USAID Advancing Nutrition Kyrgyz Republic Endline Report

October–December, 2022

Table of Contents

Acronyms and Abbreviations

USAID	The United States Agency for International Development
UNICEF	United Nations Children's Fund
FAO	The Food and Agriculture Organization of the United Nations
WHO	World Health Organization
CATI	Computer Assisted Telephone Interviewing
DHS	Demographic and Health Survey
MAD	Minimum acceptable diet
MICS	Multiple Indicator Cluster Survey
MDD	Minimum dietary diversity
MMF	Minimum meal frequency
IFA	Iron-folic acid
WRA	Women of reproductive age
NHSC	National Health Surveillance Centre
BFHI	Baby-friendly Hospital Initiative
FHC	Family Health Centre
GDF	Group of Family Doctors
IYCF	Infant and Young Child Feeding
BF	Breastfeeding
EBF	Exclusive breastfeeding
DID	difference in difference

Executive Summary

Since 2019, USAID Advancing Nutrition has worked in partnership with the Kyrgyz Republic Ministry of Health, village health committees (VHC), regional and district health centers, and local and international NGOs to improve a wide range of nutrition behaviors. The project sought to encourage better practices in 11 different areas with support provided through two main arms:

1. Community outreach to improve nutrition-related behaviors at the individual, household, and population levels;

2. Improved quality of nutritional services within the health system.

USAID Advancing Nutrition implemented activities in Batken and Jalal-Abad oblasts (regions), along with some national level cross-cutting activities, working primarily in districts where other nutrition projects had not worked before. Before most project activities began in 2020, the project team designed an impact evaluation to determine the extent to which project interventions contributed to nutrition outcomes. The team carried out baseline, midterm, and endline surveys using phone interviews in mid-to-late fall (parts of October–December) in 2020, 2021, and 2022, respectively. This report describes results from all three surveys, with a focus on the 2022 endline survey, and changes in outcome indicators between the midterm and endline surveys.

The team conducted the endline survey in October–December 2022 among women with children under two years of age in Batken and Jalal-Abad to measure the final levels of 20 outcome indicators related to nutrition practices. Due to the risks associated with face-to-face contact during the COVID-19 pandemic and to enable comparability with prior baseline and midterm surveys, we used Computer Assisted Telephone Interviewing (CATI) technology to implement the endline survey. We designed the survey to determine the extent to which the project's interventions contributed to the desired nutritional outcomes. Before the baseline survey in 2020, we randomly assigned municipalities in Batken and Jalal-Abad regions to project intervention and comparison areas to analyze the impact of the project between the baseline and midterm surveys. Between midterm and endline, the initial intervention areas continued to receive support at a reduced level (light touch), while the initial comparison areas got full project support during that period. To determine whether the project had an impact on each outcome indicator of interest, in year one we compared changes between surveys in the intervention group versus the comparison group and in year two between the full intervention and light touch groups. Difference in differences (DID) values were calculated as the difference in percentage points between the group with interventions/full interventions minus the comparison or light touch group. If that difference was statistically significant, we say the project had an impact.

A total of 1,928 women took part in the endline survey. The average interview length was 32 minutes.

Prenatal care for a pregnant woman. The overwhelming majority (98 percent) of respondents said they visited a health facility at least once during their most recent pregnancy. There was an increase in the number of times that pregnant women said they attended a health facility, with 62 percent of mothers in the baseline survey saying they visited a facility six or more times, compared to 68 percent in the midterm stage and 69 percent in the endline. A large majority of women (89 percent) purchased or were prescribed iron supplements during their prenatal visits, and 92 percent of them purchased the iron from pharmacies. The percentage of women who took iron supplements for 90 days or more during their last pregnancy (WHO recommendation) was 57 percent, which was almost unchanged since the midterm survey but 10 percentage points higher than in the baseline. The median number of days women took iron (among those who took tablets during their last pregnancy) was 129 days, which was also similar to midterm levels but an increase of 12 days from baseline. That figure was significantly higher in Batken (134 days) than in Jalal-Abad (124 days). Differences between full intervention and light touch areas were not significant, indicating that for this indicator, we cannot claim that project interventions impacted the outcomes.

Women's dietary diversity. The most common foods that mothers said they consumed in the previous day were cereals, potatoes, and "other fruits" (cited by more than 90 percent of respondents). The least common foods were horse meat, duck, turkey, goat, turnips, squash and lentils (less than 10 percent of respondents). The large majority of women (88 percent) reported adequate dietary diversity, as defined by consuming 5 or more out of 10 food groups in the previous 24 hours. Child age was directly correlated with women's dietary diversity. The older the child was, the more likely the mother was to have a diverse diet. Changes between

surveys were not significant nor were the differences between the full intervention and light touch groups. Therefore, we cannot say with confidence that the project influenced women's dietary diversity, but it is worth noting that levels were high (85 percent or higher) in all surveys, so there is not as much room for improvement as compared with most other outcome indicators.

Breastfeeding practice. Many breastfeeding practices improved significantly across surveys and by more in groups with interventions than in the comparison or light touch areas. Over two-thirds of women (67 percent) reported putting the baby to breast within the hour after birth, and 98 percent fed the newborns with colostrum during the first three days after birth. Exclusive breastfeeding (EBF) increased markedly in the intervention group in year one and in the full intervention areas in the second year between baseline and midterm surveys. Changes in the comparison (year one) and light touch (year two) groups were slight, so in both years the DID for this indicator was positive and statistically significant. Between midterm and endline surveys, EBF remained flat at 55 percent in the light touch group, but rose from 40 percent to 62 percent in full intervention areas. We can say with confidence that this is an area where project activities were successful and contributed to significantly improved outcomes. However, more than one-third of respondents at endline reported that their baby was not exclusively breastfed, so there is still room for improvement. Almost one-third of respondents (all ages) reported that their child drank something from a pacifier bottle during the previous day.

Children's dietary diversity. Of the eight food groups used for this indicator, the ones most commonly consumed by children aged 6–23 months in the endline survey were cereals, roots, and tubers (88 percent); breastmilk (85 percent), and "other fruits and vegetables" 79 percent). The least consumed were eggs (27 percent) and legumes/nuts (27 percent). Over half (57 percent) consumed at least 5 or more food groups of 8 available, which was 7 percentage points lower than the midterm and 9 percentage points lower than the baseline. 58 percent of children consumed iron-rich foods and 54 percent consumed vitamin A-rich foods. Minimum meal frequency (MMF) was low at 28 percent in the endline survey, though it improved from 24 percent at baseline and 23 percent at midterm. Further, MMF improved significantly in the full intervention areas between midterm and endline, while declining in the light touch zones (DID positive and significant). This indicates that, although levels of MMF are lower than desired, the project had a positive impact in this area. Results for minimum acceptable diet for children (MAD) were very similar to MMF, because the latter is a component of the former. MAD levels were quite low at endline (24 percent), but that was a significant increase from 17 percent in the baseline and midterm surveys. And as with MMF, results improved significantly in the full intervention areas while declining in the light touch group (DID positive and significant).

Consumption of sugary and processed foods, and tea. The project also prioritized efforts to reduce consumption of "junk foods," and this was another area where the evaluation found very positive results. Although 69 percent of children aged 6–23 months consumed sweet/processed food or sugar-containing drinks the day before the survey, that represented a 17 percentage point decline from baseline levels. Similar results were found for younger children aged 0–5 months. Further, results were significantly better in the full intervention group than in the light touch group. Similarly, tea consumption declined across all three surveys among children in both age groups. Between midterm and endline the declines were significantly larger in full intervention than in light touch areas. This indicates that reducing junk food consumption and tea consumption were additional outcomes where the project achieved significant impact in the desired direction.

Preservation and storage of food products. Food storage and preservation are traditionally very common practices in the Kyrgyz Republic to improve food availability and variety during winter months. The large majority of women in the endline survey (90 percent) said they stored and/or preserved various food products the previous winter. One interesting finding was that food storage/preservation was directly correlated with women's dietary diversity. Boiling (95 percent), adding sugar (93 percent), and storing in the basement under the house (75 percent) were the most common methods cited for preserving/storing food. DID values were not significant, so we cannot say that the project had an impact in this area.

Hand washing practice. Almost all women (99 percent) reported that their households had handwashing facilities with soap and water. The most common handwashing installation was a jug with a basin (90 percent), and many households had more than one handwashing installation and different types of stations. Fewer than one-third of respondents (31 percent) reported that they regularly washed their hands at three or more critical times, which was 5 percentage points lower than midterm levels and 2 points lower than at baseline. The critical time that was most often mentioned as times for handwashing was after going to the toilet (68 percent). About

half of respondents (51 percent) said they always use soap when washing their hands. This was an area of mixed success for the project. The surveys found that the percentage of women reporting handwashing at three or more critical times declined across the three surveys and remains at discouragingly low levels. Results in full intervention areas were essentially flat between midterm and endline, while declining significantly in the light touch areas. As a result, the DID for this indicator was positive and significant, suggesting in this case that the project had a significant impact, but only by preventing the practice from declining in full intervention areas. It may be worthy to note that baseline and midterm levels may have been elevated due to nationwide efforts to increase handwashing as a way to prevent COVID-19.

Sources of information on various nutrition topics. Most respondents reported that their main source of information on most topics was visits to health facilities. That was especially true with regard to nutrition for pregnant women and mothers (81 percent), ways to prevent anemia (77 percent), breastfeeding (75 percent), and complementary feeding (75 percent). Other important sources of information were various types of social media and various activities by community activists. In the endline survey, 43 percent of respondents said they had heard of the USAID Advancing Nutrition project.

Women's power in decision-making on nutrition. The survey found that involvement of women in decision-making was quite high on all issues. About 78-88 percent of women expressed their opinion when deciding whether to introduce complementary foods, breastfeed exclusively, purchase nutrient-rich foods, or provide soap and water in handwashing stations of the household. Among women who said they participated in decision making in both of the previous two years, 98 percent said that this year (2022) their opinion had become more important in decision-making than in the last year. Out of the full sample, depending on the topic, between 9 percent and 30 percent of women said their opinion was taken into consideration more often in 2022 than in 2021.

In conclusion, the impact evaluation results suggest that the USAID Advancing Nutrition project achieved notable success in a number of areas. The most positive results between midterm and endline were in various infant and young child feeding (IYCF) outcomes, especially exclusive breastfeeding, MMF, MAD, junk food consumption, and tea consumption. Handwashing results also suggested positive project impact, but only because levels declined less in the full intervention areas compared to the light touch areas. One potentially important finding from midterm-endline DID results is that the light touch approach used in year two did not seem able to maintain outcome levels that were achieved in those areas in year one. This could indicate that this streamlined approach is not sufficient to continue improving, or even maintaining, the nutrition outcomes achieved to date. It may be that a more robust approach, such as that used in the full intervention areas, is required for continued improvement in nutrition outcomes.

