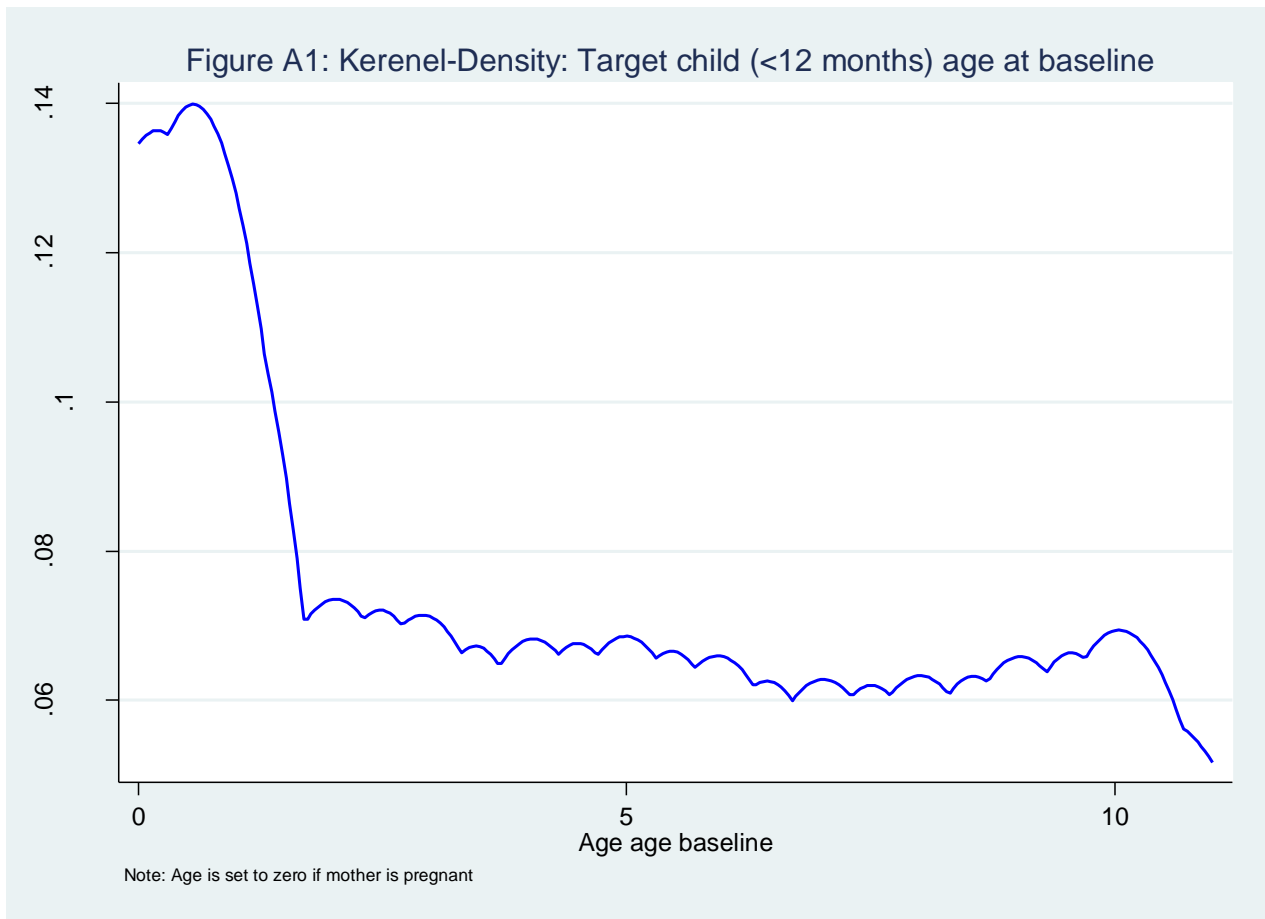


Supplementary Materials for

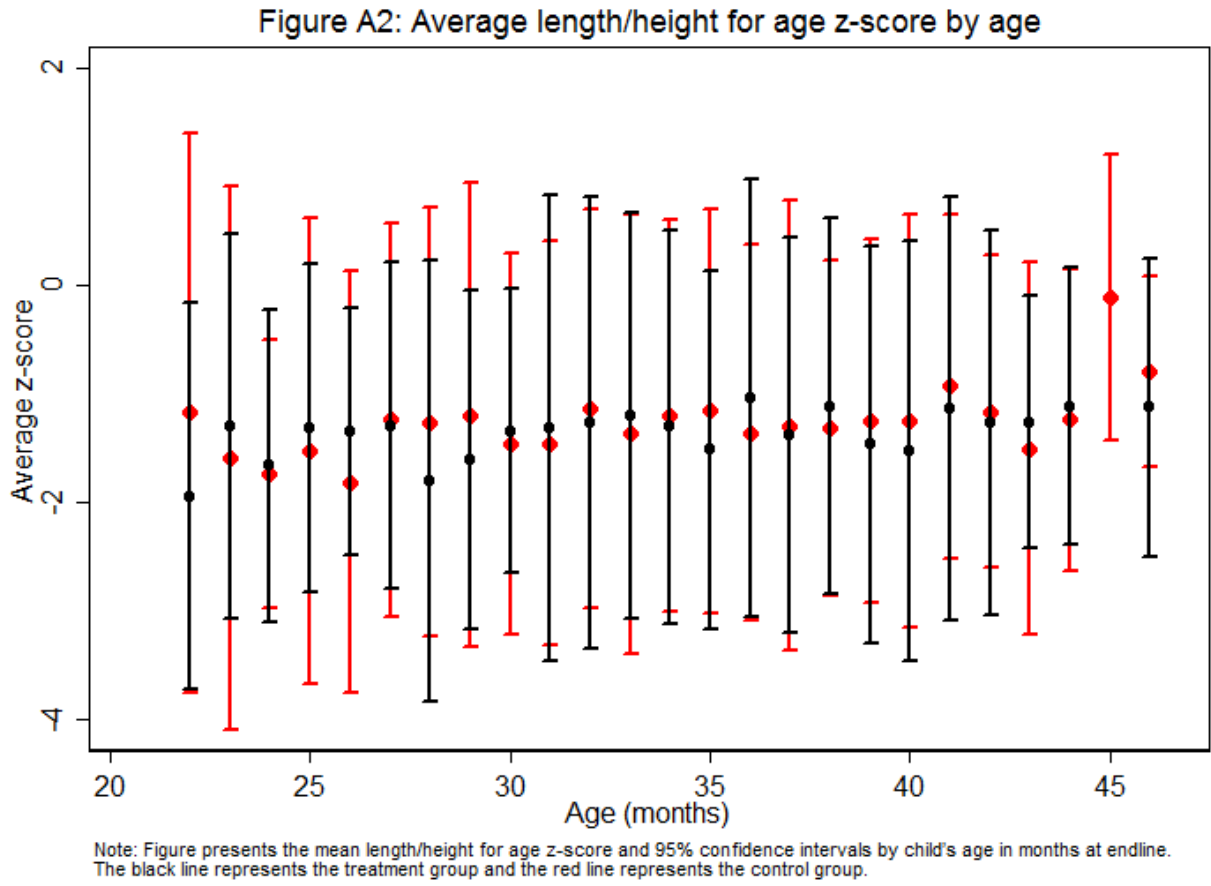
Effects of a home-based participatory play intervention on infant and young child nutrition: a randomized evaluation among low-income households in El Alto, Bolivia

**Authors:** Sebastian Martinez, Julia Johannsen, Gaston Gertner, Jorge Franco, Ana B Perez-Exposito, Rosario M Bartolini, Irma Condori, Jhovanna Flores Ayllón, Ramiro Llanque, Nohora Alvarado, Christian Lustedt, Cecilia Ferrufino, Teresa Reinaga, Mauricio Chumacero, Carlos Foronda, Santiago Albarracin, Ana Maria Aguilar

