Title: An impact evaluation of USAID Advancing Nutrition's project to improve maternal and child nutrition in the Kyrgyz Republic

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Abstract

Objective: To evaluate the USAID Advancing Nutrition project's impact on health and nutrition behaviors and the sustainability of that impact through reduced intervention intensity one year later.

Design: An impact evaluation with a randomized cluster, stepped wedge using difference -in - differences analysis to compare indicator changes in an intervention group to a comparison group (midterm survey) and then a full intervention group to a light intervention group (final survey).

Setting: Batken and Jalal-Abad oblasts, the Kyrgyz Republic from 2020–2023

Participants: 6,253 responses in three telephone surveys (total)

Results: We observed statistically significant differences between the intervention and comparison groups at midterm for children consuming vitamin A-rich foods and exclusive breastfeeding. There were positive differences in other indicators, indicating the impact of the project's efforts. With the final survey results, we observed statistically significant differences indicating a bigger change in full intervention areas compared to light intervention areas. We observed negative changes in many indicators where we transitioned from full intervention to light intervention, but most were small.

Conclusions: This project and evaluation offer important lessons for programs focused on strengthening capacities for community- and facility-based nutrition counseling. During a time of conflict or increasing food scarcity, the behaviors that can change sustainably are those that can be shielded from the effects of shifting economic and environmental factors, such as breastfeeding. This evaluation highlights the importance of continued support for local interventions to foster optimal nutrition behaviors.

1.Introduction

Despite progress toward elimination, malnutrition among women and adolescent girls is still globally challenging.[1] Undernutrition (such as underweight and short stature), deficiencies in essential micronutrients, and anemia affect more than one billion adolescent girls and women globally, resulting in devastating consequences for their health and well-being.[1] According to a recent UNICEF report, progress may be slowing; between 2020 and 2022 there was a 25% increase in acutely malnourished pregnant and breastfeeding women in 12 countries impacted by the current food and nutrition crisis.[1] Inadequate intake of nutrients before and during pregnancy and breastfeeding affect not only women but also their children.[2] Meanwhile, because of limited resources, the nutritional status of women of reproductive age is very poor.[3] Globally, an estimated two out of three women of reproductive age experiences deficiency of at least one micronutrient.[4] For women, malnutrition during childhood may also affect birth outcomes, making them more likely to have difficult childbirths and lower birth weight infants.[3]

The Kyrgyz Republic has a population of about 6 million with high literacy and a wide coverage of health services, basic sanitation facilities, and electricity.[5] However, an Integrated Context Analysis conducted by the World Food Programme shows that Batken and Jalal-Abad *Oblasts* (subregions) are the most vulnerable to poor nutrition because of high levels of poverty, food insecurity, and vulnerability to natural disasters.[6] Of equal concern is the fact that a substantial portion of the child population, especially children under 2 years, is malnourished. According to the most recent (2018) Multiple Indicator Cluster Survey (MICS) in the Kyrgyz Republic, 12% of children aged 0–5 years are stunted.[5] Jalal-Abad (16%), Osh (14%), Issyk Kul (14%), and Batken (12%) regions have the highest levels of childhood stunting.[5] At the same time, 7% of children of the same age group were overweight.[5] This proportion reaches 9–12% in some areas due to the high consumption of fatty and carbohydrate foods.[5] In the Kyrgyz Republic, the majority of nutrition services focused on the first 1,000 days and are provided through the primary healthcare system during antenatal care visits and routine well-child visits. Although levels of access to health and nutrition services are high, the quality of those services remains poor.[7]

USAID Advancing Nutrition implemented a project ("the project") to improve nutrition for women and children under 2 years old in Batken and Jalal-Abad oblasts. The project's objective was to sustainably improve the nutritional status of the Kyrgyz women and children, through the improvement of nutrition-related behaviors, strengthening the quality of nutrition services within the health system, and increasing the consumption of nutritious foods. Working in partnership with national and local governments, village health committees, oblast and district-level health centers, and both local and international nongovernmental organizations, the project promoted 11 evidence-based practices (Supplementary Material 1) through community-based and facility-based counseling. Project staff promoted these practices in program areas using social and behavior change (SBC) approaches including improved health services and health worker capacity, community mobilization and interpersonal communication at the community level, and mass media in three districts in Batken and four districts in Jalal-Abad from 2020 to 2023.

A cadre of volunteers (activists) provided SBC support, mainly through household visits and community meetings, and ongoing contact through a chat message phone application. Health facility-based support included updating national protocols and guidelines; training health workers; and integrating supportive supervision, mentorship, and quality improvement approaches into routine care. The project implemented a light intervention comprising less frequent household contacts by community activists with a streamlined refresher treatment of previous counseling topics during the year following the full intervention. At the national level, the project advocated for improved policies and resource allocation for nutrition services and work to strengthen local implementing partners, such as the Kyrgyz Association of Village Health Committees. This study evaluates the project's impact on health and nutrition behaviors and the sustainability of that impact through reduced intervention intensity one year later.

2. Methods

Study design

For this impact evaluation, we used a cluster-randomized, stepped-wedge design to examine the effect of project interventions on 20 indicators associated with the 11 nutrition-related practices. We compared indicators before and after the intervention in the intervention and comparison areas and

then examined the sustainability of the outcomes after one year of full intervention followed by one year of light intervention. Due to limited travel and close contact from the COVID-19 pandemic, we conducted the baseline, midterm, and endline using telephone surveys to interview cross-sections of the target population using computer assisted telephone interview (CATI) technology, in the mid-to-late fall of 2020, 2021, and 2022, respectively.

Prior to the baseline survey, the study team randomly assigned villages within Batken and Jalal-Abad Oblasts to either intervention or comparison groups. Intervention areas benefited from a full range of project activities (including community- and facility-based counseling); the only interventions that should have reached the comparison areas related to mass media. After one year of implementation, we carried out a midterm survey and compared difference-in-differences (DiD) estimates to assess project impact. Baseline and midterm surveys also highlighted those practices where prevalence of healthy behaviors was low, and where program interventions could effectively focus during the remainder of the project. After the midterm survey, villages in the original comparison areas began receiving full project interventions for the second year of the study (Figure 1). Villages in the original intervention areas continued receiving project support, but at a substantially reduced level compared to what they received in the first year of the study (light intervention). Villages in the comparison area received the full intervention in year 2 (the stepped wedge). Examining indicators in the light intervention group at midterm and final survey points enables us to ascertain the sustainability of the intervention's effects with a substantially reduced intervention effort. The timing of the project interventions and three surveys is shown in table 1 below.

Table 1. Timing of project interventions and assessments

<table>
<tr><th rowspan="2">Region</th><th rowspan="2">Area</th><th colspan="4">FY20</th><th colspan="4">FY21</th><th colspan="4">FY22</th><th colspan="4">FY23</th></tr>
<tr><th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th><th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th><th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th><th>Q1</th><th>Q2</th><th>Q3</th><th>Q4</th></tr>
<tr><td rowspan="2">Batken region</td><td>Intervention</td><td></td><td></td><td colspan="4">Full interventions</td><td colspan="4">Light interventions</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Comparison</td><td></td><td></td><td colspan="4">No interventions</td><td colspan="4">Full interventions</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Intervention</td><td></td><td></td><td></td><td></td><td colspan="4">Full interventions</td><td colspan="4">Light interventions</td><td></td><td></td><td></td><td></td></tr>
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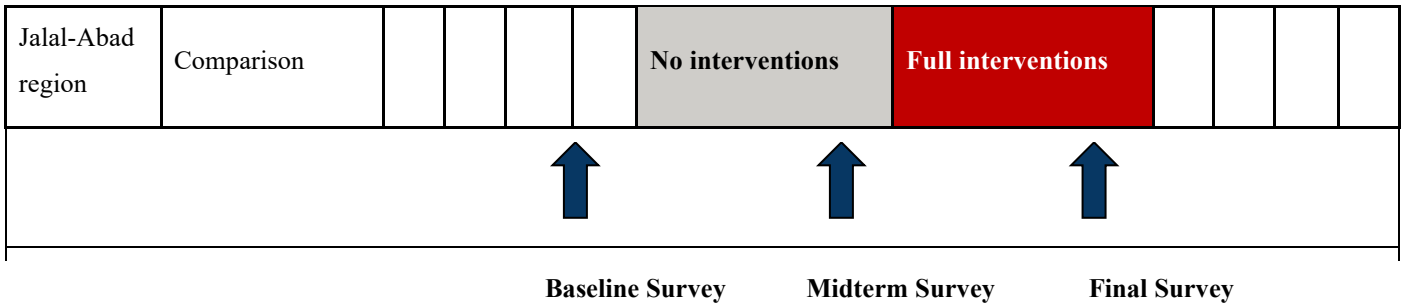


Study population

The survey interviewed women over 18 years old, with at least one child aged 0 to 23 months, living in the intervention and comparison villages of Jalal-Abad and Batken regions (Figure 1). Enumerators carried out the survey in 36 *Ayil Aimaks* (municipalities) in Jalal-Abad region and 32 Ayil Aimaks in Batken region, which included 227 settlements in Jalal-Abad and 144 settlements in Batken.

Figure 1. Project implementation areas

We identified respondents through health facility records. Virtually all women with children register with a nearby health facility, and facilities keep records of those clients, including age of the child, and address and phone number of the mother. We obtained lists of phone numbers from all health facilities in both intervention and comparison areas. The CATI program randomly chose phone numbers from these lists, until the desired sample size was reached for a given respondent type (e.g., child 0–5

months, child 6–23 months, in intervention and comparison areas in each oblast). Ultimately, because of high levels of non-response (typical for phone surveys) enumerators called all numbers on the lists and then supplemented with phone numbers from other databases (e.g., lists from baseline and midterm surveys).

Sampling and sample size

To estimate a total required sample size, we determined a minimum sample size for surveys to measure changes in key indicators for two child age groups (0–5 months and 6–23 months) within two treatment classifications (intervention and comparison) in the two regions (Supplemental Material 2). The desired sample size was 385 for each sub-categories, for a total desired sample size of 3,080. The ultimate sample sizes were 2,091 for the baseline, 2,234 for the midterm, and 1,928 for the endline.

The shortfall was primarily due to high levels of non-response, outdated lists of numbers from health facilities, and nonfunctional phone numbers. The main reasons for the changes in sample size across the three surveys was variation in the number of phone numbers provided by health facilities in the survey areas, and the higher percentage of non-functional phone numbers on the endline survey lists. The military conflict on the border between Batken and Tajikistan caused substantial displacement of households in Batken and further reduced the final survey sample size.

If there was more than one child under two years in a household, enumerators asked questions about only one child. In such cases, if one of the children was 0–5 months old, that child was selected until we achieved the desired number of children 0–5 months of age. With fewer children in that age group than the 6–23-month age group, prioritizing them improved our chance of achieving the desired number of interviews associated with the youngest children. After we achieved the desired sample of children 0–5 months, if a selected household had two or more children under two years of age, enumerators asked the mother questions about the child that had the last (most recent) birthday.

Survey questionnaire

The survey questionnaire contained 12 modules, assessing women's diets and children's nutrition, among other health areas (Supplementary Material 3). We pre-tested the questionnaire before the baseline and midterm surveys and modified where needed based on that experience. In the baseline survey, the full questionnaire took 31 minutes on average. Experience with phone surveys at the time suggested that amount of time was slightly longer than the recommended interview times, and

respondents would refuse at the beginning or drop off during the call if it lasted longer.[8] Due to demographics, we quickly achieved the desired sample size for indicators about children aged 6–23 months but were well below the desired sample size for children 0–5 months. Therefore, we used a crude form of block randomization, in which enumerators would ask respondents with a child 6–23 months the full questionnaire until we achieved the desired sample size for that age group. After that, we would stop interviewing mothers of that age group and focus on mothers of children aged 0–5 months. Those women were asked questions from a much shorter questionnaire focused on indicators associated with that age group. The short interview took only 13 minutes to complete. Respondents who fully completed the interview received a small credit to their phone account (50 KGS = 0.60 USD or about 30–45 minutes).

In addition to the frequency, diversity and diet of children, the survey also asked about diet quality. The available food groups have been classified by the type of vitamins they contain, according to the following principle:

- Vitamin A-rich foods: Pumpkin, carrots, squash that are yellow or orange inside, red pepper (sweet), any dark green leafy vegetables such as broccoli, spinach, sorrel/dock, apricot, peaches, persimmon, or melon
- Iron-rich foods: Liver, kidney, heart, stomach, or other organ meats; any meat, such as beef, goat, lamb, mutton, chicken, duck, turkey, other birds, fish, and seafood

If the child of the respondent consumed at least one product from the mentioned food groups, the enumerator marked the entire food group.

Before the midterm survey, we added a module on gender and household decision making, and more detailed questions about respondents' exposure to project activities and messages. This made interviews with the full questionnaire over 40 minutes. To keep interviews at a reasonable length for phone interviews, we again used a modified form of block randomization or parallel sampling described in Supplementary Material 2.

Data Analysis

We used difference-in-differences analysis with regression equations using IBM SPSS Statistics for Windows, version 29 (IBM Corp., Armonk, NY, USA) to compare changes in the intervention versus comparison areas between the baseline and midterm surveys. For the final survey, we used the same DiD approach, this time comparing changes in the full intervention areas to changes in the light intervention areas. The null hypothesis for the DiD analyses was that in the absence of (or light intervention for) project activities, the difference between the areas would be constant over time. Analysis for each indicator was done separately for Batken and Jalal-Abad oblasts and for the full dataset with both oblasts. We tested the statistical significance ($p<0.05$) of each DiD estimate using a simple regression model, with DiD expressed as an interaction term between time and a treatment group dummy variable.

RESULTS

Description of the surveyed population

Our response rate among the eligible women we reached ranged from 41% at baseline to 26% at midterm, and 18% at endline. The population did not differ substantially across the three survey implementation points except that child age skewed younger between baseline and final surveys and the location of most respondents switched from Batken to Jalal-Abad at the midterm (comparison group) and final (full intervention group) surveys (Table 2). The average age of women at all time points was 29. One-third of women have at least general secondary education (11 years of school) and most were married in each group at each survey timepoint.

Table 2. Respondent demographics

Characteristic	Baseline %		Mid-term %		Final %	
	Intervention (n=1125)	Comparison (n=966)	Intervention (n=1132)	Comparison (n=1102)	Light intervention (n=955)	Full Intervention (n=973)
Mother Age						
18–24 years	26.3	25.0	22.6	21.8	22.2	24.3
25–29 years	34.8	35.2	34.8	36.4	36.9	32.3
30–39 years	35.7	36.7	40.4	38.8	38.4	39.1
40–49 years	3.1	3.2	2.2	3.1	2.5	4.2
Education						
None	0.4	0.0	0.2	0.1	0.0	0.1
Primary	0.2	0.1	0.4	0.1	0.1	0.1
Basic secondary (9 grades)	6.0	5.3	8.9	9.0	8.9	8.0
General secondary (11 grades)	38.5	38.1	32.5	31.2	31.1	33.0
Initial vocational education	3.7	2.9	3.1	1.6	2.1	2.2
Secondary specialized education	24.9	23.4	25.6	25.9	26.0	26.0
Higher education (incomplete or	26.3	30.2	29.2	31.7	31.8	30.6

Characteristic	Baseline %		Mid-term %		Final %	
	Intervention (n=1125)	Comparison (n=966)	Intervention (n=1132)	Comparison (n=1102)	Light intervention (n=955)	Full Intervention (n=973)
completed)						
Marriage/Partnership						
Married	98.6	97.9	97.8	98.8	97.8	98.4
Divorced	0.5	0.8	1.3	0.5	1.4	1.0
Single	0.7	0.8	0.7	0.6	0.6	0.6
Widow	0.2	0.4	0.2	0.1	0.2	0.0
Child Age						
0–5 months	29.2	22.4	31.0	29.0	35.6	35.1
6–11 months	25.6	27.1	27.3	27.0	27.3	37.7
12–17 months	24.8	31.6	23.7	24.1	23.7	15.0
18–23 months	20.4	18.9	18.0	20.0	18.0	12.2
Child Sex						
Male	52.5	51.4	51.2	51.0	51.5	48.8
Female	47.8	48.7	48.9	49.0	48.9	51.2
Oblast						
Batken	66.5	51.1	53.5	45.6	61.6	39.0
Jalal-Abad	33.5	48.9	46.5	54.5	38.4	60.8

Main results

We observed statistically significant difference estimates for two indicators at mid-term: children consuming vitamin A-rich foods (Figure 2) and exclusive breastfeeding (Figure 3), although there were positive differences in several other indicators, indicating a bigger positive change in intervention areas than in comparison areas (Table 3) and demonstrating the impact of the project's efforts. With the final survey results, we observed more statistically significant differences, indicating a bigger change in intervention areas compared to light intervention areas. We observed decreases in many indicators in the areas that transitioned from full intervention to light intervention, but most decreases were small. Charts for each indicator are shown in Supplementary Material 4 and a table of changes by region is included in Supplementary Material 5.