A number of factors may have adversely affected results and should be considered when interpreting the findings. For one, the COVID-19 pandemic changed behaviors in complex and unpredictable ways. This likely affected such factors as ability to visit health facilities, which results showed was the main way women get information about most nutrition topics. It also reduced the ability of community activists to carry out household visits and community events, which were replaced with WhatsApp chat groups, especially in 2020. COVID-19 also meant that the evaluation was implemented as a phone survey rather than face-to-face. This could have resulted in a sample of respondents with somewhat different characteristics than if we had done face-to-face interviews using cluster sampling in selected villages. Interviewing by phone may also potentially affect the validity of some indicators, including but not limited to ones that normally would require observation by the interviewer, such as presence and condition of handwashing stations. Finally, the border conflict with Tajikistan may have had an adverse effect on results in the endline survey. Almost half of Batken residents (45 percent) reported that they were forced to leave their main residence because of the conflict, and among those, 33 percent said that their household food consumption had worsened as a result. These factors may have affected results in all three surveys and should be considered when attempting to draw conclusions from the evaluation findings.

The table below summarizes results of the endline survey, by indicator, region, and type of intervention group.

Table 1. Endline survey indicators' calculation disaggregated by areas and regions

# FY22 AMELP	Indicator	Batken region				Jalal-Abad region				Total				%, Mean	N
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention			
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N		
(Practice 1) Consumption of iron-folic acid (IFA) supplements by pregnant women															
1	ind_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	62%	257	61%	172	56%	166	51%	227	59%	423	55%	399	57%	822
2	ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)	136	370	131	251	127	245	122	375	132	615	125	626	129	1241
(Practice 2) Dietary diversity for women, with an emphasis on consumption of food sources of iron and foods that enhance iron absorption															
3	ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	86%	357	87%	242	86%	255	85%	380	86%	612	86%	622	86%	1234
(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															
4	ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	57%	214	58%	157	58%	139	56%	201	57%	353	57%	358	57%	711
5	ind_5 Percent of children 6–23 months receiving a minimum acceptable diet	17%	61	16%	40	15%	33	23%	74	16%	94	20%	114	18%	208
6	ind_6 Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	55%	208	59%	159	62%	148	57%	207	58%	356	58%	366	58%	722
7	ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	56%	210	59%	160	54%	129	49%	178	55%	339	53%	338	54%	677
(Practice 4) Optimal meal frequency for children 6–23 months of age															

# FY22 AME LP	Indicator	Batken region Light touch %, Mean	Batken region Light touch N	Batken region Full intervention %, Mean	Batken region Full intervention N	Jalal-Abad region Light touch %, Mean	Jalal-Abad region Light touch N	Jalal-Abad region Full intervention %, Mean	Jalal-Abad region Full intervention N	Total Light touch %, Mean	Total Light touch N	Total Full intervention %, Mean	Total Full intervention N	%, Mean	N
8	ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	28%	98	25%	62	26%	57	32%	105	27%	155	29%	167	28%	322
(Practice 5) Early initiation of breastfeeding															
9	ind_10 Percent of children 0-23 months who were put to breast within one hour of birth	68%	402	72%	275	66%	242	64%	376	68%	644	67%	651	67%	1295
(Practice 6) Exclusive breastfeeding from birth through the first 6 months															
10	ind_11 Prevalence of exclusive breastfeeding of children under six months of age	56%	119	60%	67	52%	67	63%	144	55%	186	62%	211	58%	397
(Practice 7) Timely introduction of appropriate complementary foods and Continued Breastfeeding															
11	ind_12_1 Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)	81%	87	82%	56	83%	50	81%	112	82%	137	82%	168	82%	305
	ind_12_2 Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (with sweet, processed products)	88%	94	85%	58	85%	51	82%	113	87%	145	83%	171	85%	316
12	ind_13 Percent of children 6–23 months who are still breastfeeding	86%	323	85%	229	84%	199	87%	313	85%	522	86%	542	86%	1064
(Practice 8) Reduced consumption of high-calorie, low-nutrient-density (junk) food															
13	ind_14_1 Percent of children 0–5 months who consumed sugary or processed food/liquids in the previous 24 hours	14%	29	10%	11	8%	10	9%	21	11%	39	9%	32	10%	71

# FY22 AMELP	Indicator	Batken region				Jalal-Abad region				Total					
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention		%, Mean	N
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N		
	ind_14_2 Percent of children 6–23 months who consumed sugary or processed food/liquids in the previous 24 hours	72%	273	71%	193	70%	167	64%	230	72%	440	67%	423	69%	863
	ind_15_1_1 Average number of times per day children 0–5 months consumed sugary or processed food or sweet liquids	5,19	29	2,33	11	4,07	9	3,73	20	4,83	38	3,61	31	4,4	69
	ind_15_1_2 Average number of times per day children 6–23 months consumed sugary or processed food or sweet liquids	5,01	272	4,92	192	5,1	167	5,17	229	5,05	439	5,05	421	5,05	860
15	ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours	9%	20	10%	11	9%	12	6%	14	9%	32	7%	25	8%	57
	ind_16_2 Percent of children 6–23 months who consumed tea in the previous 24 hours	56%	211	60%	163	60%	143	48%	175	58%	354	53%	338	55%	692
(Practice 9) Presumptive treatment of helminth infections for pregnant women and children															
16	ind_17 Percent of women who received advice to take deworming medicine during pregnancy	18%	80	12%	36	22%	62	19%	84	19%	142	16%	120	18%	262
(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															
17	ind_18 Percent of women who usually wash hands at least three out five critical times	33%	148	34%	101	31%	88	29%	130	32%	236	31%	231	31%	467
18	ind_19 Percent of households with soap and water at a handwashing station on premises	99%	449	99%	294	100%	284	99%	450	99%	733	99%	744	99%	1477

# FY22 AME LP	Indicator	Batken region				Jalal-Abad region				Total				%, Mean	N
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention			
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N		
(Practice 11) Adoption of methods for safe and prolonged storage of nutrient-dense produce for the winter															
19	ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	89%	404	91%	266	90%	234	90%	401	89%	638	91%	667	90%	1305
20	ind_32 Percent of people who had seen at least one TV spot	33%	103	29%	61	29%	56	32%	103	32%	159	31%	164	31%	323
21	ind_21 Percent of women reporting increased decision-making power with husband and/or family	98%	202	98%	121	99%	103	98%	186	98%	305	98%	307	98%	612

1. General Information

The International Programme of the United Nations "Sustainable Development Goals" for the period 2016-2030 identified 17 strategic goals for sustainable development. One of the goals (Goal 2) is to eradicate hunger and improve nutrition. Realizing the importance of nutrition in the first 1000 days of children's development, the USAID Advancing Nutrition project pays special attention to improving the nutrition of children under 2 years of age, including their mothers.

Maternal and child nutrition is a key determinant for the health of a country's population. Stunting, or low height for age among children under five years of age, is an indicator of chronic malnutrition. It can adversely affect mental development and school performance, with long-term consequences on economic productivity, morbidity, and mortality. Women who are short in stature (associated with childhood stunting) have a greater risk of obstetric complications and of giving birth to an infant with low birth weight.

Among factors associated with stunting are inadequate maternal diet, low birthweight, children's dietary diversity, and recurrent infections. There is evidence that the lack of a variety of foods in early childhood can contribute to stunting and reduced intellectual abilities as adults. The limited range of nutrition may also cause a reduced physical capacity for work. Malnourishment during childhood may also affect the fertility of women: they were more inclined to have difficult childbirth and their infants may have less birth weight (Martin RM et al. 2004; WHO 2016).

The prevalence of stunting in Kyrgyz Republic is low for a lower middle-income country at 7.0 percent (NIMAS 2021), down from 18 percent in 2012 (National Statistical Committee (Kyrgyz Republic) and ICF International 2013) and 12 percent in 2018 (National Statistical Committee of the Kyrgyz Republic and UNICEF 2019). Anemia is another issue of concern related to nutrition in the country, with approximately half of pregnant women and 21 percent of children 6-59 months experiencing some degree of anemia. Iron deficiency is also high, affecting 47 percent among children 6-59 months (Ministry of Health of the Kyrgyz Republic et al. 2022). Other nutrition indicators of concern include several related to children's diet, especially in the cold winter months when it is not possible to harvest fresh fruits and vegetables in most of the country. In a recent nationwide survey, only 15.3 percent of young children were found to have a minimally acceptable diet (MAD) (Ministry of Health of the Kyrgyz Republic et al. 2022).
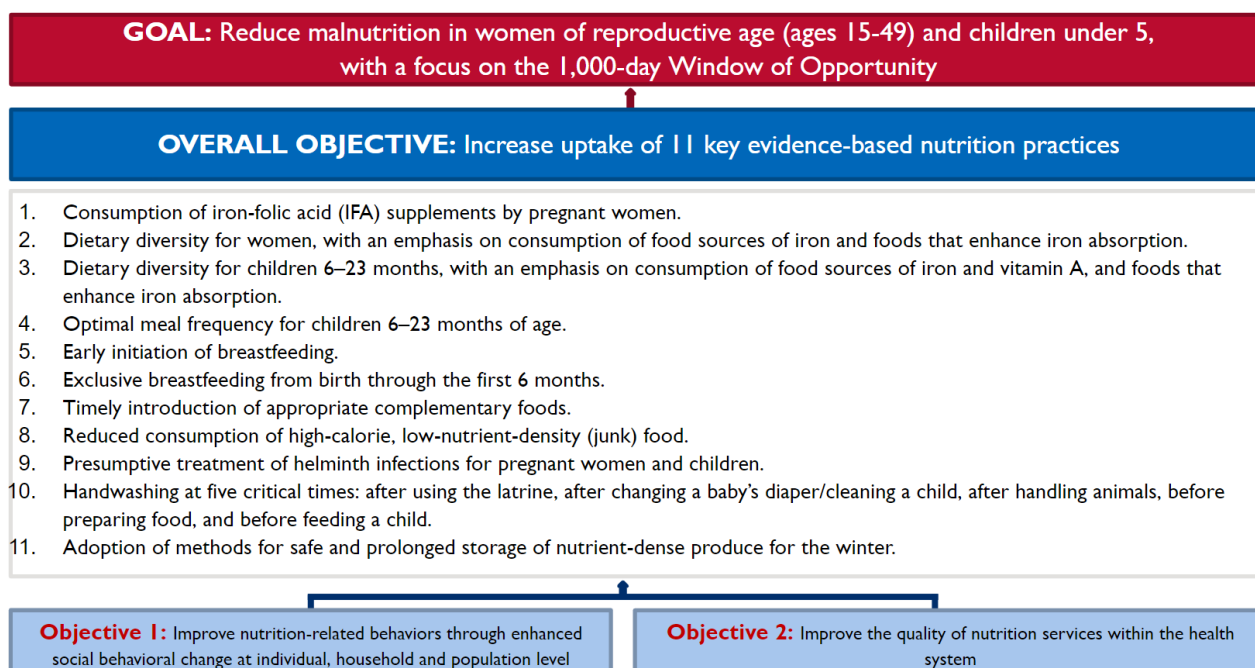
2. Introduction

The USAID Advancing Nutrition project operated in the Kyrgyz Republic from October 2019 through November 2023, carrying out nutrition interventions across sectors and disciplines for USAID and its partners. The project mobilized global experience in nutrition and used a holistic, systematic approach to develop, implement, and evaluate programs. The primary objective of the project was to support favorable outcomes by building local capacity, promoting positive behavioral changes, and creating better conditions to preserve lives, improve health, strengthen resilience, increase economic productivity, and promote development.

