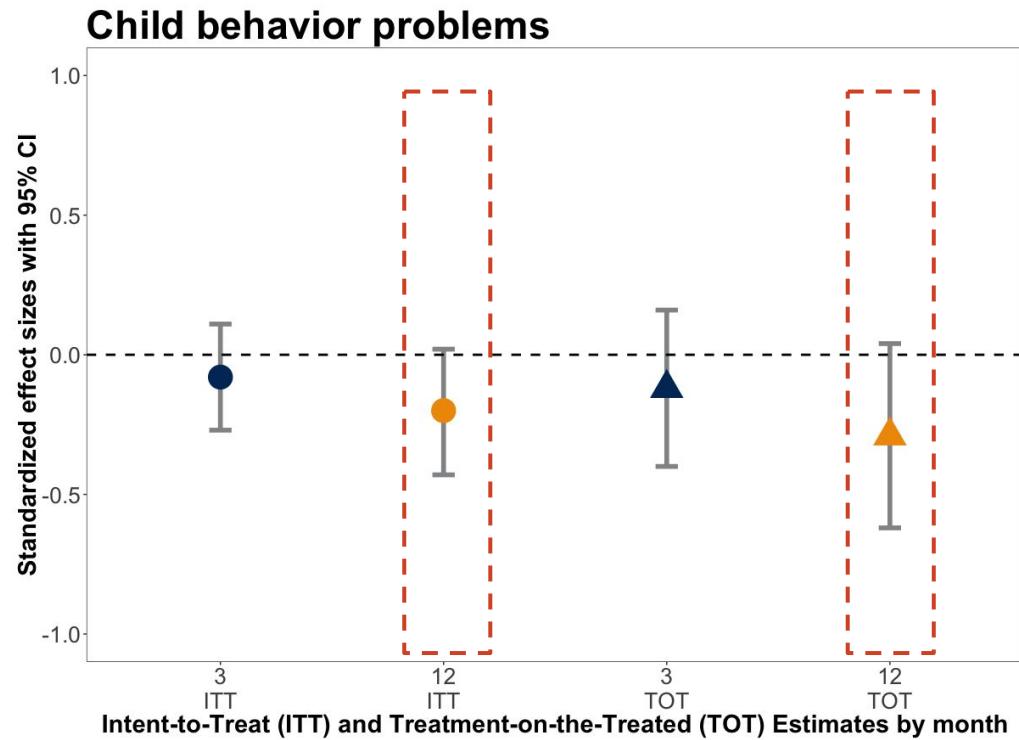
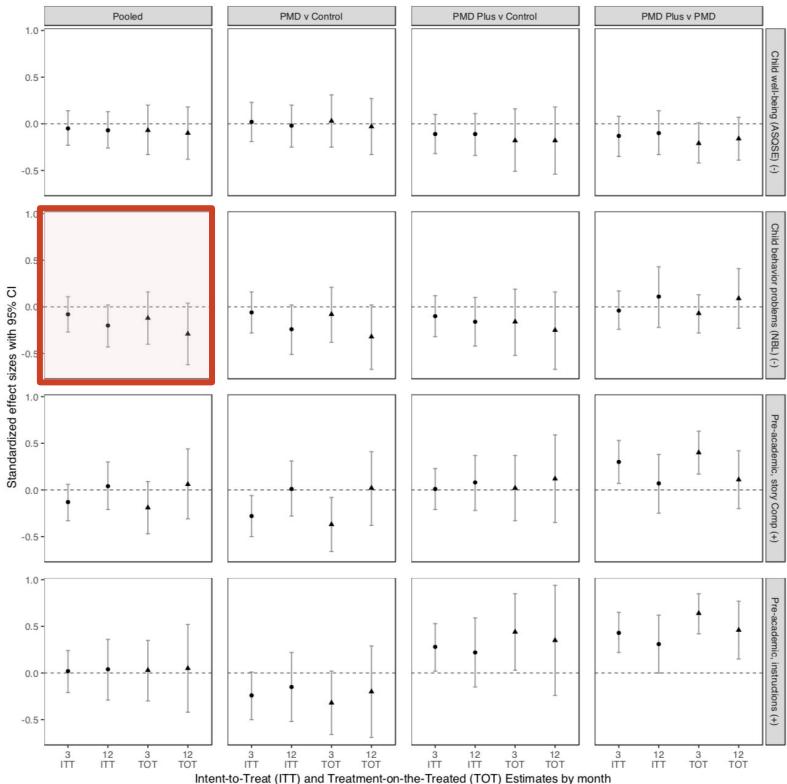
SECONDARY OUTCOMES, PARENT