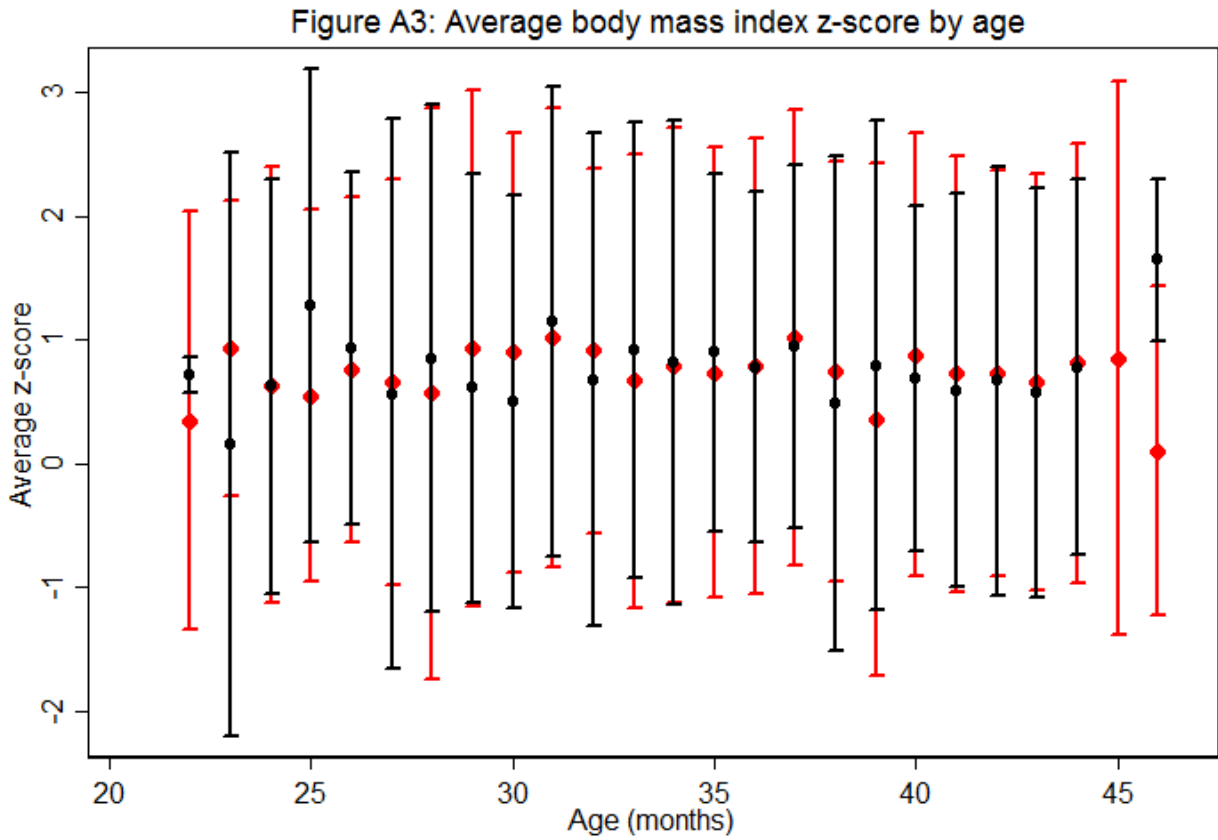
**Figure A1:** Density of children's age in months at baseline (mothers recruited at pregnancy =0)