To realize these objectives in the Kyrgyz Republic, the USAID Advancing Nutrition project sought to improve nutritional practices of women of reproductive age (15–49 years old) and children under five years old, with a particular reference to the "Window of Opportunities-1000 days," through two main objectives:

1. improve nutrition-related behaviors through enhanced social behavioral change at the individual, household, and population levels;
2. improve quality of nutritional services within the health system.

The project worked in partnership with state and local authorities, village health committees (VHC), regional and district health centers, and local and international NGOs. The project promotes the implementation of the 11 evidence-based practices shown in the Figure below:

GOAL: Reduce malnutrition in women of reproductive age (ages 15-49) and children under 5, with a focus on the 1,000-day Window of Opportunity

OVERALL OBJECTIVE: Increase uptake of 11 key evidence-based nutrition practices

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. Optimal 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.

Objective 1: Improve nutrition-related behaviors through enhanced social behavioral change at individual, household and population level

Objective 2: Improve the quality of nutrition services within the health system

During FY 2021 (October 1, 2020–September 30, 2021), project activities were carried out only in a select group of municipalities that were designated to be part of an intervention area. After September 2021, that intervention area would continue receiving less intensive support, including quarterly trainings to keep community members up to date and motivated. That group of municipalities in FY 2022 was called the light touch group. Also, during FY22, areas that had not received any project support in the first year (the original "comparison" areas) would begin receiving a full set of interventions. We conducted a midterm survey in the first quarter of FY22 to assess the impact of interventions on the indicators between the baseline and midterm levels, comparing intervention and comparison groups. We conducted an endline survey in the first quarter of FY23 to compare results in full intervention versus light touch areas. Programmatic intervention groups and survey timings are shown in the figure below, by region. Note that for programmatic reasons, project activities in Jalal-Abad began almost six months later than in Batken.

Region	Area	FY20				FY21				FY22				FY23			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Batken region	Intervention			Full interventions						Light touch interventions							
	Comparison			No interventions						Full interventions							
Jalal-Abad region	Intervention					Full interventions				Light touch interventions							
	Comparison					No interventions				Full interventions							

↑ Baseline Survey   ↑ Midterm Survey   ↑ Endline Survey

To measure levels of outcome indicators across time related to the above 11 practices, the USAID Advancing Nutrition project contracted with the independent research company M-Vector to carry out baseline, midterm, and endline surveys. Results from the baseline survey have been reported previously (see USAID Advancing Nutrition Kyrgyz Republic Baseline Study 2020). The midterm survey report (internal only) analyzed the difference between baseline and midterm surveys in intervention and comparison areas. Now, this report on the endline survey shows final results on the set of 20 indicators measured, in comparison with earlier survey results where the results were of interest. Specifically, for each of the main outcome indicators, we compare results from the full intervention areas to light touch as a way to determine impact of the full set of project activities. The results help indicate where improvements have been made and where progress has been slow. This information helped the project to adjust and focus activities in the last few months on areas most in need of improvement.

3. Methodology

This endline survey was conducted to evaluate project impact by measuring results of 20 outcome indicators in the light touch and full intervention areas in Batken and Jalal-Abad regions.

Objectives of the endline:

1. Measure 20 indicators and sub-indicators related to 11 nutrition practices to track changes between baseline, midterm, and final levels to inform adaptive management and performance reporting to USAID.
2. Assess the impact of the project on those 20 indicators through difference in differences (DID) analysis.
3. Measure the exposure of women with children under 2 years of age to the nutrition messages provided by the project in each time period.
4. Assess the relationship between respondent characteristics and program exposure with selected outcome indicators measured in the endline through regression analysis.

Survey Respondents

The survey interviewed women over 18 years old, with at least one child aged 0–23 full months at the time of the survey, living in the light touch and full intervention villages of Jalal-Abad and Batken regions.

Geography of the survey

The survey was carried out 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. Geographical scope of survey

Sampling

The endline for project evaluation was carried out by means of a telephone survey using the Computer Assisted Telephone Interview (CATI) method. The respondents sampled for the survey were women with children under the age of 2 in Batken and Jalal-Abad regions. We developed a questionnaire for the baseline survey, to measure 20 outcome indicators related to 11 nutritional practices that the project is trying to improve. We used the same questionnaire throughout the survey period; however, one change was made during the midterm survey- an additional module on gender and additional questions about the respondents' knowledge of nutrition. Also, in the endline survey, we added two questions about the impact of the Kyrgyz-Tajik conflict on the border of the Batken region in September 2022, specifically whether the family was forced to leave their main home, and to what extent the conflict affected household food consumption. Some indicators were measured among women with children aged 0–23 months, others among children aged 0–5 months, and some among children aged 6–23 months. Following the sample size calculation used in the baseline survey, we determined the minimum sample size for the pre-project and post-project survey for each population of interest, to measure changes in exclusive breastfeeding practices (among children 0–5 months of age) and minimum allowable dietary intake (among children aged 6–23 months). Subgroups of interest are described below:

- Batken light touch: children 0–5 months
- Batken light touch: children 6–23 months
- Batken full intervention: children 0–5 months
- Batken full intervention: children 6–23 months
- Jalal-Abad light touch: children 0–5 months
- Jalal-Abad light touch: children 6–23 months
- Jalal-Abad full intervention: children 0–5 months
- Jalal-Abad full intervention: 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 confidence level of 95 percent, a power of 0.8, and detecting a change of 10 percent 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:

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

The sample frame for the survey was a compilation of lists of women in selected communities of Batken and Jalal-Abad Regions, who were believed to have children under two years of age. The lists were provided by known health facilities in the survey areas and aggregated into lists for the light touch and full intervention areas of each region.

As the survey unfolded, we learned that the facility phone lists were incomplete and contained many phone numbers that were non-functional. Coupled with high levels of non-response, which were to be expected in a phone survey, it became apparent that it would be impossible to obtain the desired sample of 385 in each subgroup and 3,080 in total. The final sample consisted of 1,928 successful calls, which was significantly less compared to the baseline (2,091) and midterm (2,234) stages. The resulting sample provides a 95 percent confidence interval with 3.16 percent sampling error in Jalal-Abad region, 3.14 percent in Batken region, 3.17 percent in light touch areas, and 3.14 percent in full intervention areas. On average, for each region, the error at the level of the light touch and full intervention zones was 4.55 percent. There was a 2.23 percent standard error for the sample overall.

Table 2 shows the number of respondents and the standard errors for all subgroups of the sample for all three stages.

Table 2. Sampling structure and error within areas and regions

Region	Intervention/ Comparison	Child age	N of respondents			Sample error, %		
			BL	MT	EL	BL	MT	EL
Jalal-Abad region	Intervention zone (BL to MT) Light Touch (MT to EL)	0–5 months	73	135	128	±11.20 %	±8.43 %	±8,66 %
	Intervention zone (BL to MT) Light Touch (MT to EL)	6–23 months	304	391	238	±5.62 %	±4.95 %	±6,35 %
	Comparison zone (BL to MT) Full Intervention (MT-EL)	0–5 months	102	212	230	±9.70 %	±6.73 %	±6,46 %
	Comparison zone (BL to MT) Full Intervention (MT-EL)	6–23 months	371	388	362	±5.08 %	±4.97 %	±5,15 %
	Total on Jalal-Abad intervention/Light Touch zone		377	526	366	±5.04 %	±4.27 %	±5,12 %
	Total on Jalal-Abad comparison/Full intervention zone		473	600	592	±4.50 %	±4.00 %	±4,02 %
TOTAL FOR JALAL-ABAD REGION			**850**	**1126**	**958**	**±3.36 %**	**±2.92 %**	**±3,16 %**
Batken region	Intervention zone (BL to MT) Light Touch (MT to EL)	0–5 months	256	217	212	±6.12 %	±6.65 %	±6,73 %
	Intervention zone (BL to MT) Light Touch (MT to EL)	6–23 months	492	389	377	±4.41 %	±4.96 %	±5,04 %
	Comparison zone (BL to MT) Full Intervention (MT-EL)	0–5 months	114	108	111	±9.17 %	±9.43 %	±9,30 %
	Comparison zone	6–23 months	379	394	270	±5.03 %	±4.93 %	±5,96 %

	(BL to MT) Full Intervention (MT-EL)					±3.58%	±3.98%	±4,03%
	Total on Batken intervention/Light Touch zone		748	606	589	±3.58%	±3.98%	±4,03%
	Total on Batken comparison/ Full intervention zone		493	502	381	±4.41%	±4.37%	±5,02%
TOTAL FOR BATKEN REGION			1241	1108	970	±2.78%	±2.94%	±3,14%
Total			2091	2234	1928	±2.14%	±2.07%	±2,23%

With regard to the Table above, it is important to note that the questions related to most of the indicators were asked to all respondents, and not just to one or more child age subgroups.

Selection of respondents, interviewing process, and response rate

The lists of phone numbers provided by health facilities included households with mothers who have a child or children aged 0 to 23 months at the time of the survey. The respondents were women over 18 years old. Pregnancy status was not asked, since pregnant women were not intentionally part of the sample. It is possible that some respondents were pregnant, but their status was not asked.

We sampled women who were registered with health facilities in 32 municipalities of Batken and 36 municipalities of Jalal-Abad. Other settlements in the two regions were not included because it was believed that other development or nutrition projects may have been working there or worked there in the recent past. Interviewers explained the purpose of the survey to respondents, as well as the availability of remuneration (a small reimbursement to their mobile phone accounts), and the need to record the interview for quality control. Only respondents who gave their informed consent took part in interviews.

If the respondent had more than one child under two years of age, the questions were directed toward one child only. If at least one child was 0–5 months old, interviewers selected that child for the survey, since that age group can be expected to comprise only one quarter of all children under two years of age, and that age group was therefore the hardest to achieve our desired sample. This selection method increased our chances of achieving the desired number of interviews involving the youngest children. If the respondent had two children aged 6–23 months, interviewers selected the child according to the principle of the closest past birthday to the survey to assure random selection.

Respondents were selected using phone numbers provided by health facilities at the time of the endline, where women were registered according to their place of residence (based on the order from the Ministry of Health of the Kyrgyz Republic). After all respondents on the list were successfully interviewed or abandoned after multiple call-back attempts, the researchers used the database of phone numbers that had previously been used in the baseline and midterm survey to obtain additional numbers for the final (this second dataset will be referred to here as the "BL/MT dataset for the endline", or simply the "BL/MT list"). For numbers that did not answer, were turned off or busy, or a child or husband answered or otherwise was rescheduled, 8-10 callback attempts were made before declaring the number unreachable. We made callbacks on different days and at different times of the day, to improve chances of reaching an eligible woman and successfully interviewing her.