REDUCTION IN SYMPTOMS OF DEPRESSION



SECONDARY OUTCOMES, CHILD

REDUCTION IN PARENT ANGER WITH CHILD BEHAVIOR PROBLEMS



SUBGROUP ANALYSIS: effects on highest risk?

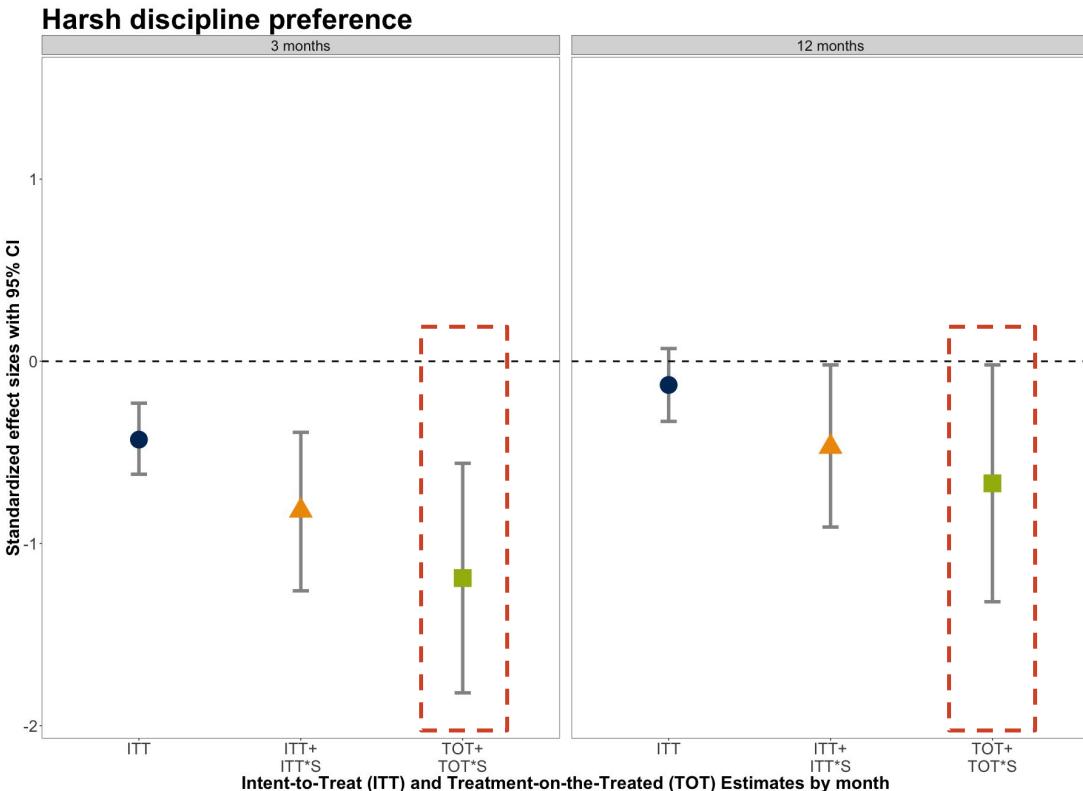
1. This study tested PMD as a universal prevention program. Parents and children were not recruited for this intervention on the basis of elevated risk for poor child outcomes.

2. Subgroup analysis: What was the impact of the program among an indicated subgroup of children who fell in the top quintile of behavior problems at baseline (NBL)?