**Figure A2:** Mean height for age z-score and 95% confidence intervals by age

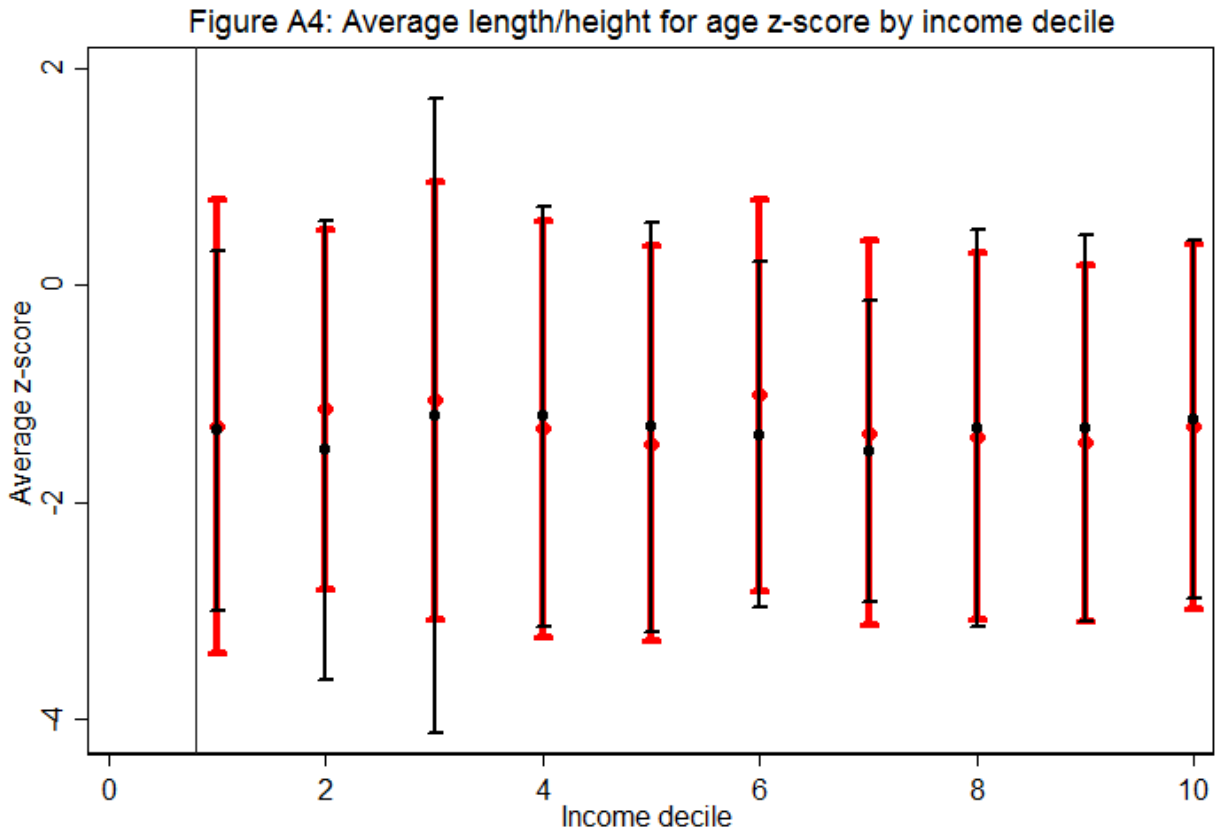


**Figure A3:** Mean Body mass index z-score and 5% confidence intervals by age



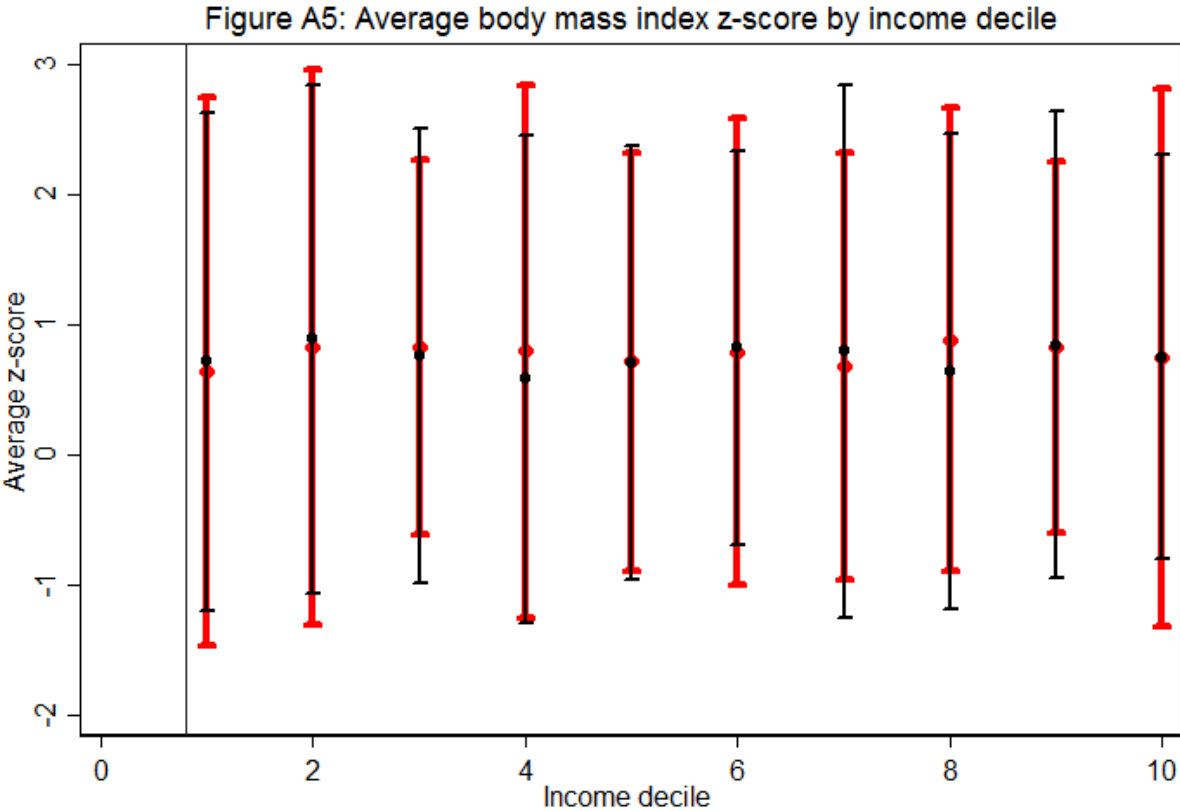
Note: Figure presents the mean body mass index z-score and 95% confidence intervals by child's age in months at endline. The black line represents the treatment group and the red line represents the control group.