Table 3 below summarizes the types of responses to calls, from the endline health facility lists and the BL/MT dataset for the endline survey. The BL/MT dataset was formed from phone numbers of the baseline and midterm surveys; however, this did not guarantee that the women would meet all the selection requirements. A total of 27,974 numbers were obtained for the BL/MT list, resulting in 1,928 successfully completed interviews. The health center lists obtained just before the endline survey enabled a much higher response rate, since the numbers were collected in the current year and presumably were associated with women who

had a child under two years, while the BL/MT list would be expected to include many women whose children had aged to be over two and/or who may have moved or changed phone numbers since the earlier surveys. Even though in practice the endline health center lists were not completely accurate in that way, they were still much more likely to connect to eligible women. The response rate for the health facility lists was 1:6.9, that is, 1 out of 6.9 numbers resulted in a successful interview, while for the BL/MT list, the ratio was 1:39.7 (Table 3). Nevertheless, utilizing the additional BL/MT list made it possible to identify and interview 443 additional eligible women and avoid recourse to other measures, such as recruiting respondents in households which could lead to bias and/or put interviewers and respondents at risk due to COVID-19. The response rate of lists from health facilities in the endline survey (1 out of 6.9 calls) was lower than the equivalent list from the baseline survey (1:5.7), but better than in the midterm survey (1:7.3). As with all survey stages, in the endline there was a large number of non-existent numbers, and this number was much higher for the endline (32 percent), than in the midterm (29 percent) or baseline (9 percent). The reasons for this are somewhat unclear, but the research team suggests that it may be due to an increasing tendency of cell phone users in Kyrgyzstan to switch service providers, the fact that some facility lists were outdated, and data entry errors when taking handwritten lists from facilities and transferring them to Excel sheets for use in the CATI system.

After the first three rows of Table 3, the remaining rows show the reasons for unsuccessful calls. In each case, the row title is the reason the number was *finally* declared to be not responsive, sometimes after 8-10 attempts. In other words, a phone number marked as "busy" (N=720) means that on the final try, the number was busy even though it could have been *"Not available/disconnected"* or *"Doesn't answer"* in previous attempts. *"Quota"* means that the woman did not have a child 0-23 months or that she did not live in the correct geographic area as expected from the list. The difference between *"Refusal", "Refusal at the beginning"*, and *"Refusal in process"* is that *"Refusal"* refers to those respondents who answered *"No"* to the question on getting consent (*"A0b. Do you agree to take part in the survey?"/ A3a. Do you agree to take part in the survey?"*), while *"Refusal at the beginning"* includes those who answered the first 3-5 questions of the questionnaire but then dropped off the interview. *Refusal in process* was if the respondent dropped off the interview after the question about the respondent name. *"Refusal in process"* are therefore respondents who progressed further in the programmed questionnaire, but withdrew before the completion of the questionnaire. If the respondents stopped the interview before the end of the interview, such interviews were not included in the overall sample. A relatively small number of interviews (1.79 percent) were postponed (respondent was busy, asked to call at another time or number), but not completed because after several attempts (8-10 times in total) to contact on a different day of the week and at a different time of day, the respondent did not respond.

Table 3. Response rate and number databases

Source of number databases	N	N	%	N
	Basic Dataset for the Endline	**Health Center Lists Provided for the Endline**	**Total**	
Total quantity of numbers	**17,608**	**10,366**	**100%**	**27,974**
Response rate	**1:39.7**	**1:6.9**	**1:14.5**	
Defective interview (completed but eliminated after quality control review)	8	25	0%	**33**
Completed	443	1,485	7%	**1928**
Busy	553	167	2%	**720**
Quota (age, region, etc.)	2,216	1,433	13%	**3649**
Refusal	203	136	1%	**339**
Not available/disconnected	3,405	1,117	16%	**4522**
Doesn't answer	1,945	366	8%	**2311**
Does not exist	2,918	1,376	15%	**4294**
A child answered	385	124	2%	**509**
Refusal at the beginning	4,640	3,156	28%	**7796**

Refusal in process	306	471	3%	777
Postponed	208	296	2%	504
Work (business) phone	72	48	0%	120
The language barrier	306	166	2%	472

The following table shows similar information from the midterm survey, for comparison.

Table 3.1. Response rate and number databases from midterm stage

Source of number databases	N Baseline Dataset for the Midterm Survey	N Health Center Lists Provided for the Midterm Survey	% Total	N Total
Total quantity of numbers	**17,508**	**14,120**	**100%**	**31,628**
Response rate	**1:57.8**	**1:7.3**	**1:14.2**	
Defective (completed but eliminated after quality control review)	1	11	0%	12
Completed	303	1,931	7%	2,234
Busy	486	262	2%	748
Quota (age, region, etc.)	3,413	2,182	18%	5,595
Refusal	728	607	4%	1,335
Not available/disconnected	2,501	1,733	13%	4,234
Doesn't answer	1,333	708	6%	2,041
Does not exist	6,093	2,966	29%	9,059
A child answered	63	34	0%	97
Refusal at the beginning	2,066	2,724	15%	4,790
Refusal in process	65	309	1%	374
Postponed	288	253	2%	541
Work (business) phone	44	53	0%	97
The language barrier	124	347	1%	471

Data collection

Due to the COVID-19 situation, M-Vector used a methodology to conduct interviews similar to previous stages of the survey on its computer assisted telephone interview (CATI) system, which allowed operators to work both from the CATI studio in the office and remotely from home desktop software. This method helped to ensure the safety and the health of both the respondent and the interviewer throughout the entire data collection process since it is possible to maintain a social distance between the respondent and the interviewer, as well as ensuring greater geographic coverage of the respondents in the contact lists provided. The chosen method made it possible to eliminate unnecessary travel, action and ensure social distancing for interviewers who conducted telephone interviews.

Survey tools

The USAID Advancing Nutrition project developed a special questionnaire for this evaluation. As with the previous stages of the survey, this questionnaire consisted of 12 modules, divided by topic. However, unlike the baseline survey, for the midterm and final, the modules on socio-demographic data (modules A and C), child nutrition (module F) and exposure to project activities (module K1) were mandatory for everyone, while for the remaining 8 modules, each respondent would answer 6 out of those 8, assigned on a random basis. Since the total duration of the questionnaire (all 12 modules) exceeded 30 minutes of the maximum time advisable in telephone (CATI) surveys, and considering respondent fatigue observed during the baseline survey, it was decided to use a form of block randomization (Parallel Sampling). In this approach, 4 "blocks" of questions were developed, each with 6 out the 8 non-mandatory modules. 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 percent of respondents. The following table 4 shows the final distribution of modules and numbers of respondents in the 4 blocks:

Table 4. Distribution of the questionnaire by modules according to the block randomization, endline N=1928

Block number	Block composition	Decryption of modules
Mandatory block for all, n =1928	Modules A, C, F, K1	MODULE A: Introduction and Informed Consent, n=1928
Block 1, n=529	Modules D, E, G, H, I, J	MODULE C: Household Roster, Socio-economic and Demographic Data, n=1928
Block 2, n=486	Modules G, H, I, J, K2, L	MODULE F: Children's Nutrition, n=1928
Block 3, n=472	Modules D, E, G, H, K2, L	MODULE K1: USAID Advancing Nutrition Exposure Questions, n=1928
Block 4, n=441	Modules D, E, I, J, K2, L	MODULE D: Maternal Nutrition and Antenatal Care, n=1442

MODULE E: Women's Dietary Diversity, n=1442
MODULE G: Deworming, n=1487
MODULE H: Water, Sanitation, and Hygiene, n=1487
MODULE I: Food Storage and Preservation, n=1456
MODULE J: Television and Social Media, n=1456
MODULE K2: Knowledge questions, n=1399
MODULE L: Gender and Decision Making, n=1399

The total duration of the interview averaged 32 minutes, and the length was approximately the same regardless of which block was assigned. Before starting the field work, the entire questionnaire was pretested, slight adjustments made, and programmed for the CATI system. To increase respondents' interest, we provided them with a small compensation for completing the survey (55 KGS or approximately 65 US cents).

Border conflict between the Tajik Republic and the Kyrgyz Republic

It is worth noting that a month before the start of field work there was a conflict between Kyrgyzstan and Tajikistan, which began on September 14, 2022 and ended on September 19, 2022. As a result of the conflict, there was a massive migration of the local population to other regions of the republic. The epicenter of the conflict was in the border region between Batken and Tajikistan, and it affected both the light touch and full intervention areas of the project. Because of this, we added two questions to the questionnaire about the impact of the conflict: one on whether the respondent's family was forced to leave their home because of the conflict, and the other on the extent to which household food consumption was affected.

Piloting

Since almost all of the questionnaire was developed, tested, and adapted during the baseline and the midterm stages of the survey, we only carried out a very streamlined piloting exercise for the endline, mainly to ensure that the questions and skips worked well in the CATI system, to test the few new program exposure and Batke conflict questions, and to give interviewers a chance to practice. Extensive piloting was carried out

before the baseline and midterm stages, and the endline questionnaire was essentially the same as in those stages.

Interviewer training

As part of preparation for fieldwork, M-Vector conducted a training for interviewers in Bishkek, which included representatives from USAID Advancing Nutrition. The training covered the general principles of survey methodology and the criteria for selecting respondents. It also extensively reviewed each question of the questionnaire. The following issues were discussed during the trainings:

- Organization of fieldwork.

- Analysis of instructions for operators, discussion of the methodology for selecting respondents.

- Discussion of each question from the questionnaire.

- Rules, specificity and procedures for telephone interviews on sensitive issues.

- Characteristics and rules of hints for cards to the questionnaire.

- The timeframe of the survey.

Before the beginning of the fieldwork, the specialists of the data collection department and the supervisor conducted a test survey with each operator to check the quality of the survey and give feedback. In addition to the main briefing, 2 more additional briefings were held to improve the quality of the survey, where the interviewers' mistakes were analyzed during the survey and each interviewer was additionally tested. For all questions of interest, supervisors and operators received comprehensive answers and advice on the difficulties during the field work.

Organization work CATI interviewers

The survey team included 25 interviewers, 3 controllers, and 2 supervisors. They all received standard training from M-Vector, and all had prior experience in telephone interviews in sociological and marketing research, plus computer skills, and were fluent in Kyrgyz and Russian. Interviews were conducted from 09:00 AM to 08:00 PM Bishkek time, from the CATI studio in the M-Vector office, or from interviewers' homes if they could access the CATI server (09:00 AM to 09:00 PM), with a total shift duration of 6–7 hours. In each shift, we assigned one supervisor who controlled and helped the interviewers in solving various issues. The supervisor had a dashboard control system (using a server connection) where he/she could track progress, listen to audio recordings, and solve current tasks.

The fieldwork took place from October 14 to November 17, 2022 (34 calendar days).

Quality control for interviews

After two days of the survey, we conducted a day of pause, during which we suspended the survey, unloaded and checked for missing answers for the database of interviews, the consistency of the logic and transitions of the developed questionnaire. We carried out the verification in SPSS.

On the same day, the supervisor and the fieldwork manager listened to telephone call recordings to assess the quality of the interviewers' work. The supervisor randomly selected audio recordings for error detection and discussed those errors with all operators to prevent them in the future.