Figure 2. Impact of interventions on children's consumption of vitamin A-rich foods

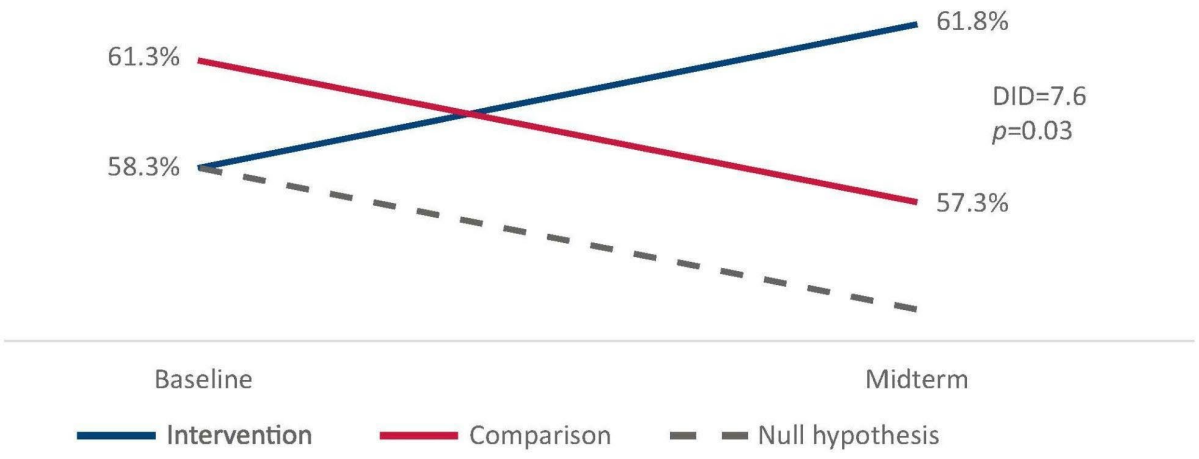
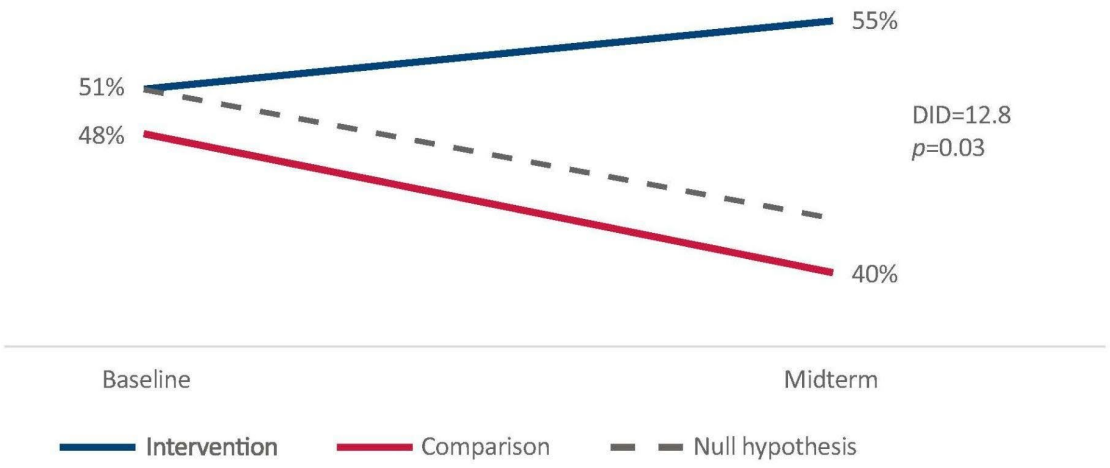


Figure 3. Impact of interventions on exclusive breastfeeding for children under 6 months of age



Infant and young child feeding

The percentage of children that were put to breast within the first hour of birth increased among the intervention group before decreasing slightly after the light intervention (63% at baseline,71% at midline, 68% at endline; Table 3). Over time, the pattern was similar for the comparison group, decreasing slightly after they received the full intervention (62% at baseline, 69% at midline,67% at endline). The percentage of children 0–5 months of age who were exclusively breastfeeding increased for the intervention group and held steady during their light intervention phase (51% at baseline, 55% at midline, 55% at endline). Over the same period, that percentage decreased among the comparison group, before substantially increasing after their full intervention phase (48% at baseline, 40% at midline, 62% at endline; Table 2). More than 80% of mothers of children aged 6–23 months in both groups and regions were breastfeeding at each survey point. The final survey showed that the most common reasons for stopping breastfeeding were pregnancy (31%), mother's illness or treatment with antibiotics (13%), a lot of or too little milk (11%), and the mother's need to return to work (12%). On average the duration of breastfeeding was 14 months.

We observed a steady decline in consumption of semi-solid foods among children aged 6–8 months in the first intervention area and through the light intervention phase (88% at baseline, 84% at midline, 82% at endline); the comparison area held steady through its intervention phase (86% at baseline, 81% at midline, 82% at endline; Table 3). We observed a steady decrease in the percentage of children

Table 2. Indicator changes, both regions combined

Indicator	Baseline				Midterm				Difference (Intervention [M-B] − Comparison [M-B])*	Final				Difference (Full Intervention [F-M] − Light intervention [F-M])*
	Intervention (n=1125)		Comparison (n=966)		Intervention (n=1132)		Comparison (n=1102)			Light Intervention (n=955)		Full Intervention (n=973)		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	394	47.9	372	46.3	486	58	483	56.8	-0.4	423	59.2	399	54.8	-3.2
Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	744	90.5	690	85.9	738	88.2	748	88	-4.4	612	85.8	622	85.6	-0.1

Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	516	64.8	500	66.7	505	64.7	494	63.2	3.4	353	57.4	358	56.7	0.8
Percent of children 6–23 months receiving a minimum acceptable diet	129	17.7	115	16.3	136	18.8	106	14.8	2.6	94	16.4	114	19.8	7.4*
Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	499	62.7	486	64.8	516	66.2	492	62.9	5.3	356	57.9	366	57.9	3.3
Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	464	58.3	460	61.3	482	61.8	448	57.3	7.6*	339	55.1	338	53.5	2.9

Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	177	24.3	163	23.1	187	25.8	147	20.5	4.1	155	27	167	28.9	7.3*
Percent of children 0-23 months who were put to breast within one hour of birth	709	63.3	602	62.4	799	70.8	459	69.1	0.8	644	67.7	651	67	1
Prevalence of exclusive breastfeeding of children under six months of age	168	51.1	104	48.2	195	55.4	127	39.7	12.8*	186	54.7	211	61.8	22.9*
Percent of children 6–8 months who received semi-solid or solid food during	119	88.2	111	86.1	141	84.4	137	81. 1	1.3	137	82	168	81.6	2.9

the previous 24 hours (without sweet, processed products)														
Percent of children 6–23 months who are still breastfeeding	644	81.3	626	83.5	650	83.7	644	82.6	3.3	522	85.4	542	86	1.7
Percent of children 0–5 months who consumed sugary or processed food in the previous 24 hours	49	14.9	31	14.4	41	11.7	57	17.8	-6.7	39	11.5	32	9.4	-8.3*
Percent of children 6–23 months who consumed sugary or processed food in the previous 24 hours	678	85.2	649	86.5	611	78.3	621	79.4	0.3	440	71.5	423	66.9	-5.7

Percent of children 0–5 months who consumed tea in the previous 24 hours	41	12.5	30	13.9	30	8.5	44	13.8	-3.8	32	9.4	25	7.3	-7.3*
Percent of children 6–23 months who consumed tea in the previous 24 hours	584	73.4	545	72.7	502	64.5	532	68	-4.4	354	57.6	338	53.5	-7.8*
Percent of women who received advice to take deworming medicine during pregnancy	168	20.4	155	19.3	165	19.6	121	14.7	3.7	142	19.4	120	16	1.5
Percent of women who usually wash hands at least three out five critical times	295	35.9	245	30.5	336	39.7	259	31.5	2.9	236	32	231	30.8	7.0*
Percent of households with soap and water at a	818	99.5	799	99.5	844	99.7	817	99.8	0.5	733	99.5	744	99.2	0.2

handwashing station on premises														
Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	774	94.2	762	94.9	823	94.2	781	94.1	0.9	638	89.2	667	90.5	1.3
Percent of women reporting increased decision-making power with husband and/or family	Not collected		Not collected		255	96.2	265	98.9	N/A	305	98.4	307	97.8	-3.3

*Statistically significant at $p<0.05$

under 2 consuming sugary or processed foods such as chocolate, sweets, pastries, cakes, or cookies in the intervention group, maintained through the light intervention phase (15% at baseline, 12% at midline,12% at endline). At the same time, consumption among the comparison group increased (14%–18%) before decreasing during their full intervention phase (9%; Table 3).

During the same time, there was a reduction in the consumption of various types of cereals, *bylamyk* (porridge), etc., other fruits and vegetables, and root vegetables. The most commonly consumed food groups in every survey were grains (e.g., bread, rice, buckwheat, corn, noodles, or other cereals) and other fruits and vegetables, including as apple, banana, dates, grapes, kiwi, lemon, tangerine, orange, pear, pineapple, plum, pomegranate (anar), cherry, raspberry, strawberry, and watermelon. The least consumed food groups among those mentioned by respondents in all three surveys were flesh foods (fish and seafood, liver, kidney, heart, stomach or other organ meats) and dark green leafy vegetables such as broccoli, spinach, and sorrel. Consumption of tea among children aged 6–23 months decreased steadily in the initial intervention group (73% at baseline, 65% at midline, 58% at endline) and the initial comparison group (73% at baseline, 68% at midline, 53% at endline; Table 3).

The minimum dietary diversity of children aged 6–23 months is achieved if the child consumes foods from at least five of eight food groups.[9] Among children aged 6–23 months in both groups, 65% consumed at least 5 or more food groups at baseline and mid-term (Table 3). This result dropped to 57% during the light intervention phase. In the comparison group, this dropped from 67% to 63% and then further dropped to 57% during its full intervention phase. In the intervention group, only 24% of children aged 6–23 months received the minimum number of meals for their ages at baseline. This percentage steadily increased to 26% and then 27% during the light intervention phase. This percentage decreased in the comparison group from 23% at baseline to 20% at midline but then increased to 29% during the full intervention phase (Table 3).

Micronutrients

In the intervention group, the percentage of children aged 6–23 months consuming iron-rich foods increased from 63% to 66% but then decreased to 58% during the light intervention phase. Meanwhile, that percentage steadily decreased in the comparison group, even after their full intervention phase

(65% at baseline, 63% at midline, 58% at endline; Table 3). The percentage of children aged 6–23 months consuming vitamin A-rich foods increased in the intervention group before decreasing after the light intervention phase (58% at baseline, 62% at midline, and 55% at endline; Table 3). There was a steady decrease in the comparison group, even during the full intervention phase (61% at baseline, 57% at midline, 54% at endline; Table 3). The percentage of mothers of children under 2 who took iron supplements for at least 90 days during their last pregnancy steadily increased in the intervention group (48% at baseline, 58% at midline, 60% at endline) and generally increased among the comparison group (46% at baseline, 57% at midline, 55% at endline; Table 3).

Other indicators for women and households

The percentage of women washing their hands at recommended times increased in the intervention group from 36% to 40%, then decreased during the light intervention phase to 32% (Table 3). Meanwhile, that percentage among the comparison group did not change (31% at baseline, 32% at midline, 31% at endline). Other indicators such as the percent of households with soap and water for handwashing and the percent of women with increased decision-making power were high at baseline and remained so throughout survey points. The percent of women who stored or preserved nutrient-dense foods for consumption during winter remained high but decreased slightly for both groups at the time of the final survey (Table 3). Finally, the percentage of women who received advice about taking deworming medicine during pregnancy held steady for the intervention group (20% at baseline, 20% at midline, 19% at endline) but was more variable for the comparison group, decreasing first and then increasing slightly when they received the full intervention (19%– 15%–16%; Table 3). The percentage of women eating the recommended number of food groups decreased steadily in the intervention group (91% at baseline, 88% at midline, 86% at endline), while it remained the same for the comparison group even after they received the full intervention (86% at baseline, 88% at midline, 86% at endline; Table 3).

DISCUSSION

We conducted an impact evaluation to measure the project's effects on health and nutrition behaviors and the sustainability of those effects through reduced intervention intensity one year later. We used a randomized cluster, stepped-wedge intervention and evaluation design to enable our examination of those questions and to ensure equity in terms of the whole project area population having the chance to

receive the interventions. We found the greatest project impact on exclusive breastfeeding among children under 6 months of age and on consumption of vitamin A-rich foods among children aged 6–23 months. We also found that the percentage of the population with optimal breastfeeding behaviors held steady through the light intervention phase. The percentage of children under 2 consuming sugary and processed foods decreased during the intervention. In general, other children's dietary indicators steadily declined for both groups, possibly reflecting environmental shifts and lack of food availability during the COVID-19 pandemic.

The World Health Organization (WHO) recommends exclusive breastfeeding for children under the age of 6 months, and beginning at six months of age, children should consume soft and semi-solid foods while continuing to receive breast milk through at least the age of 2 years.[10] Nearly all mothers in the Kyrgyz Republic report breastfeeding their children, however, according to the 2018 MICS, only 46% of children between 0–5 months are exclusively breastfed.[5] We found a slightly higher prevalence in the project area and were able to increase it. According to the 2018 MICS, 60% of children under the age of 2 receive the recommended number of food groups throughout the country, three-quarters receive the number of recommended feedings for their age, and 43% receive a minimum acceptable diet.[5] In the project area, we found a similar percentage receiving the recommended number of food groups but a drastically lower percentage receiving the appropriate number of feedings (around 25%) which may have been due to the recent changes in conditions (pandemic and conflict).

We found a few other comparable studies and they had similar results. In Burkina Faso, government researchers trained facility-based health care providers in nutrition counseling and then followed a cohort of pregnant women until their children were 18 months old[11]. They found that mothers who received the intervention were more likely to exclusively breastfeed and their children were more likely to have dietary diversity[11]. An impact evaluation of an interpersonal counseling intervention to improve children's nutrition in Bangladesh found slight declines in infant and young child feeding indicators two years after the intervention ended, but sustained improvement over baseline measures[12]. Another trial in Bangladesh tested digital job aids for community health workers (CHWs along with lipid-based supplements and concluded that nutrition counseling provided by CHWs with a digital job aid improved children's dietary diversity[13].

As the world emerges from the COVID-19 pandemic, it remains to be seen how nutrition programs fared. In general, global food scarcity has increased in the past few years and estimates of maternal and child malnutrition have increased[14]. Nutrition programs focused on attainable behavior goals such as changing breastfeeding behaviors were likely more successful than those with goals that could be influenced by external forces including economic and environmental shifts on access to food. In contrast, handwashing is affected by many factors, including water source and availability, weather, type of employment, etc., some of which are beyond the scope of health or nutrition projects to influence. We observed an increase in handwashing during the intervention followed by a decrease during the light intervention; past projects in Kyrgyz Republic have also experienced challenges in improving handwashing indicators, especially during cold weather months[15].

According to WHO, children are especially susceptible to iron-deficiency anemia due to the increased need for iron during periods of rapid growth, mainly in the first five years of life[16]. Iron deficiency anemia in children is associated with increased levels of morbidity, as well as impaired cognitive development and poor school performance[17]. Iron is found both in animal products (meat, by-products, poultry, fish) and produce (legumes, spinach, apples, cereals, nuts, dried fruits). Overall, we found a decrease in children's consumption of iron-rich foods over time in both intervention and comparison groups, especially between midterm and endline surveys, which likely reflects the effects of economic and environmental shifts on food availability during the COVID-19 pandemic.

Consumption of vitamin A-rich foods is important because vitamin A promotes rapid growth in infants and young children and helps them fight infections[18]. Insufficient intake of vitamin A can lead to visual impairment in the form of night blindness and increase the risk of morbidity and mortality from childhood infections, including measles and intestinal infection[18]. The project demonstrated an impact on consumption of vitamin A-rich foods; the percentage of children consuming in the intervention group increased while that percentage decreased in the comparison group. Thus, the effects of interpersonal counseling may have protected against a decrease in the general population. However, we observed that this effect disappeared after the full intervention phase, again pointing to the importance of food availability in addition to a person's ability to change their behavior.