**Figure A4:** Mean height for age z-score and 95% confidence intervals by income decile



Note: Figure presents the mean length/height for age z-score and 95% confidence intervals by household income decile. The black line represents the treatment group and the red line represents the control group.

Figure A5: Mean Body mass index z-score and 95% confidence intervals by income decile



Note: Figure presents the mean body mass index z-score and 95% confidence intervals by household income decile. The black line represents the treatment group and the red line represents the control group.

**Table A1: Community Child Nutrition Program Educational Paths**

Route	Route 1	Route 2	Route 3	Route 4	Route 5
Age	Pregnancy	Children 0 a 5 months	Children 6 a 9 months	Children 10 a 14 months	Children 15 a 24 months
N° visits	7 visits	7 visits	7 visits	7 visits	7 visits
Frequency	Two visits per month. Visits 6 and 7 in the final month of pregnancy.	One visit per month from age 0 to 4 months (5 visits). Two visits during the 5 <sup>th</sup> month (2 visits).	Two visits per month.	Two visits per month age 10 to 12 months (5 visits). One visit per month age 13 and 14 months (2 visits).	One visit per month age 15 to 18 months (4 visits). One visit every other month age 19 to 24 month (3 visits).
Feeding content	Ensuring mother's consumption of Ferrous sulphate tablets. Dietary counseling low cost, nutritious and varied food. Last visit to explain about feeding of the newborn.	Importance and reasons to breastfeed: early initiation, exclusive for six months and timely introduction of complementary feeding at 6 months.	To give thick meals with foods of animal origin, micronutrients, ensure consumption of micro-nutrient supplementation (Chispitas Nutricionales) .	Continue to give foods of animal origin, diverse, cut in small pieces, increase amount. Low cost nutritious local food, avoid junk food, ensure consumption of micro-nutrient supplementation.	Continue to give foods of animal origin, diverse, cut in pieces. Low cost nutritious local food, avoid junk food, ensure consumption of micro-nutrient supplementation.
Hygiene content	Hand washing with soap.	Hand washing with soap.	Hand washing with soap.	Hand washing with soap.	Hand washing with soap.
Stimulation content	Talk and caress the belly.	Talk and caress while breastfeeding. Give baby a toy to hold if he/she thinks he/she wants to eat before 6 months.	Talk, sing, play while feeding.	Talk, sing, play while feeding.	Talk, sing, play while feeding.
Delivery strategy	Puppetry Songs Interactive dialogue based on booklets with images or educational material. Hand washing exercise.	Puppetry Songs Interactive dialogue based on primers with images or educational material. Hand washing exercise.	Puppetry Songs Interactive dialogue based on primers with images or educational material. Hand washing exercise.	Puppetry Songs Interactive dialogue based on primers with images or educational material. Hand washing exercise.	Puppetry Songs Interactive dialogue based on primers with images or educational material. Hand washing exercise.