During fieldwork, the supervisor and independent controllers who did not take part in the survey carried a 25 percent quality control of each interviewer. The supervisor randomly selected and monitored 5 percent of interviews for each interviewer on each day of the survey in real-time, and on the following day, independent controllers carried out a review of an additional 20 percent of randomly selected interviews from among completed interviews. The reviews made it possible to detect shortcomings and correct interviewers' and supervisors' performance immediately. Also, we enabled the program to allow representatives from USAID Advancing Nutrition to listen to interviews in real-time, so they could verify interview quality and progress and give feedback.

During this review process, we deleted all the questionnaires that included errors in terms of questionnaire logic or completeness. During the control, we identified the following errors based on interviewer mistakes or flaws in the questionnaire:

- Respondents indicated some names of settlements that were not on the list. Some respondents mentioned several names of villages (name among the population, official new name, old name). The interviewers had to try to match names with the existing list of villages. When calling these respondents again, many named a completely different village. In the case of respondents who turned out to be living outside the settlements covered by the project, the interviews were rejected;

- During the interview, it turned out that some respondents did not have children under 2 years old but initially said that they did. In those cases, as the interview went on, in the blocks about "feeding the child", "introduction of food" etc. respondents answered as if the child was older. Such questionnaires were doubtful and during the control we called respondents again for clarification. In the end, in several cases we determined that the child was older than 2 years. In those cases, the questionnaire was declared defective and it was excluded from the final sample;

- 9 questionnaires contained comments on the interview. These included the fact that some questions were skipped by the interviewer, or incorrect options were given, or the interviewer appeared to lead the respondent toward an answer. All of those questionnaires were also rejected.

After the completion of all fieldwork, specialists of the data processing department uploaded the entire database of the survey results. We rechecked the database in its entirety for missing answers to questions, skips logic and transitions, and other issues. For interviews with errors, if the manager could not correct them, we reinterviewed the woman if possible. After revising all inaccuracies, the data processing specialist rechecked the database. We therefore eliminated most errors from the final database, except for an estimated 3 percent level of data entry error by interviewers.

Restrictions and difficulties identified during survey

1. The questionnaire contained a number of complex questions which took a while to read. Some respondents had trouble following, and such questions pose more difficulties during phone interviews, where the respondent may be more likely to be distracted than in face-to face surveys. Specifically, when listing a long list of foodstuffs, the respondent could forget the main question and important details of the question, which could potentially lead to inaccurate or incomplete answers.

2. Also, due to remote interviewing, we could not determine for sure whether a household has a handwashing facility or whether soap and water were available since it was not possible to observe this as in personal interviews.

3. It was not possible to show cards with the names of drugs and the shape of the packaging for clarity, while the interviewers could only subjectively describe their form.

4. As in the previous surveys, there were difficulties in understanding taking iron-containing medications during pregnancy. Respondents often named Iodomarin (iodine) and calcium as iron-containing preparations. In such cases, the interviewers returned to the previous question and checked the option "did not take iron-containing drugs."

5. Not all respondents could say exactly what age their child was. Some of them at the initial stage of the interview called the age of up to 23 months, and then by date of birth it turned out that the child was already over 2 years old. Or they said that the child is already 2 years old, but in fact there were about 2-3 months left before the birthday. Also, the operators made mistakes in calculating the age and interviewed children older than 23 months. Such interviews were rejected.

6. Part of the reason for low response rates was that phone lists provided from the health facilities were often outdated, containing inactive numbers or women who no longer lived in the listed village. If phone surveys are carried out in the future, it would be helpful if health facilities were able to continually update their lists of mothers with young children. That would not only improve the feasibility of phone surveys, but would likely improve the health facilities' capacity to serve their communities.

Ethical Review

This survey was reviewed by institutional review boards (IRBs) in the Kyrgyz Republic and the United States. It was approved by the Scientific and Production Centre for Preventive Medicine of the Ministry of Health of the Kyrgyz Republic, and exempted from full review by the IRB of JSI.

4. Socio-demographic profile of respondents

We interviewed 1,928 women aged 18 and older, with children under two years, in the endline survey, 966 in Batken oblast and 958 in Jalal-Abad (Figure 4.1 below). Women who were contacted by phone and agreed to take part in the survey, but moved from Batken or Jalal-Abad regions to other regions two months before the survey, were considered representative of the target region from which they had recently moved, and were included in the statistics (n=4). A more detailed distribution of respondents by various municipalities and districts is presented in Appendix 1 (Table A1.1).

Figure 4.1. Respondents' region of residence, endline N=1928

S3_1. Respondents' region of residence

Batken region, (n=966)	Jalal-Abad region, (n=958)	Recently moved to another region (n=4)
50%	50%	0,21 percent
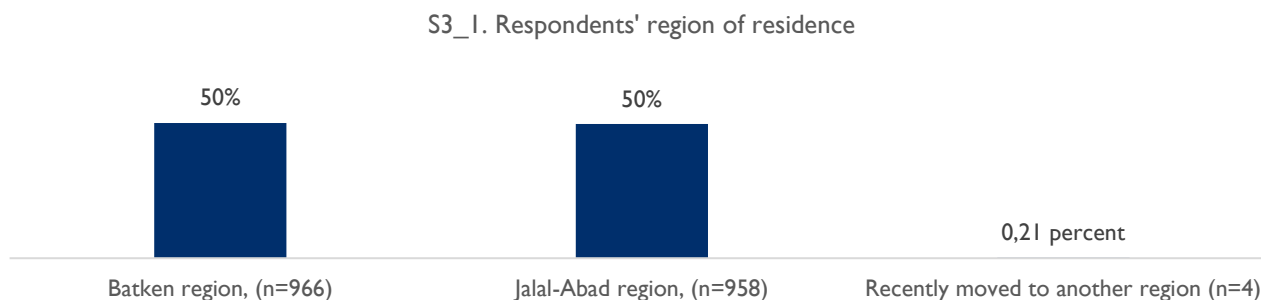
The following figure shows the geographical distribution of respondents by rayon (district) and cities in the baseline, midterm and endlines. In the midterm and endlines, the number of respondents from Suzak district increased substantially, while representatives from Batken district declined compared to baseline. In the endline, the number of respondents from Leilek region slightly decreased. The research team suggests that this is due to the border conflict with Tajikistan, in connection with which many residents were forced to move.

Figure 4.2. District/city of residence of respondents by stages of the survey and district of residence

District/city of residence

Legend:
- Batken rayon
- Leilek rayon
- Kadamjay rayon (incl. Kadamjay and Aidarken cities)
- Kyzyl-Kiya city (only Karavan, Ak-Bulak and Jin-Jigen villages)
- Sulukta city (only pgt. Vostochnyi)
- Aksy rayon
- Bazar-Korgon rayon
- Nooken rayon
- Suzak rayon
- Batken city (only Bazar-Bashy and Bulak-Bashy villages)
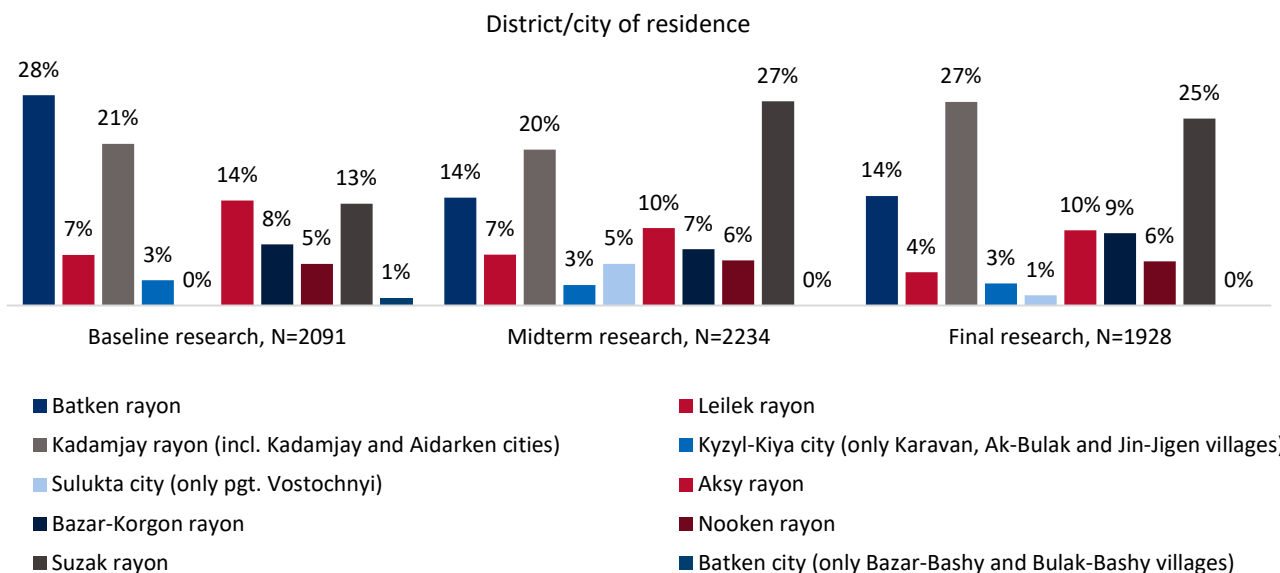
During the year between the midterm and endline surveys, villages supported by the project were divided into light touch areas and full intervention areas. As described in the Methodology section, the light touch areas were the original intervention areas in year one of project activities, between baseline and midterm surveys, while the initial comparison areas of year one became full intervention areas in year two between midterm and endline. In the endline survey, the percentage of respondents from light touch and full intervention groups was approximately equal (Figure 4.3).

Figure 4.3. Number of respondents in light touch and full intervention areas, endline survey N=1928

S3c light touch and full intervention area

- Light Touch area, N=955
- Full intervention area, N=973

50%   50%
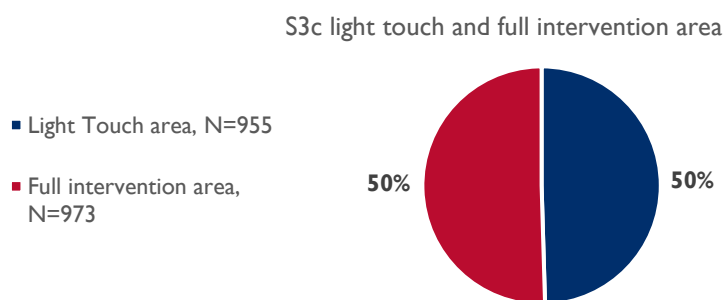
Figure 4.4 below shows the percentage distribution of respondents by age groups, The largest percentage of the sample were women of 25 to 29 years (35 percent) and 30 to 39 years old (39 percent). Women over the age of 40 made up only 3 percent of the sample, and one woman over 50 was interviewed. The average age of the surveyed mothers was 29, as in the baseline and midterm surveys. There were no significant differences in the age distributions by regions or light touch/full intervention area.