There are a few limitations to this evaluation. First, interviews were conducted by phone due to the pandemic and that led to a low response rate, which may have biased the estimates in an undetermined way. Most people (93%) have access to a cell phone[19]. Secondly, we conducted three cross-sectional surveys, which limits trend analysis for or examination of individual behaviors by examining population behaviors in aggregate over time. There was some in and out migration from the project area, especially out migration from Batken during the conflict with Tajikistan, and that likely changed the surveyed population in terms of the number of health service contacts that could be experienced by respondents at different time points, in addition to changing the environment in which those respondents lived. Responses were subject to possible recall bias and social desirability bias. Finally, the surveys occurred just one year after each other and the project implementation schedule was such that some areas did not receive the full interventions beforehand. While it is important to measure the impact of health and nutrition projects, measurement should occur at time points that allow for adequate program implementation. One year of implementation is likely not enough to see substantial changes in most population health and nutrition indicators.

Nonetheless, this project and evaluation offer important lessons for programs focused on increasing capacities for community- and facility-based nutrition counseling. During a time of conflict or increasing food scarcity, and especially when those coincide, the health behaviors that can change sustainably are those that can persist regardless of shifting economic and environmental factors, such as breastfeeding. When circumstances permit, such as a global pandemic or even severe weather that keeps people indoors, nutrition programs can use the opportunity to promote optimal breastfeeding practices. We found that population-level improvements in those behaviors were particularly sustainable through crises and over time. Future research could examine the sustainability of interventions over a longer period of time. The article contributes to the growing body of evidence on the role of grassroots initiatives in fostering better nutrition habits and highlights the importance of continued support for such interventions.

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Supplementary Material 1: Evidence-based practices promoted by the project

1. Consumption of iron-folic acid (IFA) supplements by pregnant women
2. Dietary diversity for women, with an emphasis on consumption of food sources of iron and foods that enhance iron absorption
3. Dietary diversity for children 6–23 months, with an emphasis on consumption of food sources of iron and vitamin A, and foods that enhance iron absorption
4. Minimum meal frequency for children 6–23 months of age
5. Early initiation of breastfeeding
6. Exclusive breastfeeding from birth through the first 6 months
7. Timely introduction of appropriate complementary foods
8. Reduced consumption of high-calorie, low-nutrient-density (junk) food
9. Presumptive treatment of helminth infections for pregnant women and children
10. Handwashing at five critical times: after using the latrine, after changing a baby's diaper/cleaning a child, after handling animals, before preparing food, and before feeding a child
11. Adoption of methods for safe and prolonged storage of nutrient-dense produce for the winter.

Supplementary Material 2: Sampling information

The target population for this survey will be women with children under the age of two, in Batken and Jalal-Abad Regions. We developed a questionnaire to measure 21 outcome indicators of interest associated with the 11 nutrition-related practices that the project is trying to improve. Some indicators were measured among women with children 0–23 months old, some among those with children 0–5 months, and some among women with children 6–23 months. To estimate a total required sample size, we determined a minimal sample size for pre- and post-surveys for each group of interest, to measure changes in exclusive breastfeeding (among children 0–5 months) and minimum acceptable diet (among children 6–23 months. The groups of interest were as follows:

- Batken intervention—children 0–5 months
- Batken intervention—children 6–23 months
- Batken comparison—children 0–5 months
- Batken comparison—children 6–23 months
- Jalal-Abad intervention—children 0–5 months
- Jalal-Abad intervention—children 6–23 months
- Jalal-Abad comparison—children 0–5 months
- Jalal-Abad comparison—children 6–23 months

We used the following equation to calculate the desired sample for each of the above subgroups:

$$n = \left\{ \left[\frac{(p_1 q_1) + (p_2 q_2)}{(p_2 - p_1)^2} \right] \times (Z_{1-\alpha} + Z_{1-\beta})^2 \right\} \times Deff$$

where p_1 and p_2 are the values of the key indicators at times 1 and 2 respectively, $q_1 = 1 - p_1$, $q_2 = 1 - p_2$, α is the Type I error, $(1-\beta)$ is the power and $Z_{1-\alpha}$ and $Z_{1-\beta}$ are the standard Z-scores at the set levels of α and β, and Deff is the design effect from a comparable previous survey. The sample size is estimated based on a a confidence level of 95%, a power of 0.8, and detecting a change of 10% between surveys, with a design effect (Deff) = 1.0.

Based on the above parameters, we determined a desired sample of 385 for each of the above eight subgroups, for a total desired sample of 3,080 completed interviews. The calculation was as follows:

$$n = \frac{(0.5)(0.5)+(0.6)(0.4)}{(0.6-0.5)^2} \times (1.96 + 0.842)^2 \times 1.0 = 385$$

Mid-term survey block randomization approach

In this approach, enumerators asked all respondents four questionnaire modules, constituting one "block" of questions, while 4 other blocks of questions were developed, each with 6 out the 8 non-mandatory modules (see table below). After completing the four mandatory modules, each respondent would be randomly selected for one of 4 blocks, in such a way that each module would be answered by approximately 75% of respondents. The following table shows the distribution of modules in each block for the midterm and endline surveys, with numbers of respondents in the endline in each block and module.

Table 2. Distribution of the questionnaire by modules according to the block randomization, fin. N=1928

Block number	Block composition	Decryption of modules
Mandatory block for all, n =1,928	Modules A, C, F, K1	MODULE A: Introduction and Informed Consent, n=1,928 MODULE C: Household Roster, Socio-economic and Demographic Data, n=1,928 MODULE F: Children's Nutrition, n=1,928 MODULE K1: USAID Advancing Nutrition Exposure Questions, n=1,928 MODULE D: Maternal Nutrition and Antenatal Care, n=1,442 MODULE E: Women's Dietary Diversity, n=1,442 MODULE G: Deworming, n=1,487 MODULE H: Water, Sanitation, and Hygiene, n=1,487 MODULE I: Food Storage and Preservation, n=1,456 MODULE J: Television and Social Media, n=1,456 MODULE K2: Knowledge questions, n=1,399 MODULE L: Gender and Decision Making, n=1,399
Block 1, n=529	Modules D, E, G, H, I, J	
Block 2, n=486	Modules G, H, I, J, K2, L	
Block 3, n=472	Modules D, E, G, H, K2, L	
Block 4, n=441	Modules D, E, I, J, K2, L	

This approach allowed us to maximize our potential sample size for each indicator, while keeping interview times similar to the baseline survey even with the addition of a new module and additional questions about program exposure. The total interview duration averaged 32 minutes, with insignificant time differences between the four blocks.

The achieved sample size in the three surveys is shown in the table below:

	Region	Intervention/Comparison	Child age	N of respondents		
				Baseline (BL): 2022	Midterm (MT): 2023	FN: 2024
	Jalal-Abad region	Intervention zone (BL to MT) Light Intervention (MT to EL)	0–5 months	73	135	128
		Intervention zone (BL to MT) Light Intervention (MT to EL)	6–23 months	304	391	238
		Comparison zone (BL to MT) Intervention zone (MT-EL)	0–5 months	102	212	230
		Comparison zone (BL to MT) Intervention zone (MT-EL)	6–23 months	371	388	362

		Total on Jalal-Abad intervention/Light Intervention zone		377	526	366
		Total on Jalal-Abad Comparison/Intervention zone		473	600	592
	TOTAL FOR JALAL-ABAD REGION			**850**	**1126**	**958**
	Batken region	Intervention zone (BL to MT) Light Intervention (MT to EL)	0–5 months	256	217	212
		Intervention zone (BL to MT) Light Intervention (MT to EL)	6–23 months	492	389	377
		Comparison zone (BL to MT) Intervention zone (MT-EL)	0–5 months	114	108	111
		Comparison zone (BL to MT) Intervention zone (MT-EL)	6–23 months	379	394	270
		Total on Batken Intervention/Light Intervention zone		748	606	589
		Total on Batken Comparison/ Intervention zone		493	502	381
	TOTAL FOR BATKEN REGION			**1241**	**1108**	**970**
	Total			**2091**	**2234**	**1928**

Supplementary Material 3: Baseline Survey Questionnaire

USAID Advancing Nutrition Kyrgyz Republic

BASELINE SURVEY INSTRUMENT

Modules	Instructions and Indicators
Module A: Introduction and Informed Consent	**All women contacted must give consent to be surveyed**
Module C: Household Roster, Socio-economic and Demographic Data	**Only women above 18 should be interviewed starting with this module**
Module D: Maternal Nutrition and Antenatal Care	**(Practice 1) Consumption of iron-folic acid (IFA) supplements by pregnant women** • **Indicator 1: Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy** • **Indicator 2: Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)**
Module E: Women's Dietary Diversity	**(Practice 2) Dietary diversity for women, with an emphasis on consumption of food sources of iron and foods that enhance iron absorption** • **Indicator 3: Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours**

Module F: Children's Nutrition	**(Practice 3) Dietary diversity for children 6–23 months, with an emphasis on consumption of food sources of iron and vitamin A, and foods that enhance iron absorption** • **Indicator 4: Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours** • **Indicator 5: Percent of children 6–23 months receiving a minimum acceptable diet** • **Indicator 6: Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours** • **Indicator 7: Percent of children 6–23 months who ate vitamin A-rich foods in the previous 24 hours** • **Indicator 8: Percent of children 6–23 months who ate vitamin C-rich foods in the previous 24 hours** **(Practice 4) Optimal meal frequency for children 6–23 months of age** • **Indicator 9: Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status** **(Practice 5) Early initiation of breastfeeding** • **Indicator 10: Percent of children 0–23 months who were put to breast within one hour of birth** **(Practice 6) Exclusive breastfeeding from birth through the first 6 months** • **Indicator 11: Prevalence of exclusive breastfeeding of children under six months of age**

	(Practice 7) Timely introduction of appropriate complementary foods and Continued Breastfeeding ● **Indicator 12: Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours** ● **Indicator 13: Percent of children 6–23 months who are still breastfeeding** **(Practice 8) Reduced consumption of high-calorie, low-nutrient-density (junk) food** ● **Indicator 14: Percent of children 0–5 months and 6–23 months who consumed sugary or processed food in the previous 24 hours** ● **Indicator 15: Average number of times per day children 0–5 months and 6–23 months consumed sugary or processed food** ● **Indicator 16: Percent of children 0–5 months and 6–23 months who consumed tea in the previous 24 hours**
Module G: Deworming	**(Practice 9) Presumptive treatment of helminth infections for pregnant women and children**

	• **Indicator 17: Percent of women who received advice to take deworming medicine during pregnancy**
Module H: Water, Sanitation, and Hygiene	**(Practice 10) Handwashing at five critical times: after using the latrine, after changing a baby's diaper/cleaning a child, after handling animals, before preparing food, and before feeding a child** • **Indicator 18: Percent of women who usually wash hands at least three out five critical times** • **Indicator 19: Percent of households with soap and water at a handwashing station on premises**
Module I: Food Storage and Preservation	**(Practice 11) Adoption of methods for safe and prolonged storage of nutrient-dense produce for the winter** • **Indicator 20: Percent of women who stored nutrient-dense products for consumption during the last winter** • **Indicator 21: Percent of women who preserved nutrient-dense products for consumption during the last winter**
Module J: Television and Social Media	• **Indicator 32: Percent of people who had seen at least one TV spot**
Module K: USAID Advancing Nutrition Exposure Questions	

Module L: COVID-19 Impact on Nutrition	**To be asked only if the respondent has time and agrees to continue with the interview or receive a call-back to finish the interview later in the course of the day or at a later date**

MODULE A: Introduction and Informed Consent

Greetings: ***Hello, my name is_____. I represent an independent research agency M-Vector, which is conducting a baseline survey to learn about nutrition among women with at least one child 0–23 months old.***

A1. What language would you prefer to use when we speak?

Interviewer: If the respondent says a different language, ask if she would be comfortable doing the interview in Kyrgyz or Russian.

1. ***Kyrgyz***
2. ***Russian***
3. ***Other*—If the respondent do not understand both languages at all, then thank the respondent and end interview**

Before beginning the main survey, I need to confirm your age and child status.

S2. How old are you (full years)? / Please indicate your age.

1. _____

98. Refusal → **S2b**

If 18 years of age or older—Go to question A2

S2a. **/ Ask if S2_1=under 18 /** ***"Unfortunately, we survey only women above 18 years of age. Thank you. Goodbye"*** **— End interview**

S2b. / Ask if S2=98 / "If you answer all the survey questions you will receive money (55 soms) to your number as a reimbursement during the next 24 hours. Your views are important and can help

improve nutrition among mothers and children. All of your answers will be kept strictly confidential and never associated with your name. Instead of telling me your exact age, you may just tell me whether you are under or over 18 years old".

1. ***Age unknown, but over 18—Go to question A2***
2. ***Age unknown, but under 18*** → **S2c**

***98. Refusal*—Thank the respondent and end the interview**

S2c. **/ Ask if S2b=2** ***/ Unfortunately, we survey only women above 18 years of age. Thank you. Goodbye"*—End interview**

A2. **/ Ask If S2b=1, S2_1 = or over 18** ***/ Do you have any children 0–23 months of age (up to full 1 year and 11 months) living in your house?***

1. ***Yes*** → **A3**
2. ***No*** **/ Go to "*Unfortunately, we survey only women with children 0–23 months of age. Thank you. Goodbye!"*—End interview**

***98. Refusal*—Thank the respondent and end the interview**

A3. **/ Ask if A2=1 and S2_1 = or over 18 years*/ The information you provide us will help design better programs to reach women and young children. The questions usually take about 30 minutes. If you answer all the survey questions you will receive money (55 soms) to your number as a reimbursement during the next 24 hours. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question. Please note the interview may be recorded for quality purposes. All of your answers will be kept strictly confidential and never associated with your name. Do you have any questions?***

A3a. **/ Ask if A2=1 and S2=98** ***/ Do you agree to take part in the survey?***

1. ***Yes [Respondent agreed to be interviewed]*** ***SKIP → Module C***
2. ***No [Respondent did not agree to be interviewed]***

A3b. **/ Ask if A3a=2 /** ***Please indicate the reason for your refusal:***

1. ***Don't have time/too busy***

2. ***No answer given/hung up***
3. ***Don't want to be interviewed at all***
4. ***Other (specify)***

Thank the respondent and end the interview

MODULE C: Household Roster, Socio-economic and Demographic Data

#	QUESTIONS	RESPONSES
S0	**S0. What is your name?**	**1._____**
S3.	**S3. Oblast of residence / In which oblast do you usually live (last six months)?**	***1.Batken region*** ***2. Jalal-Abad region*** ***3. Other—Thank the respondent and end the interview***
S3a.	**S3a. Rayon of residence (district)**	***Batken region:*** ***1. Batken region*** ***2. Leilek region*** ***3. Kadamjay region*** ***Jalal-Abad region*** ***1. Aksy district*** ***2. Bazar-Korgon district*** ***3. Nooken district*** ***4. Suzak district*** ***5. Other*** _____

S3b.	**[Interviewer, do not ask this from the respondent]** **S3b. Ayil Okmotu of residence**	***Batken oblast:*** ***1. Kara-Bak*** ***2.G. Kadamjay*** ***3. Uch-Korgon*** ***4. Ak-Turpak*** ***5.G. Kyzyl-Kiya*** ***6. Maidan*** ***7. Halmion*** ***8. Markaz*** ***9. G. Aydarken*** ***10. Absamat Masaliev*** ***11. Kara-Bulak*** ***12. Dara*** ***13. Jean-Ger*** ***14. Sumbul*** ***15. Kyshtut*** ***16. Kotormo*** ***17. Kulundu*** ***18. Smt. Oriental***

		19. Cake-Ghoul ***20. Leilek*** ***21. Ak-Sai*** ***22. Samarkandek*** ***23. Orozbekov*** ***24. Ak-Tatyr*** ***25. Beshkent*** ***26.G. Isfana*** ***27. Ak-Suu*** ***28. Suu-Bashy*** ***29. Chowai*** ***30. Council*** ***31. Margun*** ***Jalal-Abad oblast:*** ***1.Yrys*** ***2. Kenesh*** ***3. Barps*** ***4. Arstanbap***

		5. Tash-Bulak ***6. Bagysh*** ***7. Kyzyl-Tuu, Suzak rayon*** ***8. Mombekov*** ***9. Nazaraliev*** ***10. Mogul*** ***11. Kyzyl-Kol*** ***12. Maylyan*** ***13. Shaidan*** ***14. Akman*** ***15. Avletim*** ***16. Kara-Darya*** ***17. Beshik-Jon*** ***18. Saypidin-Atabekov*** ***19. Kashka-Suu*** ***20. Kurmanbek*** ***21. Talduu-Bulak*** ***22. Zhany-Zhol*** ***23. Kara-Jygach***

		24. Aral ***25. Kar-Suu*** ***26. Massy*** ***27. G. Kerben*** ***28. Kyzyl-Unkur*** ***29. Lenin*** ***30. Kyzyl-Tuu, Aksy rayon*** ***31. Zherge-Tal*** ***32. Kok-art*** ***33. Suzak*** ***34. Kara-Alma*** ***35. Ak-Suu*** ***36. Ak-Zhol***

#	QUESTIONS	RESPONSES
S3c.	**S3c. Intervention or comparison AA** **[Interviewer, do not ask this question to the respondent]**	1. **Intervention** 2. **Comparison**
S3d.	**S3d. Village of residence (list all the villages from each AA)** ***Batken oblast:*** ***1. Batken rayon*** ***2. Leilek rayon*** ***3. Kadamjay rayon*** ***Jalal-Abad oblast*** ***1 Aksy rayon*** ***2. Bazar-Korgon rayon*** ***3. Nooken rayon*** ***4. Suzak rayon***	
S9	**S9. How many people live in your household, including you, all children and adults?**	**1. _____(the value must be at least 2 people)** **98. Refusal**

Now we would like to ask you about the people living in your household

C3a. How many boys and men of the following ages live in your household?