**Table A2:** Components of nutrition knowledge Index

- Q1: Nutrition of the pregnant woman / quantity of food
- Q2a: (3 correct answers) Nutrition of the pregnant woman / quantity of food
- Q2b: (2 correct answers) Nutrition of the pregnant woman / adequate foods
- Q2c: (1 correct answer) Nutrition of the pregnant woman / adequate foods
- Q3: Nutrition of the pregnant woman / consumption of ferrous sulfate
- Q4: Breast feeding / Time after birth
- Q5: Breast feeding / Age for exclusive breastfeeding
- Q6: Breast feeding / Hand washing
- Q7: Complementary feeding / starting eating age
- Q8: Complementary feeding / feed the baby if he bring things to his mouth
- Q9: Breast feeding / maximum age for breast feeding
- Q10: Complementary feeding / Number of meals for a child
- Q11: Complementary feeding / first food for a child
- Q12a: (3 correct answers) Complementary feeding / benefits of thick foods
- Q12b: (2 correct answers) Complementary feeding / benefits of thick foods
- Q12c: (1 correct answer) Complementary feeding / benefits of thick foods
- Q13: Minimum age for consuming protein of animal source / eggs
- Q14: Minimum age for consuming protein of animal source / entrails
- Q15: Minimum age for consuming protein of animal source / meat
- Q16: Minimum age for consuming protein of animal source / chicken
- Q17a: (3 correct answers) Protein of animal source - entrails
- Q17b: (2 correct answers) Protein of animal source - entrails
- Q17c: (1 correct answer) Protein of animal source - entrails
- Q18a: (3 correct answers) Protein of animal source - meat
- Q18b: (2 correct answers) Protein of animal source - meat
- Q18c: (1 correct answer) Protein of animal source - meat
- Q19a: (3 correct answers) Protein of animal source - eggs
- Q19b: (2 correct answers) Protein of animal source - eggs
- Q19c: (1 correct answer) Protein of animal source - eggs
- Q20a: (3 correct answers) Protein of animal source - chicken
- Q20b: (2 correct answers) Protein of animal source - chicken
- Q20c: (1 correct answer) Protein of animal source - chicken
- Q21: Vitamin A – Heard of
- Q22: Vitamin A - Frequency
- Q23: Vitamin A – Utility
- Q24a: (3 correct answers) Anemia - How to prevent
- Q24b: (at least 2 correct answers) Anemia - How to prevent
- Q24c: (at least 1 correct answer) Anemia - How to prevent
- Q25: Micro-nutrient powders (Chispitas) - How to consume
- Q26a: (3 correct answers) Micro-nutrient powders (Chispitas) - What they are for
- Q26b: (2 correct answers) Micro-nutrient powders (Chispitas) - What they are for

Q26c: (1 correct answer) Micro-nutrient powders (Chispitas) – What they are for

Q27: Nutritional supplement (Nutribebe) - What is it for

**Table A3:** Index of nutrition practices: components

<b>1</b>	First time breastfeeding
<b>2</b>	Exclusive breastfeeding
<b>3</b>	Ever breastfed
<b>4a</b>	Continued breastfeeding at 1 year
<b>4b</b>	Continued breastfeeding at 2 years
<b>5</b>	Introduction of solid, semi-solid or soft-foods
<b>6a</b>	Micro-nutrient powders (Chispitas) - received
<b>6b</b>	Micro-nutrient powders (Chispitas) - consumed
<b>7a</b>	Nutritional Supplement (Nutribebe) - received
<b>8</b>	Accompanies child during meals
<b>9</b>	Verbal stimulation
<b>10</b>	Additional stimulation
<b>11</b>	Positive actions against rejection
<b>12</b>	Minimum dietary diversity
<b>12b</b>	Minimum dietary diversity (foods score $\geq 5$ )
<b>12c</b>	Minimum dietary diversity (foods score $\geq 6$ )
<b>12d</b>	Minimum dietary diversity (foods score $\geq 7$ )
<b>13</b>	Consumption of iron-rich or iron-fortified food
<b>14</b>	No bottle feeding
<b>15</b>	Duration (in months) of breastfeeding



**Table A4: Treatment Effects by Gender**

	(1)	(2)	
	Treatment	Treatment* Female	N
<b>A. Anthropometric measures</b>			
Weight-for-age z-score	-0.075 (0.062)	0.025 (0.087)	1513
Length/height-for-age z-score	-0.119* (0.069)	0.114 (0.094)	1538
BMI-for-age z-score	0.008 (0.070)	-0.054 (0.095)	1511
Weight-for-length/height z-score	-0.005 (0.069)	-0.051 (0.093)	1514
Head circumference-for-age z-score	-0.069 (0.063)	0.031 (0.093)	1535
Moderate or severe chronic malnutrition (height-for-age) =1	0.014 (0.031)	-0.020 (0.043)	1540
Moderate or severe acute malnutrition (weight-for-height) =1	0.004 (0.007)	-0.002 (0.009)	1516
Overweight or obese =1	-0.005 (0.020)	0.001 (0.027)	1511
<b>B. Anemia</b>			
No Anemia = 1	0.035 (0.034)	-0.027 (0.048)	1491

Notes: Robust standard errors in parentheses;

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Covariates: sex of the child and dummies for the child's age in months