SUBGROUP ANALYSIS: Discipline

LARGE EFFECTS ON HARSH DISCIPLINE PREFERENCE AT 3- AND 12-MONTHS

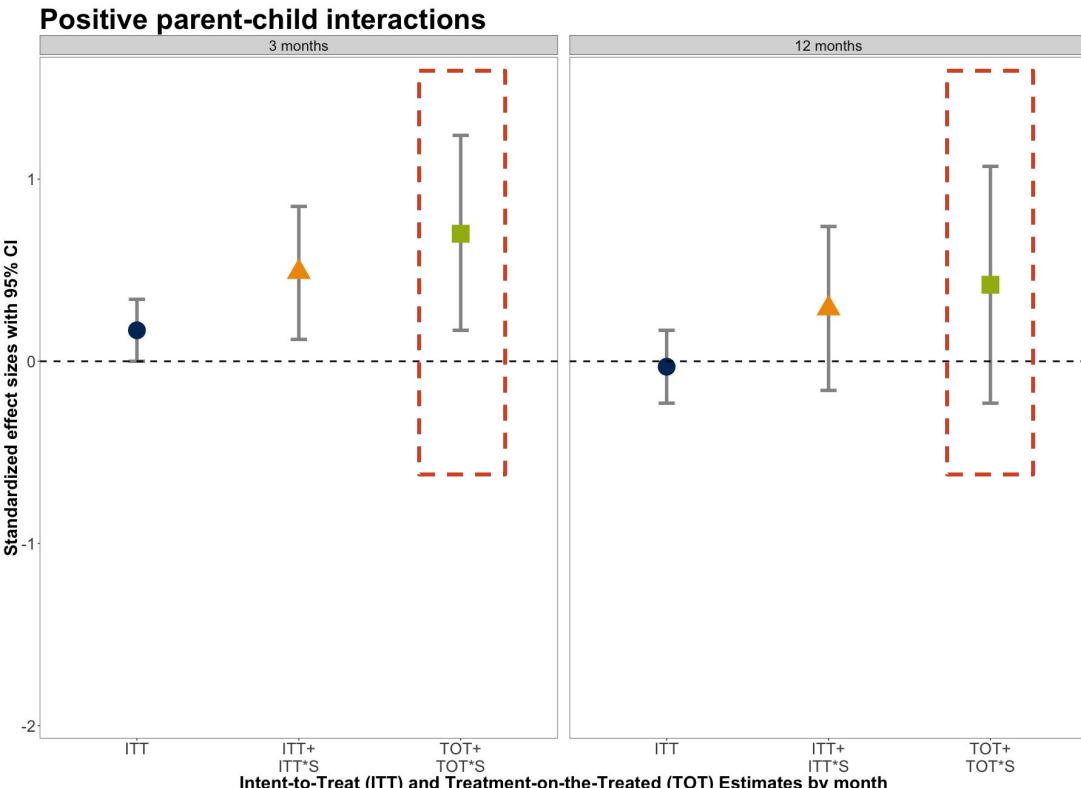
The first estimate is the standardized average treatment effect (ITT). The second and third estimates are the effects among this indicated subgroup. The third estimate represents the effect of the intervention for those who might be at-risk (indicated) and participate in the program.



SUBGROUP ANALYSIS: Interactions

LARGE EFFECTS ON HARSH DISCIPLINE PREFERENCE AT 3- AND 12-MONTHS

The first estimate is the standardized average treatment effect (ITT). The second and third estimates are the effects among this indicated subgroup. The third estimate represents the effect of the intervention for those who might be at-risk (indicated) and participate in the program.



CONCLUSIONS AND IMPLICATIONS

- Program reduced child maltreatment and improved quality of parent-child relationships
- Effects were strongest at 3-months and among compliers
- Unique longitudinal data shows attenuation of effects
- Some evidence for impacts on secondary outcomes, including parent mental health
- Home coaching visit had little additional benefit, most likely not cost-effective
- Weak evidence for spillover to control group
- Strong subgroup effects, differential susceptibility

IRC: John Zayzay, Bangalie Trawally, Esther Karnley, Anjuli Shivshanker, Crystal Stewart, Joanne Creighton, Jeannie Annan, Amanda Sim, Eduardo Garcia-Rolland, Geoffrey Kirenga



Duke: Eve Puffer, Eric Green, Rhea Chase, Amy Finnegan, Katey King, Elsa Healy, Ali Giusto, Taylor Wall, Stephanie Banks

Financial support provided by
UBS Optimus Foundation. For more information, visit
<http://bit.ly/pmdliberia>.