Figure 4.4. Age of respondents, endline N=1928

Mother_age

23%	35%	39%	3%
18-24	25-29	30-39	40-49
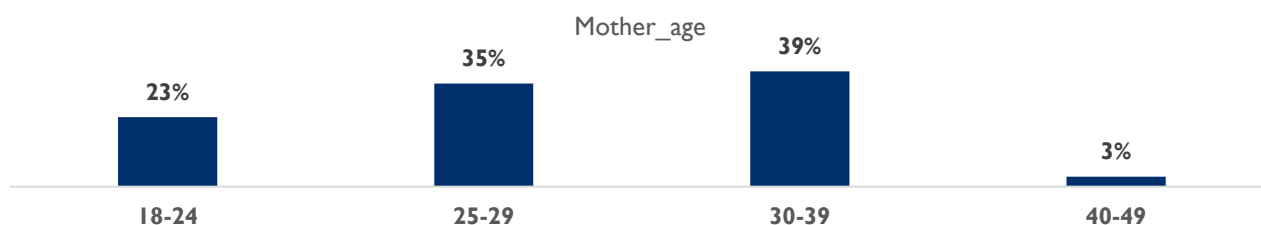
Figure 4.5 shows the distribution of child ages by age of the mother. The percentage of mothers with children aged 0–5 months was higher in the endline than in the midterm and baseline surveys, by 5 percent and 9 percent, respectively. This was likely due to the sampling strategy in the endline favoring inclusion of women with 0–5 month old children. There were no regional or gender differences in the breakdowns by child age. Children of the youngest mothers were more likely to be 0–5 months than the other age groups. It is interesting to note that 7 respondents reported having twins aged 0–5 months, while 29 mothers reported having two children aged 6–23 months, and two mothers reported having three children aged 6–23 months.

Figure 4.5. Children's age distribution by age of the mother, endline N=1928

C1 Child's age

	18-24	25-29	30-39	40-49
0-5 months, n=681	27%	32%	37%	3%
6-11 months, n=688	22%	34%	41%	3%
12-17 months, n=303	24%	35%	38%	2%
18-23 months, n=256	15%	43%	36%	5%
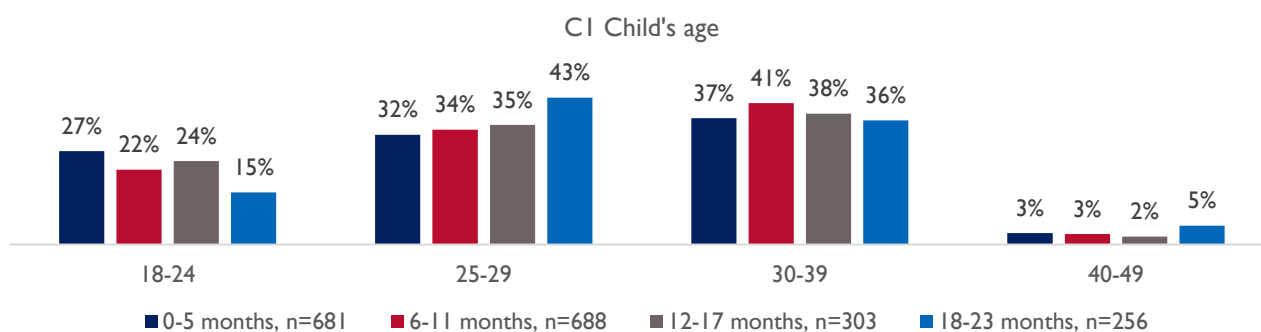
The gender breakdown of the sample was equal, with 50 percent girls and 50 percent boys. In both regions and in light touch/full intervention groups, boys and girls were represented in approximately equal numbers.

Female education is compulsory in the Kyrgyz Republic, with the result that almost all surveyed women reported having at least some primary education. Figure 4.6 below shows the percentage distribution of respondents by level of education. Over 90 percent of respondents had at least some secondary or vocational education, and 29 percent had completed university degrees.

Figure 4.6. Respondents' level of education, endline N=1928

What is your education at the moment?

Education level	Percentage
No education	0%
Primary general education (4 classes)	0%
Basic secondary (9 grades)	8%
General secondary (11 grades)	32%
Initial vocational education (prof. Lyceum)	2%
Secondary specialized education (technical school, college)	26%
Incomplete higher education (3 courses or more)	3%
Higher (completed bachelor's, master's, etc.)	29%

Table 4.1 below summarizes information on most of the socio-demographic variables mentioned above. The average level of all indicators was similar across all three surveys; any differences in the variables between the surveys were not significant.

Table 4.1. Mean indicator levels by region and degree of intervention, all three surveys

Baseline N=2091, midterm N=2234, endline N=1928

BL/MT/FN	Parameter	Batken intervention	Batken comparison	Jalal-Abad intervention	Jalal-Abad comparison	Intervention area (Light Touch)	Comparison area (Full intervention)	Total
Baseline	Child age (months)	10	11	12	11	11	11	11
	Mother age (years)	28	28	29	29	29	29	29
	Education*	6	6	5	6	5	6	6
Midterm	Child age (months)	10	12	11	10	10	11	11
	Mother age (years)	29	29	29	29	29	29	29
	Years of Education	12	12	12	12	12	12	12
Final	Child age (months)	9	10	10	8	9	9	9
	Mother age (years)	28	29	29	29	29	29	29
	Education	6	6	6	6	6	6	6

To assess the living conditions of the women participating in the survey, we asked about the number of household members (Figure 4.7). Almost three-quarters of women reported living in households with 2-7 people in the household, which is similar to midterm and baseline levels. At the same time, 28 percent indicated the presence of 8 to 10 members, while 5 percent reported 11 or more members in the household. The average number of household members was 6.5 in Batken and 6.8 in Jalal-Abad.

Figure 4.7. Number of household members, endline N=1,928

S9 How many people live in your household, including you, all children and adults?

- 2-4 household members
- 5-7 household members
- 8-10 household members
- 11-18 household members

5% 9% 23% 63%
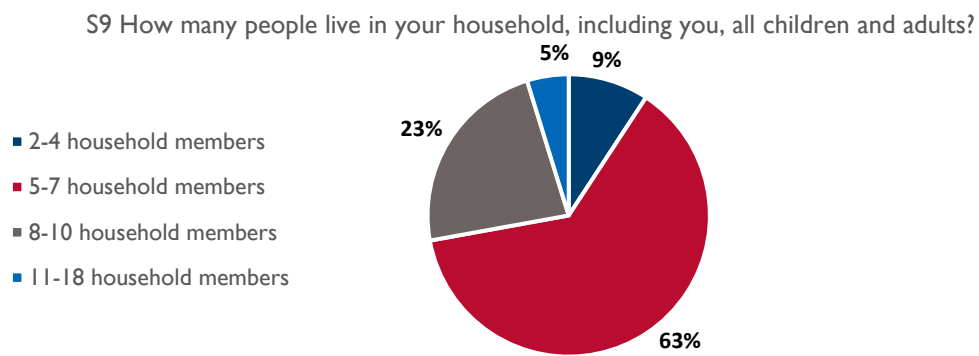
The large majority (98 percent) of respondents reported being married, while 1 percent are divorced, 1 percent are single, 0,1 percent are widows. The vast majority (93 percent) were of Kyrgyz ethnicity, with Uzbeks making up most of the remaining 7 percent (Figure 4.8).

Figure 4.8. Ethnicity of respondents by region, endline N=1,928

C6 What is your nationality?

	Kyrgyz, n=1791	Uzbek, n=119	Tajik, n=9	Uighur, n=2	Turkish, n=7
Batken region, n=970	96%	3%	1%	0%	0%
Jalal-Abad region, n=958	90%	9%	0%	0%	0%

■ Batken region, n=970 ■ Jalal-Abad region, n=958
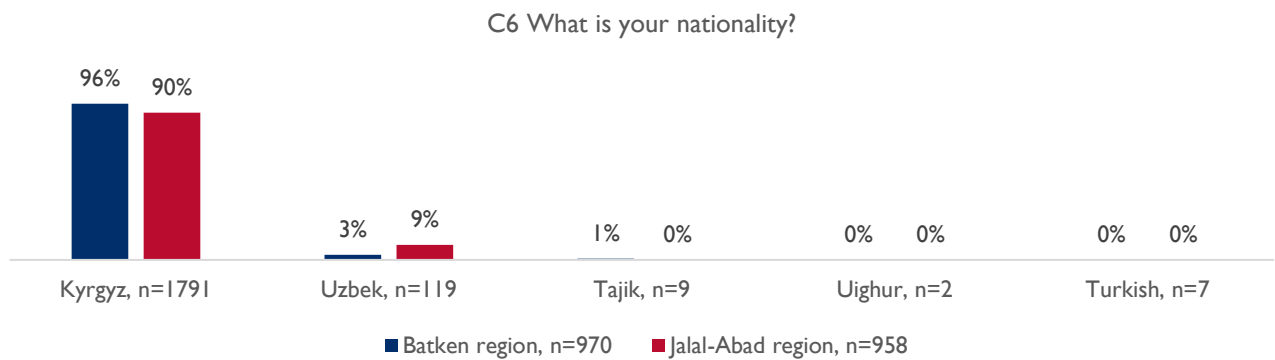
5. Prenatal care for a pregnant woman

Prenatal care during pregnancy is very important for every woman. It includes regular visits to the doctor, taking tests and taking vitamins.

In this chapter, we will look at the frequency of visits by pregnant women to health facilities, registration for pregnancy, taking iron-folic acid (IFA) and other multivitamins containing iron, as well as anthelmintic drugs during pregnancy.

According to the endline survey results, the large majority (98 percent) of respondents reported visiting a health facility at least once during their most recent pregnancy to receive information or services. This represents an improvement since the baseline and midterm surveys, where the figure was 96 percent and 95 percent, respectively. The improvement was statistically significant ($p<0.05$). Similar improvements occurred in both light touch and full intervention groups, with no significant differences between them.

Figure 5.1 Visiting health facility by pregnant women, endline N=1,442

D1 During your pregnancy with (NAME OF CHILD) did you ever visit a health facility (polyclinic, private or public clinics) for information or services related to your pregnancy?

- Yes, N=1408
- No, N=34

2%
98%
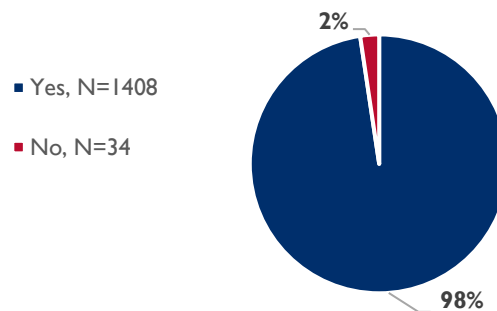
Further, the mean number of visits improved across the three surveys (Figure 5.2). In the baseline survey 40 percent of mothers said they visited a health facility during pregnancy 8 or more times, while in the midterm survey the figure rose to 44 percent, and 45 percent in the endline. The difference between the baseline and the final stage is statistically significant ($p<0.01$). Similarly, the percentage of mothers who visited the health facility less than 3 times decreased from 15 percent in the baseline, to 13 percent in the midterm, and 10 percent in the endline. The changes were similar in the light touch and full intervention groups.

Figure 5.2 Number of visits by pregnant women to health facility, baseline N=1,553, midterm N=1,604, endline N=1,408

D2_gr How many times did you visit the health facility?