**Table A5:** Treatment Effects for children stunted at baseline (zlen <=-2)

VARIABLES	Without Covariates				With Covariates			
	Weight-for-length/height z-score	BMI-for-age z-score	Stunted=1	Overweight or obese =1	Weight-for-length/height z-score	BMI-for-age z-score	Stunted=1	Overweight or obese =1
Treatment = 1	0.046 (0.111)	-0.309** (0.124)	-0.068 (0.068)	-0.0411 (0.0329)	-0.157 (0.569)	-0.625 (0.714)	0.061 (0.366)	-0.151 (0.334)
Constant	-2.137*** (0.067)	0.901*** (0.081)	0.629*** (0.047)	0.0792*** (0.027)	-2.313*** (0.638)	1.875** (0.714)	0.942** (0.414)	0.151 (0.334)
Observations	212	206	212	206	212	206	212	206
R-squared	0.001	0.029	0.005	0.008	0.885	0.901	0.864	0.737

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \*p&lt;0.1

Covariates: sex of the child and dummies for the child's age in months

**Table A6:** Treatment Effects for children at risk of stunting at baseline (\_zlen <=-1)

VARIABLES	Without Covariates				With Covariates			
	Weight-for-length/height z-score	BMI-for-age z-score	Stunted=1	Overweight or obese =1	Weight-for-length/height z-score	BMI-for-age z-score	Stunted=1	Overweight or obese =1
Treatment = 1	-0.019 (0.063)	-0.017 (0.071)	-0.002 (0.039)	0.004 (0.019)	0.019 (0.131)	-0.086 (0.166)	-0.034 (0.083)	-0.038 (0.049)
Constant	-1.755*** (0.044)	0.735*** (0.049)	0.405*** (0.029)	0.056*** (0.014)	-0.805*** (0.190)	-0.181 (0.216)	0.032 (0.119)	0.035 (0.063)
Observations	621	605	621	605	621	605	621	605
R-squared	0.000	0.000	0.000	0.000	0.648	0.612	0.662	0.533

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \*p&lt;0.1

Covariates: sex of the child and dummies for the child's age in months

**Table A7:** Mother has incomplete primary education or less (<5 years of education at baseline)

VARIABLES	Without Covariates				With Covariates			
	Weight-for-length/height z-score	BMI-for-age z-score	Stunted=1	Overweight or obese =1	Weight-for-length/height z-score	BMI-for-age z-score	Stunted=1	Overweight or obese =1
Treatment = 1	-0.007	-0.139*	-0.021	-0.030	0.219	-0.124	-0.12	-0.003
	-0.084	-0.078	-0.040	-0.023	-0.221	-0.213	-0.106	-0.063
Constant	-1.410***	0.909***	0.290***	0.088***	-1.088***	-0.078	0.140	0.059
	-0.061	-0.057	-0.029	-0.018	-0.328	-0.252	-0.137	-0.079
Observations	520	511	520	511	520	511	520	511
R-squared	0.000	0.006	0.001	0.003	0.702	0.682	0.687	0.655

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \*

p<0.1

Covariates: sex of the child and dummies for the child's age in months

**Table A8:** Kolmogorov Smirnov test for older and younger children at endline

	P-values, Combined K-S			
	Male		Female	
	<35 months	>35 months	<35 months	> 35 months
Weight for age z-score (zwei)	0.618	0.207	0.965	0.288
Height for age z-score (zlen)	0.146	0.202	0.932	0.973
Body-mass-index z-score (zbmi)	0.668	0.484	0.825	0.682
Weight for height z-score (zwfl)	0.969	0.507	0.851	0.599
Head circumference z-score (zhc)	0.386	0.225	0.824	0.775