1. **0–5 months _____**
2. **6–23 months _____**
3. **2–5 years _____**
4. **6–17 years old _____**
5. **18–49 years old _____**
6. **Over 49 years old _____**
7. **There are no men in the house.**

C3b. How many girls and women of the following age live in your household, including you?

1. **0–5 months _____**
2. **6–23 months _____**
3. **2–5 years old _____**
4. **6–17 years old _____**
5. **18–49 years old _____**
6. **Older than 49 years of age _____**

#	QUESTIONS	RESPONSES

C4	**C4. Tell me birthdates of your child/ children aged under 23 months** **C4a. Child 1 date of birth** **C4b. Child 2 date of birth** **C4c. Child 3 date of birth**	1. **Day ___** 2. **Month ____** 3. **Year ____** 1. **Day ___** 2. **Month ____** 3. **Year ____** 1. **Day ___** 2. **Month ____** 3. **Year ____**
	/ if C3a_1, C3b_1 < 1 and C3a_2, C3b_2 > 1/ INTERVIEWER! **IF THERE ARE MORE THAN ONE CHILD UNDER 23 MONTHS IN THE FAMILY AND ONE CHILD IS 0–5 MONTHS, CHOOSE THE 0–5 MONTH-OLD CHILD, UNTIL THE DESIRED SAMPLE SIZE FOR THAT GROUP HAS BEEN REACHED. AFTER THE DESIRED NUMBER OF 0–5 MONTH-OLD CHILDREN HAS BEEN REACHED,**	

	USE THE LAST-BIRTHDAY METHOD TO CHOOSE THE CHILD TO BE THE SUBJECT OF THE INTERVIEW. RECORD THE DATE OF BIRTH (ONLY) OF THE CHOSEN CHILD BELOW (C4)	
C5	**C5. What is (CHOSEN IN C3a, C3b, or C4) 0–5 months / 6–23 months child's name?** **IN FOLLOWING QUESTIONS, WHEN THE QUESTION INCLUDES "… (NAME)…" OR "…NAME OF CHILD…" USE THIS CHILD'S NAME [CATI system uses the entered child's name in subsequent appropriate questions]**	**1._____**
C5a	**Is (NAME) a male or female?**	1. **Male** 2. **Female**

#	QUESTIONS	RESPONSES

S5.	**S5. What is your education at the moment?**	**1. No education** **2. Primary general education (4 classes)** **3. Basic secondary (9 grades)** **4. General secondary (11 grades)** **5. Initial vocational education (prof. Lyceum)** **6. Secondary specialized education (technical school, college)** **7. Incomplete higher education (3 courses or more)** **8. Higher (completed bachelor's, master's, etc.)** **98. Refusal to answer [DO NOT READ]**
C6.	**C6. What is your nationality?**	**1. Kyrgyz** **2. Uzbek** **3. Tajik** **4. Uighur** **5. Dungan** **6. Turkish** **7. Russian** **8. Tatars** **9. Other (Specify)** **_____**
S8.	**S8. Current marital status?**	**1. Married** **2. Divorced** **3. Not Married** **4. Widower**

		98. Refused to answer

MODULE D: Maternal Nutrition and Antenatal Care

#	QUESTIONS	RESPONSES
D1	**D1. During your pregnancy with (NAME OF CHILD—FROM QUESTION C5) [auto-filled in CATI system], did you ever visit a health facility (polyclinic, private, or public clinics) for information, services or supplies related to your pregnancy?**	**1. Yes** **2. No SKIP → D4** **98. Don't know/ don't remember [DO NOT READ] SKIP → D4**
D2	**D2. / Ask if D1=1/ How many times did you visit the health facility for information, services or supplies related to your pregnancy?**	**Number of times |___|** **98. Don't know/ don't remember [DO NOT READ]**
D3	**D3. / Ask if D1=1/ On what week of your pregnancy (number of the week) did you have your first visit at a health facility about your pregnancy?** **IF ANSWER IS GIVEN IN MONTHS, CONVERT TO WEEKS [1 month = 4 weeks]**	**Number of weeks |___||___|** **98. Don't know/don't remember**

D4	**D4. During your pregnancy with (NAME OF CHILD) were you prescribed / did you order or buy drugs in the form of tablets or syrups containing iron, folic acid, or other micronutrient supplements, such as: Fernixil, Fersinol, Gino-tardiferon, Tardiferon, Maltofer FOL, Ferrum Lek, ferro-gradimet, Elevit, Sanovit, etc.?** **CARD #D4–5 WITH PICTURES OF COMMON TYPES OF PILLS/TABLETS/SYRUPS**	**1. Yes** **2. No SKIP → D8** **98. Don't know/ don't remember** **SKIP → D8**
D5	**D5. / Ask if D4=1/ Which form of iron supplement did you receive or purchase the most of?** **CARD #D4–5 WITH PICTURES OF COMMON TYPES OF PILLS/TABLETS/SYRUPS/ MICRONUTRIENT SUPPLEMENTS** **ONE ANSWER**	**1. Iron tablets** **2. [Iron-folic acid] IFA tablets** **3. Iron syrup-like preparation** **4. Multiple micronutrients** **5. Other (specify)** **_____** **98. Don't know / Don't remember** **[DO NOT READ OUT]**
D6	**D6. /Ask if D4=1/ During the entire pregnancy, for how many days did you**	**1. Number of days |___||___||___|**

	take iron/IFA tablets/syrup or multiple micronutrient supplements? **IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS.**	**98. Don't know/ don't remember [DO NOT READ OUT]**
D7	**D7. / Ask if D4=1/ Where did you get your iron/IFA tablets, iron syrup or multi-nutrient powders during your pregnancy with (NAME)? Anywhere else?** **CHECK ALL THAT APPLY**	**1. Antenatal visit to health facility** **2. Pharmacy** **3. Other** **(Specify)_____** **99. Don't know/ don't remember [DO NOT READ OUT]**

D8	**D8. During your pregnancy with (NAME), were you counseled by a medical specialist of government/private hospital/maternity/polyclinic on any of the following:** **READ LIST AND MARK ALL THAT APPLY**	**1. Danger signs during pregnancy** ***[Examples for interviewer:*** ● ***Severe headache, dizziness, visual impairment (blurring, flickering "flies" in front of the eyes), nausea, vomiting*** ● ***Sudden or rapidly increasing swelling of the face and body, reducing the amount of urine*** ● ***Seizures, loss of consciousness*** ● ***Bright red blood-stained vaginal discharge*** ● ***Sharp, strong, constant stomach pain; weakness; and dizziness*** ● ***Rapid infertility water outflow*** ● ***High body temperature, heartbeat, shortness of breath]*** **2. Food ration (diet) during pregnancy** **3. Rest during pregnancy** **4. Self-care during pregnancy** **5. Use of iron-containing preparations** **6. Taking drugs to prevent intestinal worms** **7. Birth preparedness** **8. Postpartum family planning** **9. Postpartum danger signs for the mother**

		[*Examples for interviewer:* ***anemia, lactostasis, mastitis, postpartum depression, etc.*] **10. Dangerous signs for a newborn** **[*Examples for interviewer:* ***Apnea syndrome, continuous crying for over 2–3 hours, no healing in the umbilical cord, etc.*]** **11. Breastfeeding** **12. Introduction of solid and semi-solid foods?**

MODULE E: Women's Dietary Diversity

Now we would like to know about all the foods that you ate yesterday during the day and night.

Now I will list food items, if yesterday you ate this or that product more than one tablespoon,

indicate the answer "Yes", if less than one tablespoon or if you did not eat the named product at all, indicate the answer "no".

[Interviewer! Check all food items even if they were combined with other foods. For example, if the respondent had a soup made with carrots, potatoes and meat, you should mark "yes" for each of these ingredients when you read the list. However, if the respondent consumed only the broth of a soup, but not the meat or vegetable, do not mark "yes" for the meat or vegetable.]

#	QUESTIONS	RESPONSES
E1_A	**Any food made from grains, like:** 1. ***Porridge, bread, rice, buckwheat, corn, pasta/noodles or other foods made from grains***	**1. Yes 2. No 98. Don't know**
E2_B	**[Any vegetables or roots that are orange-coloured inside, like:]** 1. ***Pumpkin*** 2. ***Carrots*** 3. ***Squash*** 4. ***Red pepper (sweet)***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**
E3_C	**[Any white roots and tubers or plantains, such as:]** 1. ***White potatoes*** 2. ***Turnip***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**

#	QUESTIONS	RESPONSES
E4_D	**Any dark green leafy vegetables, such as:** 1. ***Broccoli, spinach, sorrel/dock***	**1. Yes 2. No 98. Don't know**
E5_E	**[Any fruits that are dark yellow or orange inside, like:]** 1. ***Apricot (fresh and dried)*** 2. ***Peaches (dried or raw)*** 3. ***Persimmon (ripe)*** 4. ***Yellow melon***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**
E6_F	**Any other fruits:** 1. ***Apple, banana, dates (fresh and dried), grapes, kiwi, lemon, mandarin orange, orange, pear, pineapple, plum, pomegranate (anar), cherries, raspberry, strawberry, watermelon***	**1. Yes 2. No 98. Don't know**
E7_G	**Any other vegetables:** 1. ***Cabbage (common and red varieties), cauliflower, celery, cucumbers, tomatoes, eggplant,***	**1. Yes 2. No 98. Don't know**

#	QUESTIONS	RESPONSES
	green pepper, mushroom, onion, radish	
E8_H	**Any meat made from animal organs, such as:** 1. ***Liver, kidney, heart, gizzard, or other organ meats or blood-based foods***	**1. Yes 2. No 98. Don't know**
E9_I	**Any other types of meat or poultry, like:** 1. ***Beef*** 2. ***Horse*** 3. ***Lamb/Mutton*** 4. ***Chicken*** 5. ***Duck, turkey, goat, and other meat products*** 6. ***Pork***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**
E10_J	**Any eggs:** 1. ***Chicken, quail eggs or any other bird eggs***	**1. Yes 2. No 98. Don't know**

#	QUESTIONS	RESPONSES
E11_K	**Any fish or seafood, whether fresh or dried:** 1. ***Fresh, frozen, canned, or dried fish, shellfish, or seafood***	**1. Yes 2. No 98. Don't know**
E12_L	**[Any fresh or dried seed beans or peas, such as:]** 1. ***Beans*** 2. ***Peas*** 3. ***Lentils***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**
E13_M	**[Any nuts or seeds, like:]** 1. ***Nuts: almond, hazelnut, pistachio, cashew, groundnut/peanut, or certain*** 2. ***Seeds: melon, pumpkin, sesame, sunflower seeds***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**

#	QUESTIONS	RESPONSES
14_N	**[Any milk or milk products, such as:]** 1. ***Milk*** 2. ***Hard and soft cheeses*** 3. ***Kefir, yoghurt/curd, airan*** 4. ***Other milk products, but <u>NOT</u> including butter, ice cream, cream, sour cream, tea, or coffee with milk, sugar-sweetened beverages: cocoa drinks with milk, processed/packed yoghurt drinks***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**

MODULE F: Children's Nutrition

Now I would like to ask you about where you gave birth to (NAME), and breastfeeding and foods given to (NAME) after she/he was born:

#	QUESTIONS	RESPONSES
F1	**Where did you give birth to (NAME)?** **(INTERVIEWER, DO NOT READ THE OPTIONS. IF A**	**1. At home** **2. Government hospital** **3. Government maternity** **4. Private hospital/maternity** **5. Other (Specify)** _____

	RESPONDENT FINDS DIFFICULT TO ANSWER, YOU CAN READ OUT THE PROPOSED OPTIONS)	
F2	**Did you ever breastfeed (NAME)?**	**1. Yes** **2. No SKIP → F9**
F3	**/Ask if F2=1/ How long after birth did you first put (NAME) to the breast?** **INTERVIEWER, IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.**	**1. Hours |___|___|** **2. Days |___|___|** **3. Less than 1 hour** **4. Immediately** **98. Don't know / don't remember**
F4	**F4. / Ask if F2=1/ During the first three days after delivery, did you give (NAME) the liquid that came from your breasts, including the yellow milk?**	**1. Yes** **2. No** **98. Don't know**
F5	**F5. / Ask if F2=1/ In the first three days after delivery, was (NAME) given anything to drink other than breast milk?**	**1. Yes** **2. No SKIP → F7** **98. Don't know SKIP → F7**
F6	**F6. / Ask if F2=1, F5=1/ In the first three days after delivery, what was (NAME) given to drink other than breast milk? Anything else?**	**1. Milk (other than breastmilk)** **2. Plain water** **3. Sugar or glucose water** **4. Gripe water** **5. Sugar-salt-water solution** **6. Fruit juice** **7. Infant formula (for instance, "malysh", "malutka" etc.**

	REMEMBER THAT YOU DO NOT HAVE TO READ THE LIST OF ANSWER OPTIONS. MARK ALL THAT APPLY.	**8. Tea / infusions** **9. Honey** **10.Dill water** **11.Other** **(Specify)_____**
F7	**F7. / Ask if F2=1, F5=2 or 98/ Are you still breastfeeding (NAME)?**	**1. Yes SKIP → F8** **2. No**
F7.1	**F7.1. /Ask if F2=1, F7=2/ What was the reason for stopping breastfeeding?** **MARK ALL THAT APPLY**	**1. Concerns about milk supply (quantity or quality)** **2. Feeding problems (trouble with latch, mastitis, pain)** **3. Lack of support from family members** **4. No time for breastfeeding, need to return to work** **5. Other (specify)**
F8	**F8. / Ask if F2=1, F7=1/ For how many months did you breastfeed (NAME)?**	**1. Months |___|___|** **2. Less than 1 month**
F9	**F9. Did (NAME) drink anything from a bottle with a nipple yesterday or last night?**	**1. Yes** **2. No** **98. Don't know**

F10	**F10. Now I would like to ask you about liquids or foods (NAME) had yesterday during the day or at night. (24 HOUR RECALL PERIOD)** **Did (NAME) drink:** **READ THE LIST OF LIQUIDS (1 THROUGH 7, STARTING WITH "BREAST MILK").** **F10_1. Breast milk?** **F10_2. Milk such as tinned, powdered, or fresh animal milk?** **F10_2a. / Ask if F10_2=1/ How many times yesterday during the day or night?** **F10_3. Plain water?** **F10_4. Commercially produced infant formula?** **F10_4a. / Ask if F10_4=1 / How many times yesterday during the day or night?** **F10_5. Any fortified, commercially available infant and young child food" [e.g. Cerelac]?** **F10_6. Tea** **F10_7. Any sugar-sweetened beverages**	**F10_1. 1. Yes 2. No 98. Don't know** **F10_2. 1. Yes 2. No 98. Don't know** **F10_2a. 1. _____ times** **98. Don't know / difficult to answer** **F10_3. 1. Yes 2. No 98. Don't know** **F10_4. 1. Yes 2. No 98. Don't know** **F10_4a. 1. _____ times** **98. Don't know / difficult to answer** **F10_5. 1. Yes 2. No 98. Don't know** **F10_6. 1. Yes 2. No 98. Don't know**