	1-3 visits	4-5 visits	6-7 visits	8 or more
Baseline research, n=1553	15%	14%	23%	41%
Midterm research, n=1604	13%	14%	24%	44%
Final research, n=1408	10%	17%	25%	45%
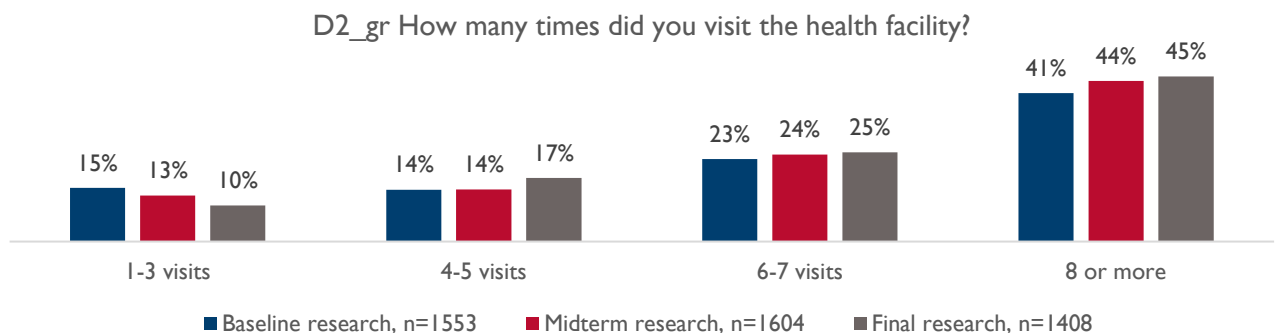
Usually at the beginning of the second trimester, a pregnant woman should sign up for a specialist. According to the results of the endline, 87 percent of the respondents were registered in the first 12 weeks. with 40 percent doing so in the period from 5 to 8 weeks (Figure 5.3)

Figure 5.3 Timing of registration for appointment with specialist, endline N=1,408

D3_gr On what week of your pregnancy (number of the week) did you have your first visit at a health facility?

- 0-4 weeks
- 5-8 weeks
- 9-12 weeks
- 13-16 weeks
- After 17 weeks

- 18%
- 40%
- 29%
- 6%
- 5%
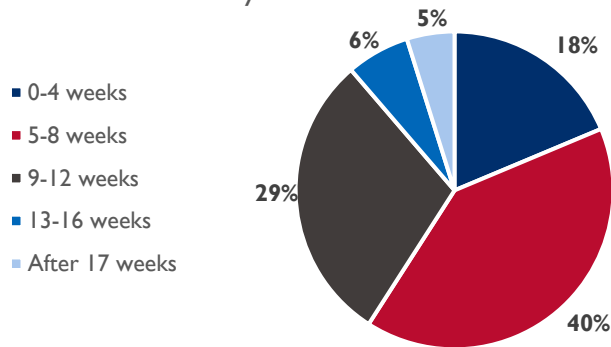
During pregnancy, a woman needs a large number of vitamins for normal childbearing and normal childbirth. Some of these vitamins can be obtained from food, and some from medications prescribed by doctors. According to the data obtained, over the past year, the number of respondents who were prescribed or who bought drugs containing IFA and other multivitamins has decreased: in the midterm, 92 percent of the surveyed women reported being prescribed iron containing products; in the endline the figure dropped to 89 percent. Figure 5.4 shows results in the midterm and endline surveys, by region and type of intervention area.

Figure 5.4 Vitamin prescriptions, midterm. N=1,689, endline N=1,442

percent of women who reported taking any product containing iron during their last pregnancy (IFA, other iron tablets, iron syrup, multivitamins, etc.)

Final research / Midterm research

	Final research Yes	Final research No	Final research Don't know	Midterm research Yes	Midterm research No	Midterm research Don't know
Batken, Intervention-Light Touch area	93%	7%		95%	5%	
Batken, Comparison-full intervention area	93%	6%	1%	96%	4%	
Jalal-Abad, Intervention-Light Touch area	85%	14%	1%	88%	12%	
Jalal-Abad, Comparison-full intervention area	86%	13%	1%	89%	11%	1%
Batken region	93%	7%		95%	4%	1%
Jalal-Abad region	86%	14%		88%	11%	1%
Intervention-Light Touch area	90%	10%		92%	8%	
Comparison-full intervention area	89%	11%		92%	2%	1%
Total	89%	10%	1%	92%	8%	

■ Yes ■ No ■ Don't know/ don't remember

There were small but significant differences between the two surveyed regions: 93 percent of women in Batken region and 86 percent of women in Jalal-Abad region reported receiving iron, folic acid and multivitamin prescriptions, which is statistically significant ($p<0.01$). However, the endline figure was 2 percent lower in each region. No significant differences were found between the endline and baseline surveys.

Each doctor prescribes necessary drugs to pregnant women based on specifics of the pregnancy. However, there is a general list of vitamins that are recommended for every woman, including iron, folic acid, iodine, etc. We asked respondents which type of iron-containing drugs they took or bought most often (Figure 5.5). Compared with the midterm level, the number of mothers who took folic acid tablets decreased from 53 percent to 49 percent, but the number of those who took iron tablets, in contrast, increased from 21 percent to 27 percent. Also, as in the previous stage of the survey, 6 percent of mothers could not remember which vitamins they bought during pregnancy. It is interesting to note that the values are inversely proportional across the two response categories. So, with each new stage of the survey, the number of mothers who took folic acid tablets decreased, while the number of respondents who used iron-containing tablets increased.

Figure 5.5. Type of iron-containing drugs that women took, baseline N=1,438, midline N=1,552, endline N=1,288

D5 Which form of iron supplement did you receive or purchase the most of?

Iron tablets (Fersinol, Ferrum-Lek, Tardiferon, Ferifol, Maltofer, Ferrus, Orofer, etc.)
- 20%
- 21%
- 27%

IFA tablets (Gino-Tardiferon, Yodofol, Maltofer-FOL, Folievaya Kislota, Ferrus-S, Airokeir-M, Emfetal etc.)
- 54%
- 53%
- 49%

Iron syrup-like preparation (Ferrum-Lek, Fersinol, Ferrotsit, Ferrus, Orofer, Gematonic, Maltofer, Totema etc.)
- 3%
- 4%
- 3%

Complex vitamins (multivitamins) (Elevit, Alfavit, Duovit, Pikovit, Rotovit, Vitrum, Emfetal, etc.)
- 8%
- 10%
- 10%

Other (capsules, drops, etc.) specify
- 9%
- 7%
- 6%

Don't know / Don't remember
- 5%
- 6%
- 6%

■ Baseline research, n=1438   ■ Midterm research, n=1552   ■ Final research, n=1288

*The following individual responses of respondents were included in the "Other" category: Folic acid in capsules; Iron-containing injections (Fersinol, Ferrus); Iron-containing capsules (Fersinol, Ferrus, Ferrum-Lek); Fermenyl; Trenetal capsule; Rotofer in capsules; Roteferon; Kanefron and Sherik AD in capsules; Dufaston, Iodomarin, tablets against worms, Calcium, Magne B6 in tablets; etc.

The WHO recommends daily iron supplementation throughout pregnancy, starting as early as possible and optimally for at least 90 days. Therefore, one of the indicators we measured in the impact evaluation was the percentage of women who took any form of iron during their most recent pregnancy. From midterm to endline, this indicator changed only slightly in both full intervention and light touch groups, though there were notable increases in both groups compared to baseline levels. It is interesting to note that the differences between the regions in the baseline and midterm surveys were preserved at the final stage. Thus, the difference between Batken (62 percent) and Jalal-Abad (53 percent) regions was 9 percentage points in the endline survey, while in previous surveys, the difference was 10 percent. The basic pattern over time seen in the figure, in both regions and both types of survey area, is that large improvements occurred between baseline and midterm, followed by little change between midterm to endline.

Figure 5.6. Indicator 1: Percentage of mothers with children under 2 years of age who took iron supplements for 90 days or more during their last pregnancy

baseline N=1625, midterm N=1689, endline N=1442
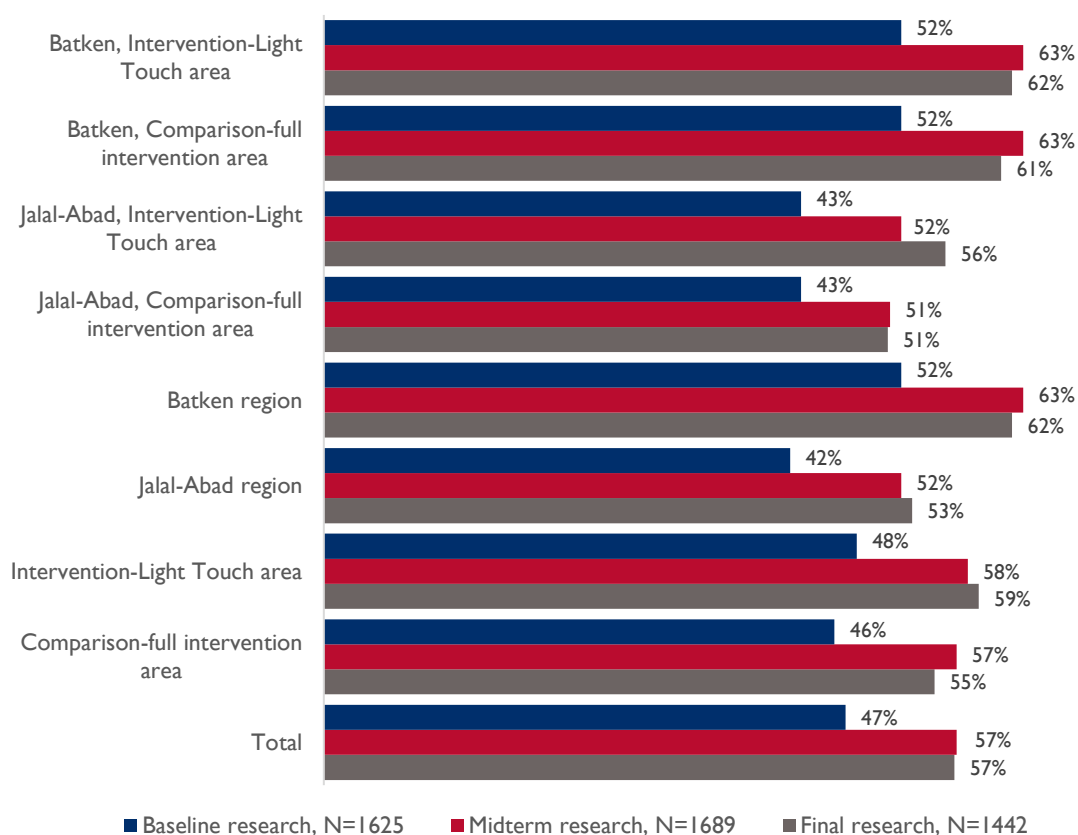
To help determine whether the project had a positive impact on nutrition outcomes, we analyzed differences in differences (hereinafter DID), i.e., comparing the change in the indicator in the full intervention group against the change in the indicator in the light touch group. The null hypothesis was that in the absence of program activities, the change in the indicator in the full intervention group over the one-year period would have been the same as the change in the light touch group, in which no project interventions were made during the period. The value of DID is equal to the difference between the measured indicator level at endline in the full intervention group, and the assumed level of the indicator if the null hypothesis had been true, i.e., if the change in the full intervention group had been the same as the change in the light touch group. In this case, the DID value was -3.20 percent, but not statistically significant. Results are summarized in Table 5.1, by region and by type of intervention group. There were slight but interesting regional differences. The percentage of mothers who took iron for at least 90 days was substantially higher in Batken than Jalal-Abad in both groups and both surveys.