**Table A9: Attrition Analysis (sample attrition)**

<b>Table: Descriptive analysis and balance for attritors</b>						
Household characteristics	Treatment		Control		Balance	
	Mean	SD	Mean	SD	Diff	Pval
n	213		219		432	
Household size	4.61	1.82	4.51	1.67	0.094	0.231
n	213		219		432	
Household size adult equivalent	3.42	1.31	3.42	1.23	0.003	0.980
n	213		219		432	
Monthly income (Bs)	2654.02	4358.13	2587.39	2014.57	66.628	0.838
Household head characteristics	Treatment		Control		Balance	
	Mean	SD	Mean	SD	Difference	Pval
n	213		219		432	
Head of household is male = 1	0.93	0.26	0.90	0.30	0.025	0.339
n	213		219		432	
Age of head of household	31.05	9.22	32.82	10.71	-1.775	0.066
n	210		218		428	
Head of household is indigenous = 1	0.80	0.40	0.83	0.38	-0.030	0.421
n	213		219		432	
Head of household is married = 1	0.93	0.25	0.94	0.24	-0.006	0.785
n	213		219		432	
Head of household can read = 1	1.00	0.07	0.99	0.10	0.004	0.580
n	213		219		432	
Head of household worked last week = 1	0.95	0.21	0.97	0.18	-0.015	0.424
n	213		219		432	
Head of household years of education	9.98	3.31	9.56	3.69	0.419	0.215
n	213		219		432	
Head of household did not complete primary education = 1	0.18	0.39	0.26	0.44	-0.082	0.042
n	213		219		432	
Head of household completed primary education = 1	0.08	0.27	0.07	0.25	0.011	0.654
n	213		219		432	
Head of household did not complete secondary education = 1	0.24	0.43	0.19	0.39	0.048	0.229
n	213		219		432	
Head of household completed secondary education = 1	0.50	0.50	0.47	0.50	0.023	0.637
Mother characteristics if child is < 12	Treatment		Control		Balance	
	Mean	SD	Mean	SD	Difference	Pval
n	153		152		305	
Mother age	26.06	7.05	27.05	7.07	-0.987	0.223
n	152		152		304	
Mother is indigenous = 1	0.80	0.40	0.79	0.41	0.007	0.888
n	153		152		305	
Mother is married = 1	0.91	0.29	0.93	0.25	-0.026	0.406

n	153		152		305	
Mother can read = 1	0.99	0.11	0.98	0.14	0.007	0.648
n	153		152		305	
Mother worked last week = 1	0.31	0.46	0.35	0.48	-0.041	0.442
n	153		152		305	
Mother worked last week = 1	9.18	3.37	8.59	3.97	0.597	0.158
n	153		152		305	
Mother did not complete primary education = 1	0.28	0.45	0.38	0.49	-0.101	0.062
n	153		152		305	
Mother completed primary education = 1	0.12	0.32	0.07	0.25	0.052	0.118
n	153		152		305	
Mother did not complete secondary education = 1	0.24	0.43	0.20	0.40	0.038	0.423
n	153		152		305	
Mother completed secondary education = 1	0.37	0.48	0.36	0.48	0.011	0.846
Characteristics of children < 12 months	Treatment		Control		Balance	
	Mean	SD	Mean	SD	Difference	Pval
n	154		156		310	
Child is male = 1	0.49	0.50	0.54	0.50	-0.045	0.430
n	154		156		310	
Child age in months	5.18	3.34	5.92	3.43	-0.741	0.055
n	154		156		310	
Mother is primary caregiver = 1	0.99	0.08	0.99	0.08	-0.000	0.993
n	154		156		310	
Father lives in household = 1	0.91	0.29	0.92	0.28	-0.008	0.814
n	131		139		270	
Child is indigenous = 1	0.67	0.47	0.72	0.45	-0.048	0.396
n	154		156		310	
Universal Maternal and Infant Insurance (SUMI) = 1	0.94	0.25	0.90	0.30	0.031	0.314
n	154		156		310	
Private Social Insurance = 1	0.03	0.16	0.06	0.25	-0.038	0.107
n	154		156		310	
Needed healthcare in last 30 days = 1	0.48	0.50	0.49	0.50	-0.007	0.907
Characteristics of the dwelling	Treatment		Control		Balance	
	Mean	SD	Mean	SD	Difference	Pval
N	213		219		432	
Dwelling is a house = 1	0.23	0.42	0.22	0.42	0.006	0.876
N	213		219		432	
Dwelling is an apartment = 1	0.02	0.15	0.02	0.13	0.005	0.705
N	213		219		432	
Dwelling is a room = 1	0.75	0.44	0.75	0.43	-0.007	0.868
N	213		219		432	
Dwelling is owned and mortgage is paid = 1	0.30	0.46	0.31	0.46	-0.010	0.821
N	213		219		432	

Dwelling is owned and mortgage is being paid = 1	0.09	0.29	0.08	0.27	0.016	0.547
N	213		219		432	
Dwelling is rented = 1	0.19	0.40	0.20	0.40	-0.004	0.920
N	213		219		432	
Number of rooms in the dwelling	1.88	1.08	1.89	1.13	-0.008	0.941
N	213		219		432	
Number of bedrooms in the dwelling	1.30	0.81	1.34	0.85	-0.037	0.641

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