	F10_7a. / Ask if F10_7=1 / How many times yesterday during the day or night? **F10_8. Any other liquids?**	**F10_7. 1. Yes 2. No 98. Don't know** **F10_7a. 1. _____ times** **98. Don't know / difficult to answer** **F10_8. 1. Yes 2. No 98. Don't know**

F11	**F11. We would also like to know, yesterday during the day and night, if your child ate the following foods, even if it was served in combination with other foods, including in other meals ... If your child ate more than one of the following foods tablespoon, indicate the answer "Yes", if less than 1 tablespoon or did not eat at all, indicate the answer "No". Do not include any food that was only eaten in very small quantities, for example mainly to add flavor. Did (NAME) eat:**	
	F11_A. Porridge, bread, rice, buckwheat, corn, noodles, or other foods made from grains	**1. Yes 2. No 98. Don't know**
	F11_B. Pumpkin, carrots, squash, that are yellow or orange inside, red pepper (sweet)	**1. Yes 2. No 98. Don't know**
	F11_C. White potatoes, turnip or any other foods made from roots	**1. Yes 2. No 98. Don't know**
	F11_D. Any dark green leafy vegetables ***Broccoli, spinach, sorrel/dock***	**1. Yes 2. No 98. Don't know**
	F11_E. Apricot (fresh and dried), peaches (dried or raw), persimmon (ripe), yellow melon	**1. Yes 2. No 98. Don't know**

	F11_F. Any other fruits or vegetables 1. ***<u>Fruits</u>: Apple, banana, dates (fresh and dried), grapes, kiwi, lemon, mandarin orange, orange, pear, pineapple, plum, pomegranate (anar), cherries, raspberry, strawberry, watermelon*** 2. ***<u>Vegetables</u>: Cabbage (common and red varieties), cauliflower, celery, cucumbers, tomatoes, eggplant, green pepper, mushroom, onion, radish***	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**
	F11_G. Liver, kidney, heart, gizzard, or other organ meats	**1. Yes 2. No 98. Don't know**
	F11_H. Any meat, such as beef, goat, lamb, mutton, pork, chicken, duck, turkey, other birds	**1. Yes 2. No 98. Don't know**
	F11_I. Eggs ***Chicken, quail eggs, or any other bird eggs***	**1. Yes 2. No 98. Don't know**
	F11_J. Fresh or dried fish, shellfish, or seafood ***Fresh, frozen, canned, or dried fish, shellfish, or seafood***	**1. Yes 2. No 98. Don't know**
	F11_K. Any foods made from beans, peas, lentils, nuts, or seeds	**1. Yes 2. No 98. Don't know**

	F11_L. Milk, hard and soft cheese, kefir, yoghurt/curd or other milk products, but NOT including butter, ice cream, cream, sour cream, tea or coffee with milk, sugar-sweetened beverages: cocoa drinks with milk, processed/packed yoghurt drinks	**1. Yes 2. No 98. Don't know**
	F11_M. Any oil, fats, or butter, mayonnaise or foods made with any of these	**1. Yes 2. No 98. Don't know**
	F11_N. Any sugary foods such as chocolates, sweets, candies, pastries, cakes, or biscuits **F11_N-a. / Ask, if F11_N=1 / How many times yesterday during the day or night did (NAME) eat sugary foods?**	**1. Yes 2. No 98. Don't know** **F11_N-a. 1. _____ times** **98. Don't know / difficult to answer**
	F11_O. Any other processed foods such as potato chips, other chips, crackers **INTERVIEWER, processed foods are usually unhealthy if they are high in salt and contain trans fats** **F11_O-a. / Ask, if F11_O=1 / How many times yesterday during the**	**1. Yes 2. No 98. Don't know**

	day or night did (NAME) eat processed foods?	**F11_O-a. 1. _____ times** **98. Don't know / difficult to answer**
F12	**F12. / Ask if ALL "No" in F11 /** **Did (NAME) eat any solid, semi-solid, or soft foods yesterday during the day or at night?** *** FOODS MAY INCLUDE MASHED OR PUREED FOOD, ALONG WITH PORRIDGES, PAPS, THICK GRUELS, STEWS, ETC. SOLID FOODS— E.G., FAMILY FOODS— MEAT, POTATOES, AND BREAD— SHOULD ALSO BE INCLUDED.**	**1. Yes** **2. No SKIP → Module G** **98. Don't know SKIP → Module G**
	F12a. / Ask if F12 = 1 / What kind of solid, semi-solid, or soft foods (NAME) eat?	**1._____**
	F12b. / Ask if F12=1 / Copy F11 options here **INTERVIEWER, DO NOT READ THE OPTIONS**	

F13	**F13. /Ask if F12=1, F11≥1 /** **How many times did (NAME) eat solid, semisolid, or soft foods other than liquids yesterday during the day or at night? Small snacks and small feeds such as one or two bites of mother's or sister's food should not be counted.** **Liquids do not count for this question. Do not include thin soups or broth, watery gruels, or any other liquid.** **(INTERVIEWER, WE WANT TO FIND OUT HOW MANY TIMES THE CHILD ATE ENOUGH TO BE FULL. USE PROBING QUESTIONS TO HELP THE RESPONDENT REMEMBER ALL THE TIMES AND FOODS THE CHILD ATE YESTERDAY)**	**1. Number of times_____** **98. Don't know / do not remember**

MODULE G: Deworming

#	QUESTIONS	RESPONSES
G1	G1. Have you ever received advice or recommendations from anyone about taking deworming medicine during pregnancy?	1. Yes 2. No SKIP → MODULE H 98. Don't know SKIP → MODULE H
G2	G2. / Ask if G1=1 / Where did you get the information on taking deworming medicine?	1. Health provider 2. Friends or neighbors 3. Relatives 4. Internet 5. Radio 6. TV 7. Other (specify)

MODULE H: Water, Sanitation, and Hygiene

Now I'd like to ask you about water, sanitation, and hygiene in your household.

#	QUESTIONS	RESPONSES
H1_1	What kind of handwashing stations does your house have? READ OUT ALL THE ANSWERS MARK ALL THAT APPLY	1. Washbasins, hanging bucket or other portable equipment 2. Jug with a basin 3. Crane sink, column or other fixed installation 4. Other (specify)_____ 98. Don't know / Difficult to answer [DO NOT READ].

H1_2	**Does at least one of the household handwashing stations have both soap and water available at present?**	**1. Yes** **2. No** **98. Refused to answer**
H2a	**H2a. When do you usually wash your hands?** **Any other times?** **(INTERVIEWER, DO NOT READ OUT THE ANSWER OPTIONS)** **MARK ALL THAT APPLY**	**1. Never SKIP → MODULE I** **2. Before food preparation** **3. Before feeding children** **4. Before eating** **5. After using the toilet** **6. After cleaning defecation of a child** **7. After handling livestock** **8. Other (specify)_____**
H2b	**H2b. When do you usually wash your hands?** **Any other times?** **(INTERVIEWER, READ OUT THE ANSWER OPTIONS THAT HAVE NOT BEEN MENTIONED BY RESPONDENT)**	**1. Never SKIP → MODULE I** **2. Before food preparation** **3. Before feeding children** **4. Before eating** **5. After using the toilet** **6. After cleaning defecation of a child** **7. After handling livestock** **8. Other (specify)_____**

H3	**H3. ONLY FOR CASES MARKED IN H2** **How often do you wash your hands…?** **1)…before food preparation?**	**1. Rarely** **2. Sometimes (around half the time or less)** **3. Almost always / Often / Most of the time** **4. Always**
	2) …before feeding children?	**1. Rarely** **2. Sometimes (around half the time or less)** **3. Almost always / Often / Most of the time** **4. Always**
	3)... before eating?	**1. Rarely** **2. Sometimes (around half the time or less)** **3. Almost always / Often / Most of the time** **4. Always**
	4) …after using the toilet?	**1. Rarely** **2. Sometimes (around half the time or less)**

		3. **Almost always / Often / Most of the time** 4. **Always**
	5) …after cleaning the defecation of a child?	1. **Rarely** 2. **Sometimes (around half the time or less)** 3. **Almost always / Often / Most of the time** 4. **Always**
	6) … after handling livestock?	1. **Rarely** 2. **Sometimes (around half the time or less)** 3. **Almost always / Often / Most of the time** 4. **Always**
	7) …other	1. **Rarely** 2. **Sometimes (around half the time or less)** 3. **Almost always / Often / Most of the time** 4. **Always**

H4	H4. When you wash your hands, how often do you use soap? READ ALL ANSWER OPTIONS	1. Never 2. Rarely 3. Sometimes (around half the time or less) 4. Almost always / Often / Most of the time 5. Always

MODULE I: Food Storage and Preservation

#	QUESTIONS	RESPONSES
I1	Did you STORE any products for consumption during the last winter?	1. Yes 2. No SKIP → I4 98. Don't know SKIP → I4
I2	I2. / Ask if I1=1/ During the last winter which of the following vegetables or fruits did you store for consumption? READ ALL ANSWERS, MARK ALL THAT APPLY 1. Persimmons or Apricots 2. Carrots or Pumpkin 3. Apples, peaches, pears, quinces, pomegranate, or plum 4. Bell peppers or cabbages 5. Beetroot, or onion	

	6. Other fruits and vegetables (specify)_____	
I3	**I3. / Ask if I1=1/ What was the main method of storage that you used for storing fruit and vegetables for the last winter?** **DO NOT READ ANSWERS**	**1. Buried under dirt** **2. Buried under straw** **3. Buried in deep trench with dirt and straw covering** **4. In a cellar under the house** **5. In a cold room or building** **6. Freezing** **7. Other (specify)_____**
I4	**I4. Did you PRESERVE any products for consumption during the last winter?**	**1. Yes** **2. No SKIP → MODULE J** **98. Don't know / difficult to answer [DO NOT READ]** **SKIP → MODULE J**

I5	**I5. During the last winter which of the following vegetables, fruits or products did you preserve for consumption? READ ALL ANSWERS, MARK ALL THAT APPLY** **1. Persimmons and Apricots** **2. Carrots and Pumpkin** **3. Apples, peaches, pears, quinces, pear, plum** **4. Bell pepper and cabbages** **5. Broccoli, corn, peas and other vegetables** **6. Cherry/sweet cherry** **7. Strawberry** **8. Raspberry** **9. Other (Specify)**	
I6	**What was the main method of preservation that you used for preserving fruit and vegetables for last winter?** **READ ALL ANSWERS, MARK ALL THAT APPLY**	**1. Sun drying** **2. Other drying** **3. Heating** **4. Cooling** **5. Salting** **6. Sugaring (jam making)** **7. Pickling** **8. Freezing** **9. Other** **(specify)_____**

MODULE J: **Television and Social Media**

#	QUESTIONS	RESPONSES
J1	Do you watch television?	1. Yes 2. No SKIP → J5
J2	J2. / Ask ifJ1=1/ What times of day do you watch television most often? CHECK ONE	1. Morning 2. Mid-day 3. Afternoon 4. Evening 5. Late night

J3	**What 3 channels do you watch most often?**	**1. KTRK** **2. KTRK—Balastan** **3. KTRK—Sport** **4. KTRK—Ala-Too 24** **5. KTRK—Muzyka** **6. KTRK—Madaniyat** **7. Ilim-bilim** **8. Batken-TV** **9. 5 kanal** **10. 7 kanal** **11. Asia TV** **12. Ayan TV** **13. ELTR** **14. Exo Manasa** **15. NTS+NTV** **16. Keremet** **17. Yntymak** **18. Kyrgyzstan** **19. MIR/MIR-24** **20. NUR** **21. ORT** **22. RTR** **23. Osh Pirim** **24. Osh TV** **25. Piramida** **26. Region** **27. TNT** **28. Other (Specify)**
J4	**J4. / Ask if J1=1/ Have you seen at least one television spot focused on**	**1. Yes** **2. No**

	Nutrition and Hygiene messages on regional TV stations within the previous 3 months?	**98. Don't know**
J5	**Do you use a Smartphone?**	**1. Yes** **2. No SKIP → MODULE K**
J6	**J6. / Ask if J5=1/ What social media and messengers do you use?** **MARK ALL THAT APPLY**	**1. WhatsApp** **2. Instagram** **3. You Tube** **4. Facebook** **5. Odnoklassniki** **6. Vkontakte** **7. Other** **(specify)_____**

MODULE K: USAID Advancing Nutrition Exposure Questions

K1. Now in this section we would like to ask about information about nutrition and related topics, which you might have heard about from people in your community, health facilities, media, or other sources.

#	A. Nutrition related topics	B. Main source	C. Most important message you learned

	K1a. In the last year, have you or your household members ever received any information on the following topics? 1. Yes *[IF the answer "Yes" → go to question K1b, K1c]* 2. No 98. Don't know *[IF the answer "no" or "don't know" → go to K2]*	K1b. What was the main source of information? 1. Household visit from community worker/ health worker 2. Community meeting/community or city event 3. Visit to health facility 4. Friend or neighbor 5. Relatives 6. Internet 7. Radio 8. Television 9. Other (Specify) _____	K1c. What was the most important message you learned Open question
1	Breastfeeding		
2	Complementary feeding		
3	Having a nutrient-rich and diverse diet		
4	Ways to prevent/treat anemia		

5	**Hygiene, including handwashing and other health measures on sanitation**		
6	**Nutrition for pregnant women and mothers**		
7	**Food storage and preservation**		
8	**Preventing intestinal worms**		
9	**Other information about nutrition** _____		

#	QUESTIONS	RESPONSES
K2	**Now we'd like to ask you some questions about different aspects about nutrition, please give the best answer you can.** **K2_1. Until what age should a baby receive only breast milk?** **(INTERVIEWER, DO NOT READ THE ANSWER OPTIONS)** **1) Less than 5 months (≤ 4 months)** **2) Until 6 months (5 full months)** **3) More than 6 months (≥6 months)** **4) Other (Specify)** _____ **98) Do not know**	

	K2_2. At what age should soft, semi-solid foods be introduced to complement breast milk? **(INTERVIEWER, DO NOT READ THE ANSWER OPTIONS)** **1) Earlier than at 6 months** **2) At 6 months** **3) Later than at 6 months** **4) Other (Specify) _____** **98) Do not know**	

K3	**K3a. Have you or your household ever received handouts, leaflets, and materials, or video materials and pictures on any of the topics mentioned?** 1. **Yes** 2. **No** 3. **Don't know** **K3b. / Ask if K3a = 1 / If Yes, on which topics?** 1. **_____** **K3c. / Ask if K3a = 1 / If Yes, through which platform? MARK ALL THAT APPLY** 1. **WhatsApp** 2. **Zoom** 3. **Other (specify)_____**	

K4	**K4_1. Have you ever shared any of your knowledge or information on those topics with other people in your household or people in your community?** **K4_2. / Ask if K4_1=1/ With whom did you share your knowledge or information?** **DO NOT READ THE LIST, BUT MARK ALL THAT APPLIES**	**K4_1:** **1) Yes (which topic(s)?)** **_____** **2) No SKIP → K5** **98) Do not know → K5** **K4_2:** **1) With her husband** **2) With children** **3) With the parents / parents of the husband** **4) With brothers / sisters** **5) With other relatives living in your home** **6) With neighbors** **7) With friends / girlfriends** **8) With colleagues** **9) Other (specify) _____**
K5	**Have you ever heard of the USAID Advancing Nutrition project?**	**1) Yes** **2) No**

		98) Do not know

MODULE L: COVID-19 Impact on Nutrition ***[to be asked only if the respondent has time and agrees to continue with the interview or receive a call-back to finish the interview later in the course of the day or at a later date]***

L0. The next few questions will be about the impact of COVID on nutrition. It will take about 3–5 minutes. Do you agree to take some more time and answer them?

1. **Yes—Continue now—GO to L1**
2. **Suspend and call back later [CATI system records the interview statuses]**
3. **Refusal—End the interview**

#	QUESTIONS	RESPONSES
L1	**L1. Have you heard about the COVID-19 or the pandemic associated with the coronavirus?**	**1) Yes** **2) No SKIP → L5** **98. Don't remember / Difficult to answer [DO NOT READ]**

L2	**L2. /Ask if L1=1/ To your knowledge what measures can you adopt to reduce the risk of contracting the coronavirus?** **MARK ALL THAT APPLIES** **INTERVIEWER, DO NOT READ THE OPTIONS**	**1) Handwashing** **2) Use of sanitizer** **3) Use of mask** **4) Use of gloves** **5) Maintain enough distance from other people** **6) Avoid touching face** **7) Avoid touching the surfaces of objects** **8) Avoiding crowded places** **9) No handshake or physical touching** **10) Others [specify]**
L3	**L3. /Ask if L1=1/ To your knowledge, if a mother is COVID-19 positive, can she transmit the coronavirus to her baby?**	**1) Yes** **2) No SKIP → L5** **98) Don't know SKIP → L5**

L4	**L4. /Ask if L1=1, L3=1 / Can COVID be transmitted from the mother to her baby through:** 1. **During childbirth** 2. **During pregnancy?** 3. **Through breast milk?** 4. **When touching a child without washing your hand?** 5. **When you touch a child without covering your face with a mask?** 6. **When cooking or feeding a baby without washing your hands?** 7. **When cooking or feeding a baby without covering your face?** 8. **At close distance to the child without covering your face?** 9. **Other? (specify)**	**1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know** **1. Yes 2. No 98. Don't know**
L5	**L5_1. Since the govt. implemented lockdown (closed schools, offices, businesses) have you** **OPERATOR, READ OUT ALL THE ANSWER OPTIONS**	**1) Stopped breastfeeding SKIP → L6** **2) Fed breastmilk, less frequently SKIP → L6** **3) Fed breastmilk, more frequently SKIP → L5_2** **4) Not applicable, never breastfed SKIP → L5_2**

	L5_2. Since the govt. implemented lockdown (closed schools, offices, businesses) have you	**5) No change** **SKIP → L5_2**
		1) Started formula feeding SKIP → L7 **2) Fed infant formula, less frequently SKIP → L7** **3) Fed infant formula, more frequently SKIP → L7** **4) Not applicable, not started formulaSKIP → L7** **5) No change SKIP → L7**
L6	**L6. /Ask if L5_1=1,2/ What were the reasons for not breastfeeding or less frequently breastfeeding [NAME] during this period?**	**1) Insufficient milk supply** **2) Fear of transmission through breast milk** **3) Lack of privacy/space in the house** **4) Increased workload during lockdown** **5) Other [specify]**

L7	**L7. How has COVID-19 affected your household's main sources of income?**	**1) No effect** **2) Reduced a little** **3) Reduced a lot** **4) Completely stopped** **98) Don't know**
L8	**L8. How has your food consumption (frequency of meals or amount of food) changed due to COVID-19?**	**1) Increased** **2) No change** **3) Reduced a little** **4) Reduced a lot** **98) Don't know**
L9	**L9. In the past month, has there been any time when your household did not have sufficient quantities of food that you wanted for the household?**	**1) Yes** **2) No SKIP → L9** **98) Don't know SKIP → L9**
L10	**L10. /Ask if L9=1/ What was the main reason why your household did not have sufficient quantities of food needed?**	**1) Shortage of food in the market / grocery store** **2) Increase in the prices of food** **3) No money to buy food** **4) No food in the house**

		5) Unable access the market / grocery store **6) Markets / grocery stores are closed** **7) Other (Specify) _____**
L11	**L11. Are there any safety risks due to COVID-19 that you perceive to be affecting access to hospitals/clinics/health centers and other health services, for you and your family?**	**1) Yes → go to L12** **2) No → End Questionnaire**
L12	**L12. / Ask if L11=1/ What are the main risks that you perceive?**	**1._____** **98. Difficult to answer**

A5. /Ask if L12=1, 98, L0=3/ Tell me, to which number would it be more convenient for you to load units for reward for successfully completing the survey?

1._____

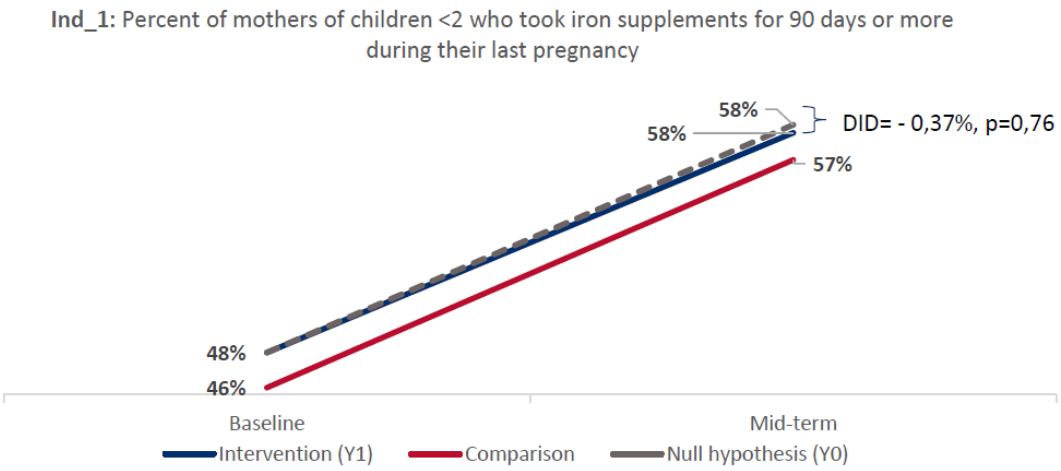
2. This number

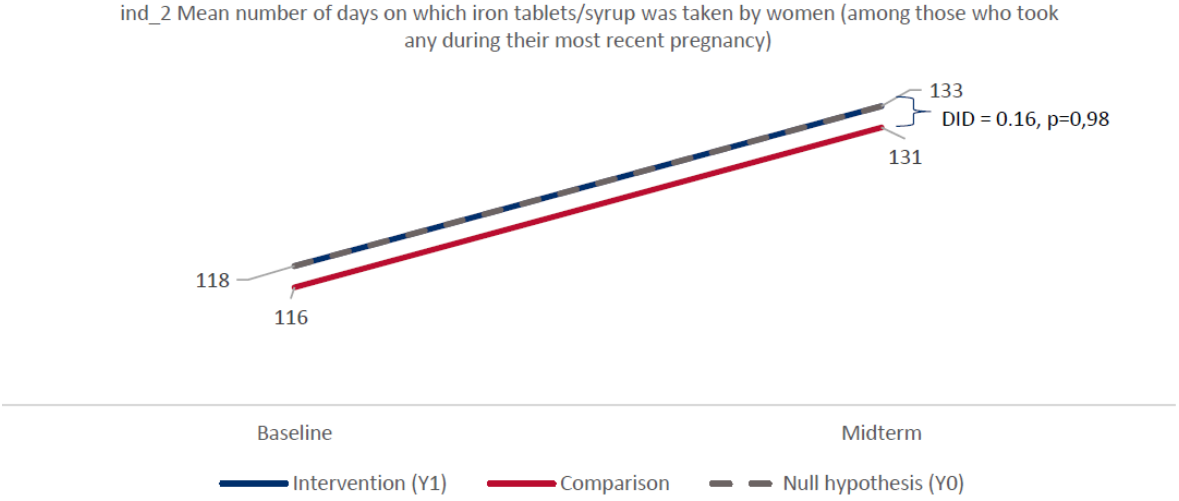
A6. Could you please provide us with your additional phone number?

1._____

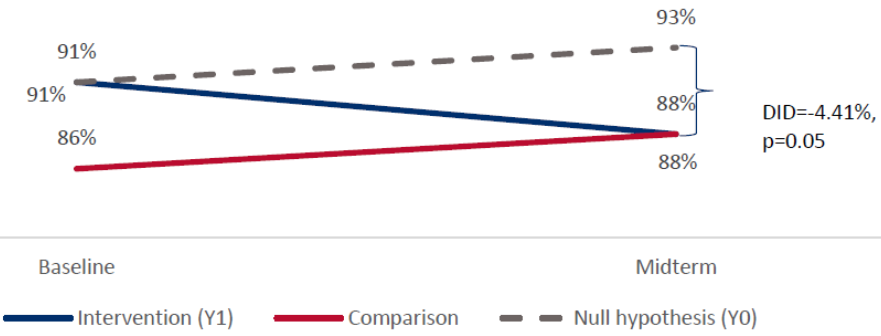
END INTERVIEW AND THANK RESPONDENT

Supplementary Material 4: Charts showing Difference in Differences Results

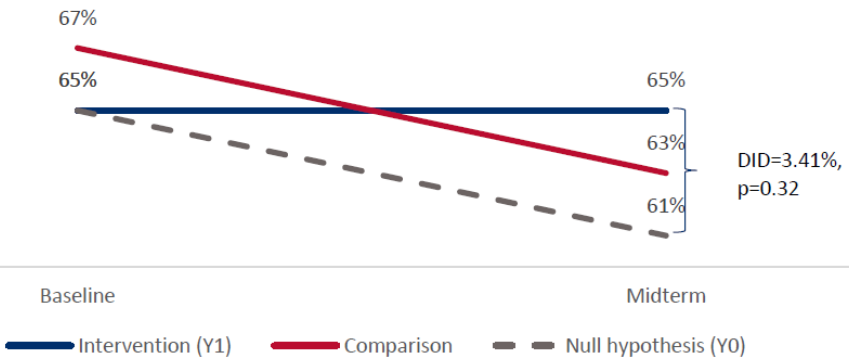




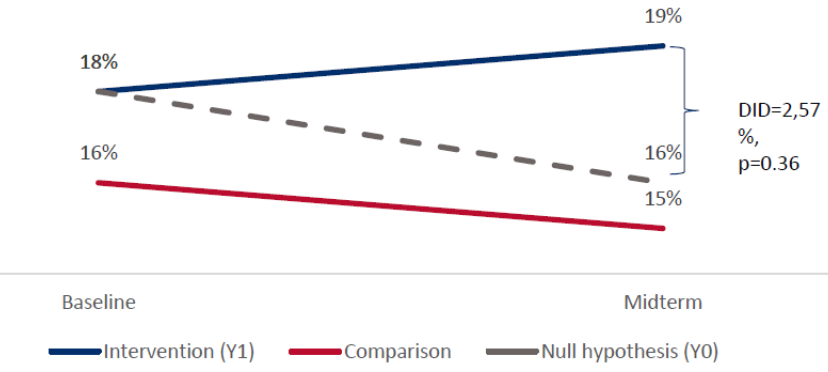
ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours



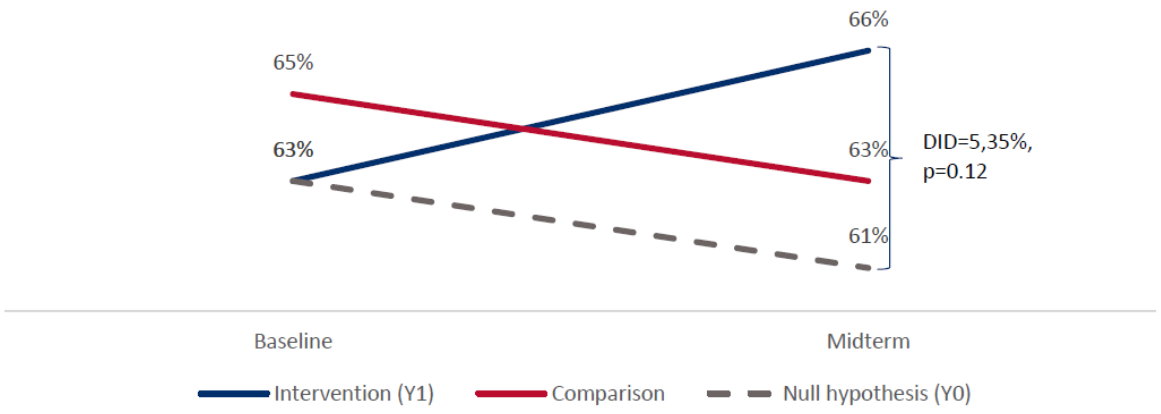
ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the past 24 hours



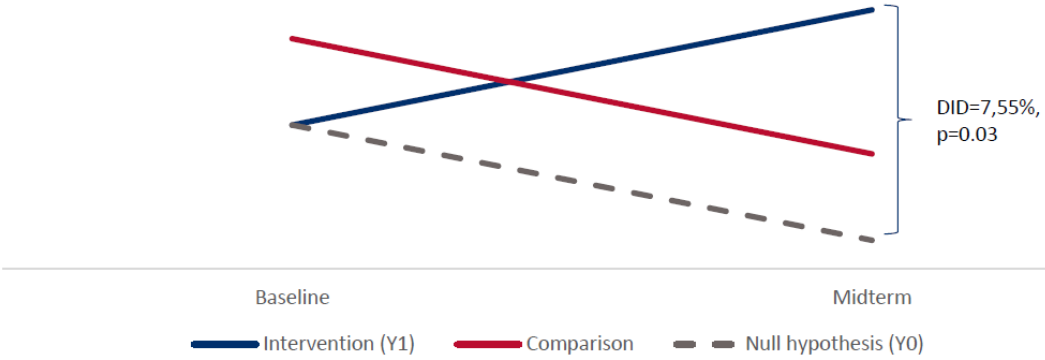
ind_5 Percent of children 6-23 months receiving a minimum acceptable diet



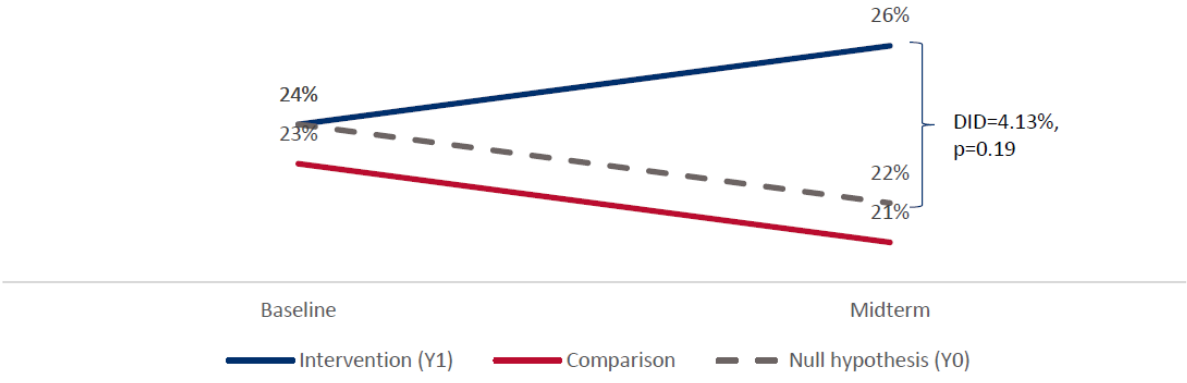
ind_6 Percent of children 6–23 months who ate iron-rich foods in the past 24 hours

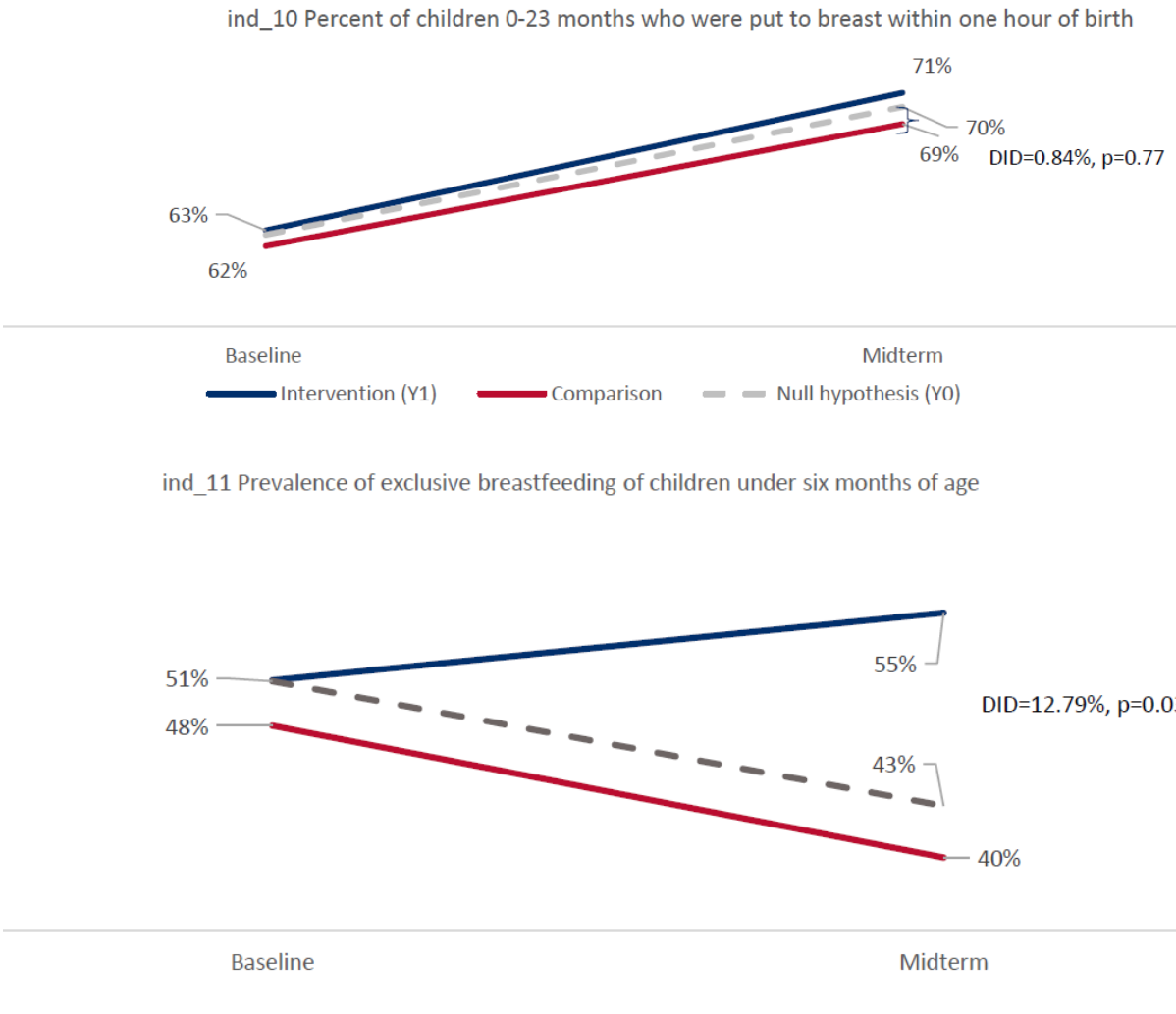


ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the past 24 hours

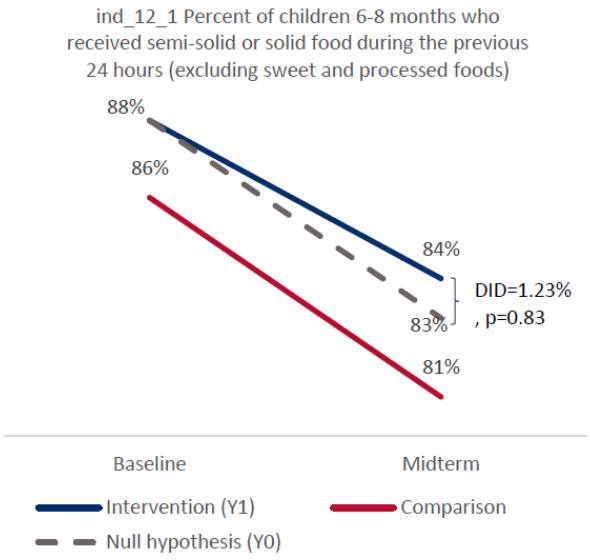


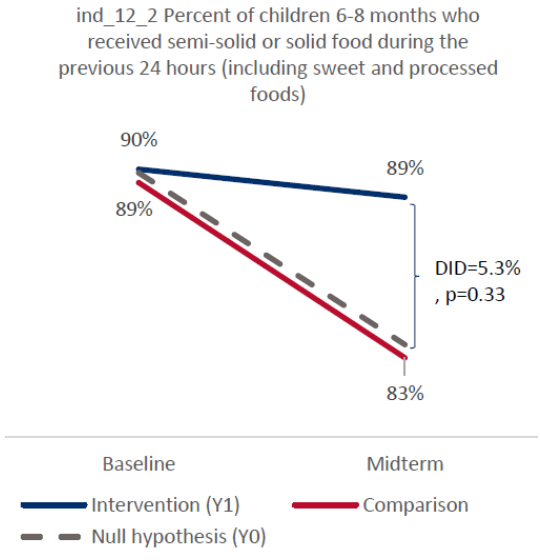
ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status

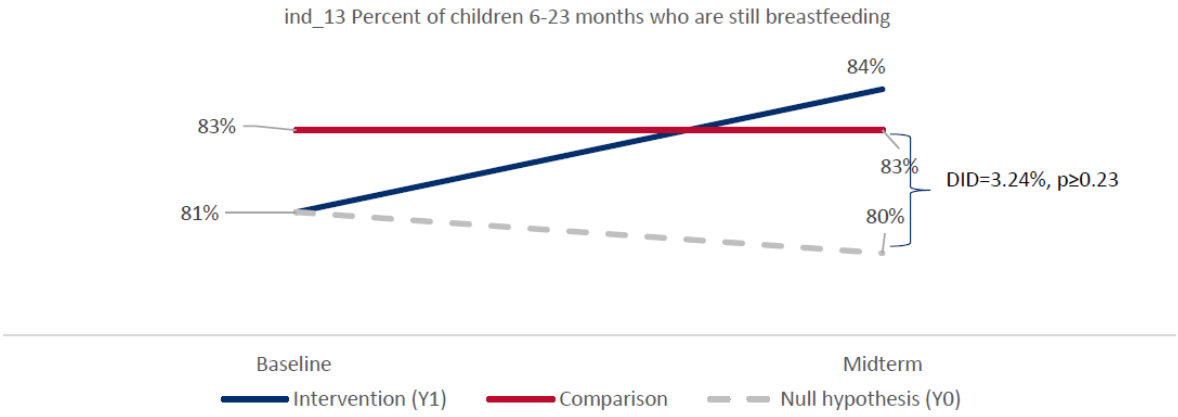


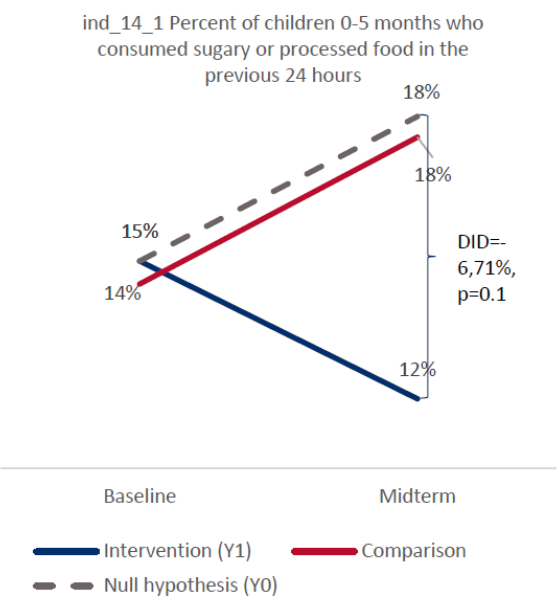

ind_10 Percent of children 0-23 months who were put to breast within one hour of birth
71%
70%
69%
DID=0.84%, p=0.77
63%
62%
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

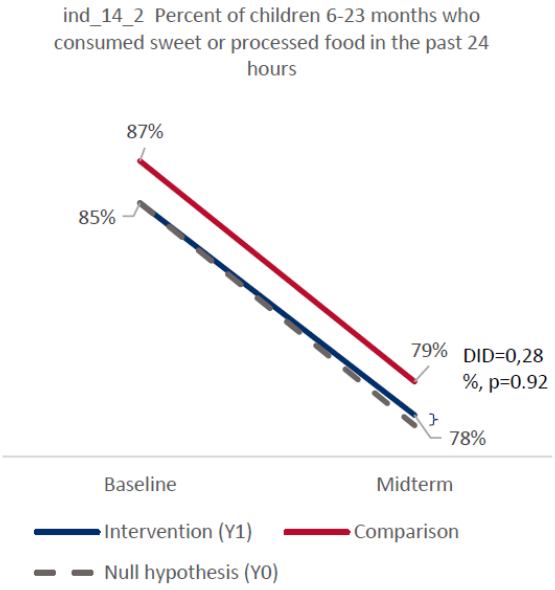
ind_11 Prevalence of exclusive breastfeeding of children under six months of age
55%
51%
DID=12.79%, p=0.03
48%
43%
40%
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

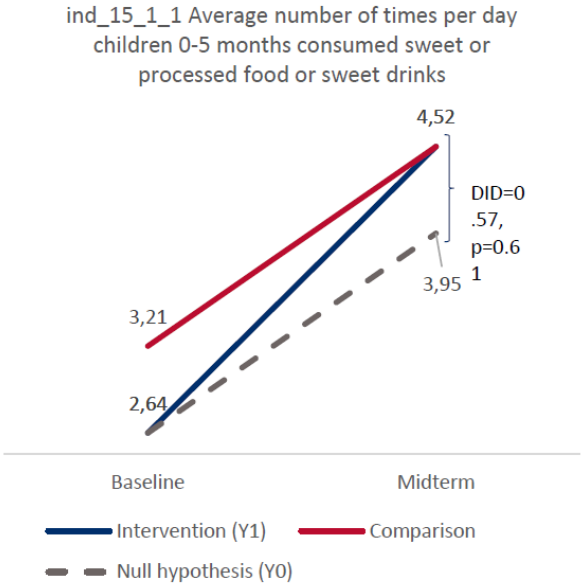

ind_12_1 Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (excluding sweet and processed foods)
88%
86%
84%
83%
81%
DID=1.23%
, p=0.83
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

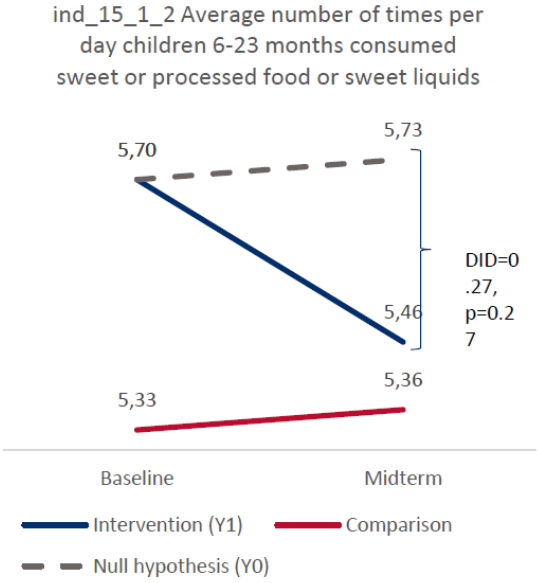

ind_12_2 Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (including sweet and processed foods)
90%
89%
89%
83%
DID=5.3%
, p=0.33
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

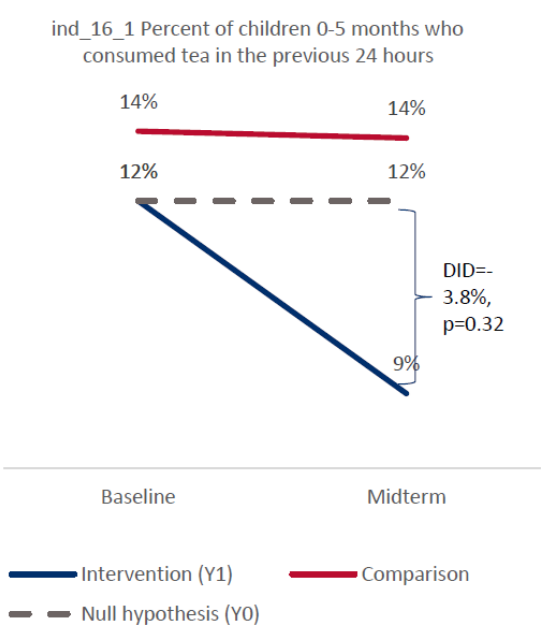

ind_13 Percent of children 6-23 months who are still breastfeeding
84%
83%
83%
81%
80%
DID=3.24%, p≥0.23
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

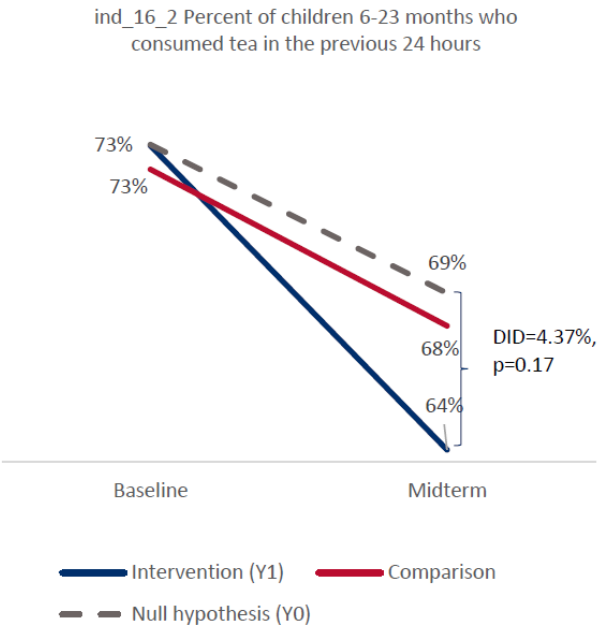

ind_14_1 Percent of children 0-5 months who consumed sugary or processed food in the previous 24 hours
18%
18%
15%
14%
12%
DID=-6,71%, p=0.1
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)


ind_14_2 Percent of children 6-23 months who consumed sweet or processed food in the past 24 hours
87%
85%
79%
78%
DID=0,28 %, p=0.92
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

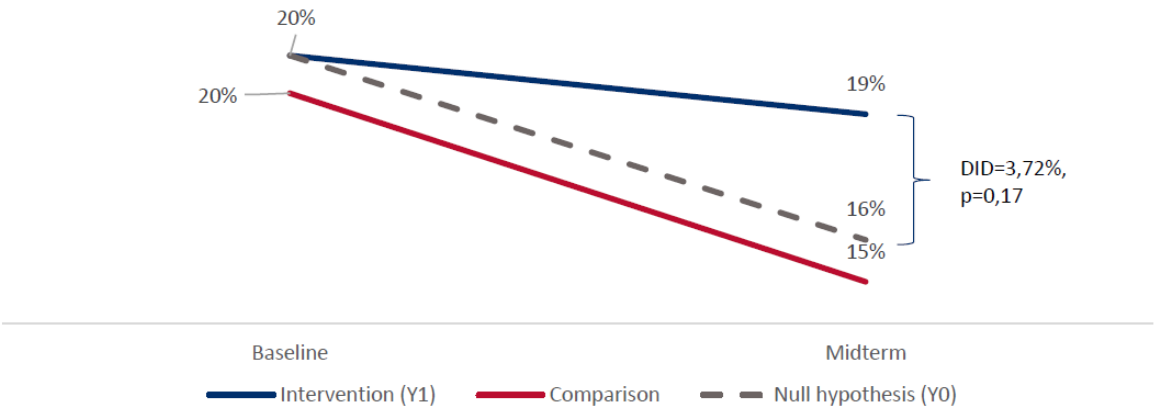

ind_15_1_1 Average number of times per day children 0-5 months consumed sweet or processed food or sweet drinks
4,52
3,21
3,95
2,64
DID=0.57, p=0.61
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)


ind_15_1_2 Average number of times per day children 6-23 months consumed sweet or processed food or sweet liquids
5,70
5,73
5,46
5,33
5,36
DID=0.27, p=0.27
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

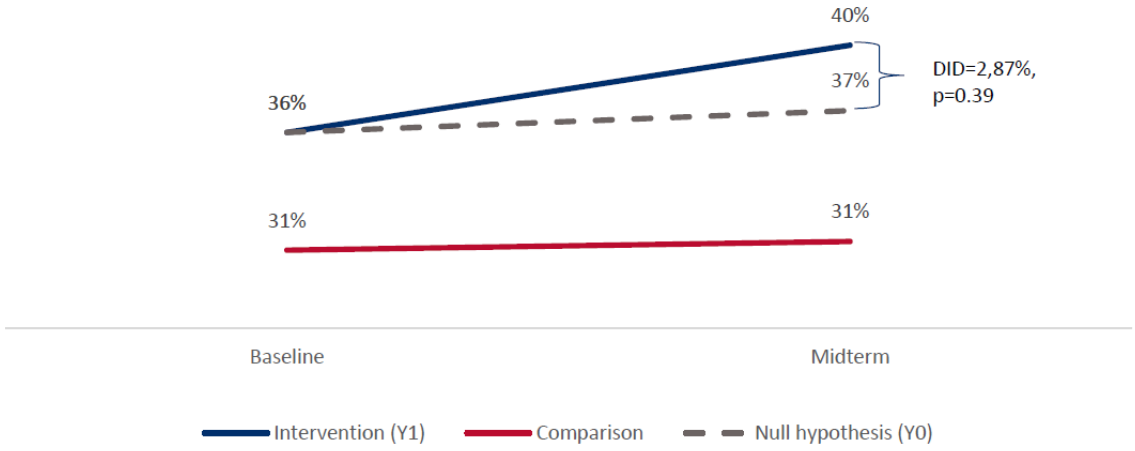

ind_16_1 Percent of children 0-5 months who consumed tea in the previous 24 hours
14%
14%
12%
12%
DID=-3.8%, p=0.32
9%
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)


ind_16_2 Percent of children 6-23 months who consumed tea in the previous 24 hours
73%
73%
69%
68%
DID=4.37%, p=0.17
64%
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

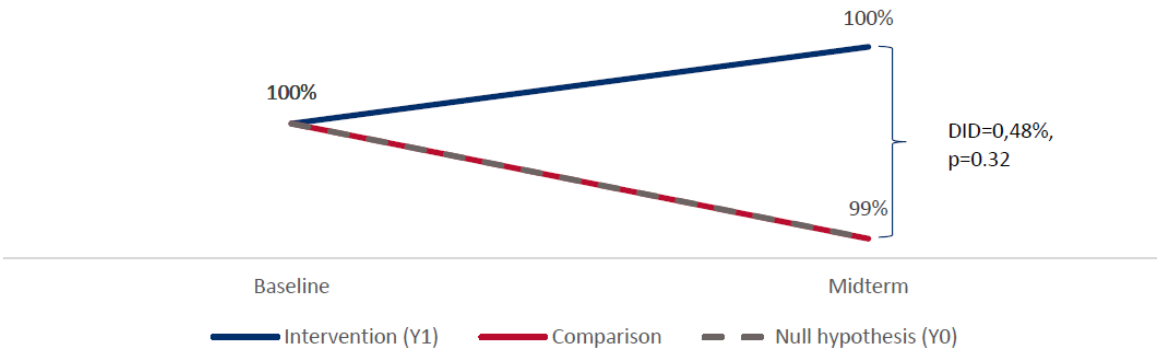
ind_17 Percent of women who received advice to take deworming medicine during pregnancy

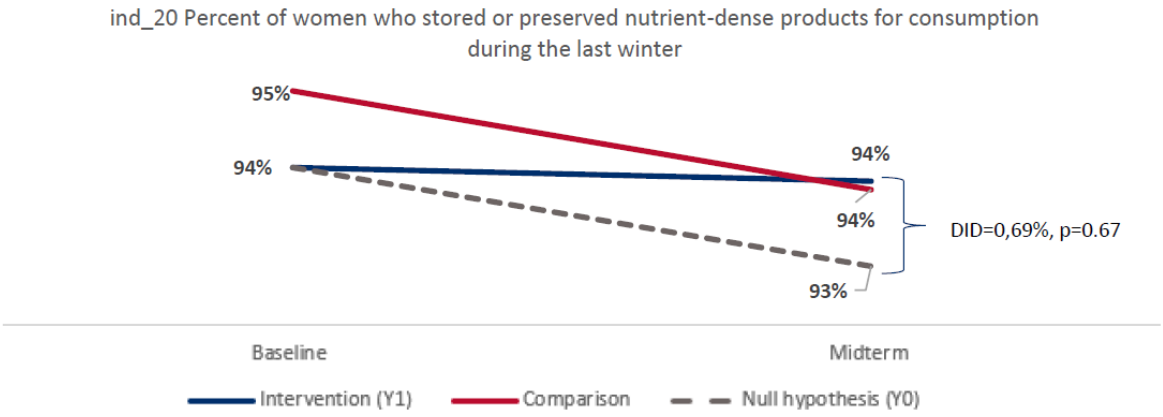


ind_18 Percent of women who usually wash hands at least three out five critical times



ind_19 Percent of households with soap and water at a handwashing station on premises




ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter
95%
94%
94%
94%
93%
DID=0,69%, p=0.67
Baseline
Midterm
Intervention (Y1)
Comparison
Null hypothesis (Y0)

Supplementary Material 5: Tables of Differences by Area

Table 5.1. Demographics

Characteristic	Baseline %		Mid-term %		Final %	
	Batken (n=1,241)	Jalal-Abad (n=849)	Batken (n=1,106)	Jalal-Abad (n=1,125)	Batken (n=966)	Jalal-Abad (n=958)
Mother Age						
18–24	27.6	22.7	22.6	21.6	23.2	23.3
25–29	34.8	35.3	34.5	36.7	35.5	33.7
30–39	34.7	38.3	40.0	39.3	39.1	38.4
40–49	2.8	3.7	2.9	2.4	2.2	4.6
Education						
None	0.2	0.1	0.3	0.0	0.1	0
Primary	0.2	0.1	0.1	0.4	0	0.2
Basic secondary (9 grades)	3.8	8.5	6.2	12.0	7.5	9.5
General secondary (11	38	38.8	32.2	34.7	31.2	33

Characteristic	Baseline %		Mid-term %		Final %	
	Batken (n=1,241)	Jalal-Abad (n=849)	Batken (n=1,106)	Jalal-Abad (n=1,125)	Batken (n=966)	Jalal-Abad (n=958)
grades)						
Initial vocational education	4.0	2.4	3.3	1.4	2.5	1.8
Secondary specialized education	25.5	22.4	26.5	25.1	25.1	26.9
Higher education (incomplete or completed)	28.3	27.8	31.5	29.4	33.8	28.6
Marriage/Partnership						
Married	92.2	98.4	98.3	98.3	97.4	98.8
Divorced	0.6	0.7	0.9	0.9	1.7	0.7

Characteristic	Baseline %		Mid-term %		Final %	
	Batken (n=1,241)	Jalal-Abad (n=849)	Batken (n=1,106)	Jalal-Abad (n=1,125)	Batken (n=966)	Jalal-Abad (n=958)
Single	0.9	0.6	0.5	0.8	0.8	0.4
Widow	0.2	0.4	0.3	0	0.1	0.1
Child Age						
0–5 months	29.8	20.6	29.2	30.7	33.2	37.4
6–11 months	24.3	29.2	26	28.3	33.9	37.6
12–17 months	26.1	30.6	24.9	22.9	18.7	12.7
18–23 months	19.8	19.6	19.9	18.1	14.2	12.3
Child Sex						
Male	51.7	52.4	50.4	51.7	50.4	49.9
Female	48.4	47.6	49.6	48.3	49.6	50.1

Table 5.2. Indicator changes in Batken

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	239	51.84	206	51.63	284	62.78	243	63.45	-0.89	256	61.78	171	61.43	-1.02
Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	425	92.19	332	83.21	401	88.74	339	88.51	-8.75*	356	85.82	240	86.74	1.15
Percent of children 6–23 months who ate foods from 5 or more of 8 food	313	63.62	263	69.39	254	65.30	269	68.27	2.8	213	56.76	157	58.15	-1.59

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
groups in the previous 24 hours														
Percent of children 6–23 months receiving a minimum acceptable diet	83	18.86	62	17.22	65	17.66	54	14.84	1.19	61	17.38	40	15.81	1.26
Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	278	56.50	241	63.59	255	65.55	259	65.74	6.9	207	55.17	159	58.89	3.53
Percent of children 6–23 months who ate vitamin A-rich foods in the previous 24 hours	295	59.96	255	67.28	250	64.27	247	62.7	8.9*	209	55.70	160	59.26	5.13

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	113	25.68	80	22.22	94	25.82	73	20.05	2.3	98	27.92	62	24.51	2.35
Percent of children 0–23 months who were put to breast within one hour of birth	470	62.92	326	66.26	442	73.39	376	75.35	1.38	401	68.48	273	72.37	1.92
Prevalence of exclusive breastfeeding of children under six months of age	129	50.39	60	52.63	129	59.45	45	41.67	20.02*	119	56.13	65	60.36	22.01*

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)	76	87.36	55	84.62	78	86.81	49	77.78	6.29	87	81.31	56	82.35	10.08
Percent of children 6–23 months who are still breastfeeding	408	83.10	320	84.43	330	85.31	329	83.93	2.72	322	86.13	229	85.13	0.38
Percent of children 0–5 months who consumed sugary or processed food in the previous 24 hours	44	17.19	16	14.04	25	11.98	27	25	-16.17*	29	13.68	11	9.91	-16.79*

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of children 6–23 months who consumed sugary or processed food in the previous 24 hours	408	82.93	332	87.60	300	77.12	335	85.03	-3.23	271	72.41	193	71.48	-8.84*
Percent of children 0–5 months who consumed tea in the previous 24 hours	32	12.50	18	15.79	20	9.68	19	17.59	-4.63	20	9.43	11	9.91	-7.44
Percent of children 6–23 months who consumed tea in the previous 24 hours	351	71.34	288	75.99	234	60.15	287	72.84	-8.04*	209	55.97	163	60.37	-8.29

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of women who received advice to take deworming medicine during pregnancy	85	18.44	65	16.29	78	17.33	45	12.33	2.86	79	17.82	36	12.12	-0.69
Percent of women who usually wash hands at least three out five critical times	189	41.00	123	30.83	197	43.81	132	36.07	-2.43	147	32.74	101	34.01	9.00*
Percent of households with soap and water at a handwashing station on premises	459	99.57	397	99.50	451	100	362	98.91	1.03	447	99.34	292	98.99	0.75

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	442	95.88	379	94.99	440	94.62	372	96.37	-2.83	402	88.79	265	91.41	0.68
Percent of women reporting increased decision-making power with husband and/or family	Not collected		Not collected		129	95.56	112	98.25	Not applicable (N/A)	201	98.06	121	97.58	-3.17

*Statistically significant at $p<0.05$.

Table 5.2. Indicator changes in Jalal-Abad

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	155	42.94	165	41.09	201	52.34	240	51.28	-0.79	166	55.70	227	50.67	-3.97
Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	319	88.37	357	88.61	336	87.50	409	87.58	0.17	255	85.86	380	84.82	-1.12

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	203	66.78	237	63.88	251	64.19	225	57.99	3.31	139	58.40	201	55.52	3.33
Percent of children 6–23 months receiving a minimum acceptable diet	46	15.97	53	15.36	71	19.94	52	14.77	4.56	33	14.80	74	22.84	13.21*
Percent of children 6–23 months who ate iron-rich foods in	221	72.70	244	66.04	261	66.75	233	60.05	0.04	148	62.18	207	57.18	1.70

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
the previous 24 hours														
Percent of children 6–23 months who ate vitamin A-rich foods in the previous 24 hours	169	55.59	205	55.26	232	59.34	201	51.80	7.19	129	54.20	178	49.17	2.50
Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	64	22.22	83	24.06	92	25.84	74	20.96	6.72	57	25.56	105	32.41	11.73*

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of children 0–23 months who were put to breast within one hour of birth	239	63.90	275	58.35	354	67.75	383	63.83	-1.64	242	66.48	376	63.62	1.05
Prevalence of exclusive breastfeeding of children under six months of age	39	53.42	44	43.14	66	48.89	82	38.68	-0.08	67	52.34	144	62.61	20.47*
Percent of children 6–8 months who received semi-solid or solid food during	43	89.58	56	87.50	62	81.58	88	83.02	-3.52	50	83.33	112	81.16	-3.61

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
the previous 24 hours (without sweet, processed products)														
Percent of children 6–23 months who are still breastfeeding	236	78.41	306	82.48	319	82.01	315	81.19	4.89	199	84.32	313	86.70	3.20
Percent of children 0–5 months who consumed sugary or processed food in the previous 24 hours	5	6.85	15	14.71	15	11.11	30	14.15	4.82	10	7.81	21	9.13	-1.72

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of children 6–23 months who consumed sugary or processed food in the previous 24 hours	270	88.82	316	85.44	311	79.54	286	73.71	2.46	167	70.17	230	63.54	-0.80
Percent of children 0-5 months who consumed tea in the previous 24 hours	9	12.33	12	11.76	9	6.67	25	11.79	-5.69	12	9.38	14	6.09	-8.41*
Percent of children 6-23 months who consumed tea in the previous 24 hours	233	76.64	257	69.27	268	68.54	245	63.14	-1.97	143	60.08	175	48.34	-6.34

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of women who received advice to take deworming medicine during pregnancy	83	22.99	90	22.28	87	22.19	76	16.67	4.81	62	21.83	84	18.63	2.32
Percent of women who usually wash hands at least three out five critical times	106	29.36	122	30.20	137	35.03	127	27.79	8.07*	88	30.88	130	28.70	5.06
Percent of households with soap and water at a handwashing station	359	99.45	401	99.50	391	99.49	455	99.56	-0.01	284	99.65	450	99.34	-0.38

Indicator	Baseline				Midterm				Difference (Intervention [M-B] – Comparison [M-B])*†	Final				Difference (Full Intervention [F-M] – Light intervention [F-M])*
	Intervention		Comparison		Intervention		Comparison			Light Intervention		Full Intervention		
	n	%	n	%	n	%	n	%		n	%	n	%	
on premises														
Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	332	91.97	382	94.80	381	93.86	409	91.91	4.78*	234	90.00	401	89.91	1.65
Percent of women reporting increased decision-making power with husband and/or family	Not Collected		Not Collected		126	96.92	153	99.35	N/A	103	99.04	186	97.89	-3.57

*Statistically significant at $p<0.05$.

Table 2. Indicator changes, both regions combined

Indicator	Baseline				Midterm				Difference (Intervention [M-B] − Comparison [M-B])*	Final				Difference (Full Intervention [F-M] − Light intervention [F-M])*
	Intervention (n=1125)		Comparison (n=966)		Intervention (n=1132)		Comparison (n=1102)			Light Intervention (n=955)		Full Intervention (n=973)		
	n	%	n	%	n	%	n	%		n	%	n	%	
Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	394	47.9	372	46.3	486	58	483	56.8	-0.4	423	59.2	399	54.8	-3.2
Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	744	90.5	690	85.9	738	88.2	748	88	-4.4	612	85.8	622	85.6	-0.1

Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	516	64.8	500	66.7	505	64.7	494	63.2	3.4	353	57.4	358	56.7	0.8
Percent of children 6–23 months receiving a minimum acceptable diet	129	17.7	115	16.3	136	18.8	106	14.8	2.6	94	16.4	114	19.8	7.4*
Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	499	62.7	486	64.8	516	66.2	492	62.9	5.3	356	57.9	366	57.9	3.3
Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	464	58.3	460	61.3	482	61.8	448	57.3	7.6*	339	55.1	338	53.5	2.9

Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	177	24.3	163	23.1	187	25.8	147	20.5	4.1	155	27	167	28.9	7.3*
Percent of children 0-23 months who were put to breast within one hour of birth	709	63.3	602	62.4	799	70.8	459	69.1	0.8	644	67.7	651	67	1
Prevalence of exclusive breastfeeding of children under six months of age	168	51.1	104	48.2	195	55.4	127	39.7	12.8*	186	54.7	211	61.8	22.9*

Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)	119	88.2	111	86.1	141	84.4	137	81. 1	1.3	137	82	168	81.6	2.9
Percent of children 6–23 months who are still breastfeeding	644	81.3	626	83.5	650	83.7	644	82.6	3.3	522	85.4	542	86	1.7
Percent of children 0–5 months who consumed sugary or processed food in the previous 24 hours	49	14.9	31	14.4	41	11.7	57	17.8	-6.7	39	11.5	32	9.4	-8.3*
Percent of children 6–23 months who consumed sugary	678	85.2	649	86.5	611	78.3	621	79.4	0.3	440	71.5	423	66.9	-5.7

or processed food in the previous 24 hours														
Percent of children 0–5 months who consumed tea in the previous 24 hours	41	12.5	30	13.9	30	8.5	44	13.8	-3.8	32	9.4	25	7.3	-7.3*
Percent of children 6–23 months who consumed tea in the previous 24 hours	584	73.4	545	72.7	502	64.5	532	68	-4.4	354	57.6	338	53.5	-7.8*
Percent of women who received advice to take deworming medicine during pregnancy	168	20.4	155	19.3	165	19.6	121	14.7	3.7	142	19.4	120	16	1.5
Percent of women who usually wash hands at least three out five critical	295	35.9	245	30.5	336	39.7	259	31.5	2.9	236	32	231	30.8	7.0*

times														
Percent of households with soap and water at a handwashing station on premises	818	99.5	799	99.5	844	99.7	817	99.8	0.5	733	99.5	744	99.2	0.2
Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	774	94.2	762	94.9	823	94.2	781	94.1	0.9	638	89.2	667	90.5	1.3
Percent of women reporting increased decision-making power with husband and/or family	Not collected		Not collected		255	96.2	265	98.9	N/A	305	98.4	307	97.8	-3.3

*Statistically significant at $p<0.05$