Table 5.1. Main information for indicator N°1

Indicator_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy

Region	%, N	Light Touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	58,00%	59,24%	1,25%	56,76%	54,81%	-1,95%	-3,20	0,38	no
	N	838	714	-124	851	728	-123	1		
Batken region	%	62,78%	61,78%	-1,00%	63,45%	61,43%	-2,02%	-1,02	0,97	no
	N	454	416	-38	383	280	-103	-65		

Jalal-Abad region	%	52,34%	55,70%	3,36%	51,28%	50,67%	-0,61%	-3,97	0,36	no
	N	384	298	-86	468	448	-20	66		

Overall results are summarized in Figure 5.7. Although results are not in the desired direction (in this case, the light touch group improved while the full intervention group declined), the amount of change between surveys in both groups was small and not significant.

Figure 5.7. DID chart for indicator 1.

ind_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy
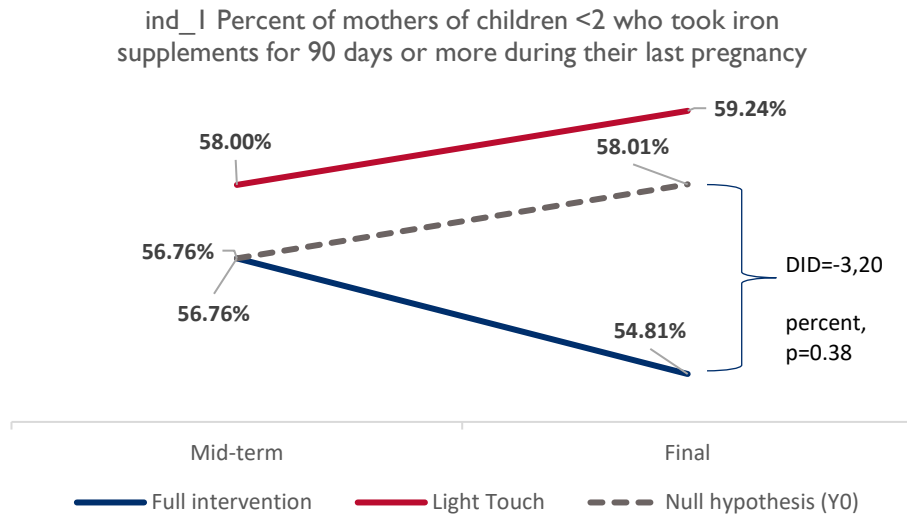
Indicator number 2 was the average number of days during which women took iron tablets/syrup during their last pregnancy, among those who took any iron during that time. The mean among all women was 129 days, 132 in the light touch areas, and 125 in the full intervention zones. These figures are encouraging, at least in part, because they suggest that among women who took any iron at all, on average they took it for more than the recommended minimum 90 days. On the other hand, as with indicator 1, the results declined slightly between midterm and endline, and declined by more in the full intervention areas than in "Light Touch areas". However, the declines were slight and not statistically significant. Overall, the patterns are similar to indicator 1, with notable gains between baseline and midterm, and only slight changes between midterm and endline. Detailed results are shown in Figure 5.8 below.

Figure 5.8. Indicator 2. Average number of days women took iron-containing drugs, baseline N=1.438, midterm. N=1.552, endline N=1.288

Batken, Intervention-Light Touch area: 125, 137, **136**
Batken, Comparison-full intervention area: 131, 140, **124**
Jalal-Abad, Intervention-Light Touch area: 110, 128, **127**
Jalal-Abad, Comparison-full intervention area: 107, 122, **122**
Batken region: 124, 139, **134**
Jalal-Abad region: 108, 125, **124**
Intervention-Light Touch area: 118, 133, **132**
Comparison-full intervention area: 116, 131, **125**
Total: 117, 132, **129**

■ Baseline research ■ Midterm research ■ Final research

In addition, the endline survey revealed some age-related features of IFA intake by women. Younger women in both the 18-24 years and 25-29 years age groups reported taking iron for significantly more days than the two older age groups of 30-39 and 40-49 years (Figure 5.9).

Figure 5.9. Indicator 2. The average number of days during which women took iron-containing drugs disaggregated by the age of the mother, endline N=1,552

indicator 2. Mean number of days on which iron tablets/syrup was taken by women by mother's age, endline N=1552

18-24 y.o. (n-301): 131
25-29 y.o. (n=433): 130
30-39 y.o. (n=467): 126
40-49 y.o. (n=37): 127
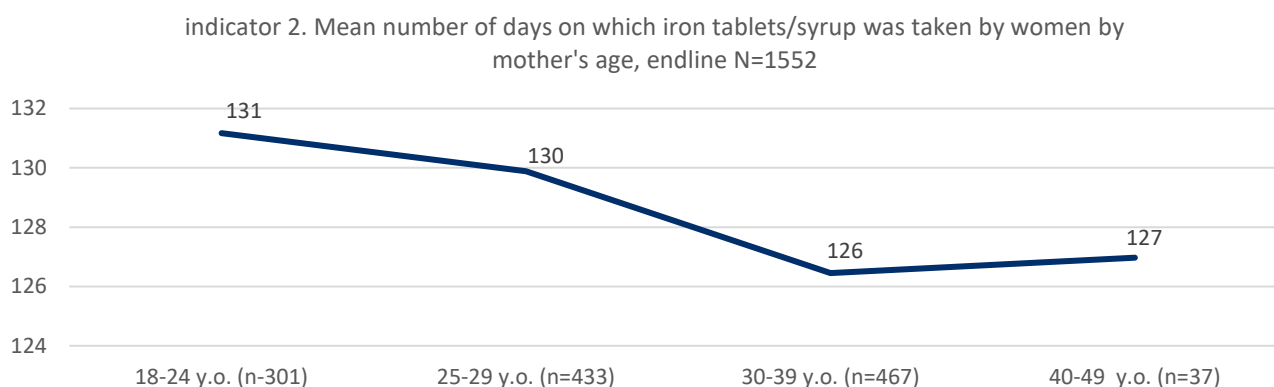
The following table presents the main information for indicator number 2 by survey, type of area, and region.

Table 5.2. Main information for indicator number 2

ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)

Region	%, N	Light Touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	Mean	133	132	-1	131	125	-5	-4	0,53	no
	N	725	615	-110	743	626	-117	-7		
Batken region	Mean	137	136	-2	136	131	-5	-3	0,39	no
	N	404	370	-34	370	251	-119	-85		
	Mean	128	127	-1	122	122	0	1	0,92	no

Jalal-Abad region	N	321	245	-76	392	375	-17	59		

Figure 5.10 shows the differences in differences (DID) results graphically for indicator 2. Similar to indicator 1, the results do not appear to be favorable, but the changes for both groups were small and within the margin of error.

Figure 5.10. DID score for indicator 2

ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)

133
132
131
130.71
129.50
DID=-4, p=0.53
125

Mid-term   Final

—— Full intervention   —— Light Touch   - - - Null hypothesis (Y0)
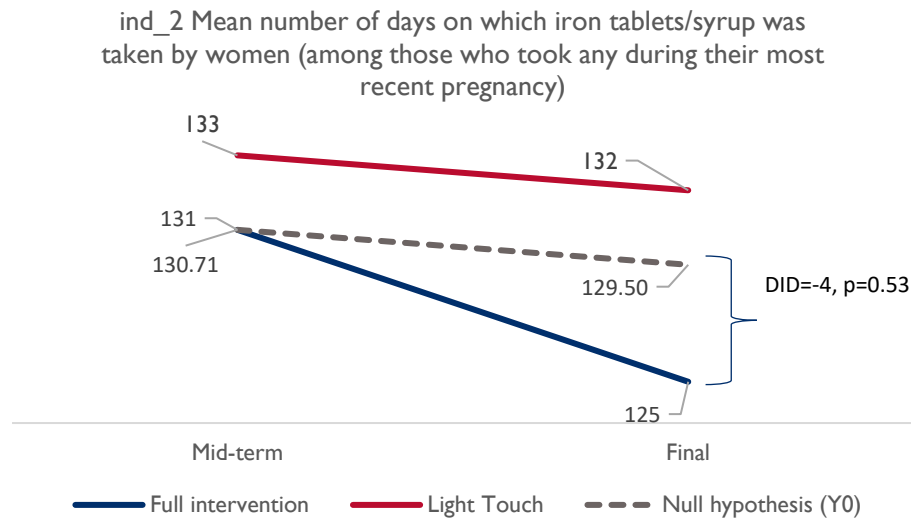
A regression model was also built for indicator number 2 to determine what variables might be significantly associated with women taking an appropriate number of iron supplements during pregnancy. The dependent variable was the number of days during which women took iron-containing drugs during her last pregnancy. The independent variables included:

- percent of women who watched at least one television commercial on nutrition and hygiene over the past three months (from question J4)

- mean number of visits to a health facility (D2)

- level of education (S5_years)

- percent of women who received information about the prevention/treatment of anemia (K1a_4)

- percent of women who received advice from medical specialists about using iron-containing drugs (D8_5).

The measures in the list above were selected based on variables in the questionnaire that we hypothesized could influence the number of days during which women took iron. The regression model included all the independent variables. The resulting R-squared measure was 0,029, which is not significant and indicates a poor fit for the full equation. Among the bivariate relationships between the dependent variable and each independent variable, only the level of education was significant ($p < 0.01$). Table 5.3 shows results of the regression analysis.

Table 5.3. Summary for regression model on the number of days during which women take iron-containing drugs during the last pregnancy

Model		Non-standardized coefficients		Standardized coefficients	T	Significance
		B	Standard error	Beta		
I	(Constant)	50,744	19,294		2,630	,009
	S5_years (level of education)	4,704	1,408	,135	3,341	,001
	D2 (number of visits to a health facility)	-,135	,213	-,025	-,634	,527
	K1a_4 (the fact of receiving information about the methods of prevention/treatment of anemia)	8,818	7,217	,050	1,222	,222
	D8_5 (the fact of receiving advice from medical specialists about the use of iron-containing drugs)	15,317	10,495	,061	1,459	,145
	J4 (women who have watched at least one television commercial on nutrition and hygiene over the past three months)	,010	,203	,002	,049	,961

Source of supply of iron-containing products

We also asked respondents where they obtained iron supplements. Among those who reported having used such supplements, 92 percent bought them from pharmacies, while 11 percent obtained them during an antenatal visit at a health facility (it was possible to give more than one answer, therefore, the total amount was more than 100 percent). As Figure 5.11 shows, respondents from the light touch area were slightly more likely to buy/receive iron-containing drugs during an antenatal visit to a health facility (13 percent and 10 percent respectively) than respondents from full intervention areas (statistically significant, $p < 0.01$).

Figure 5.11. Places of iron-containing drugs purchasing, midterm N=1552, endline N=1288
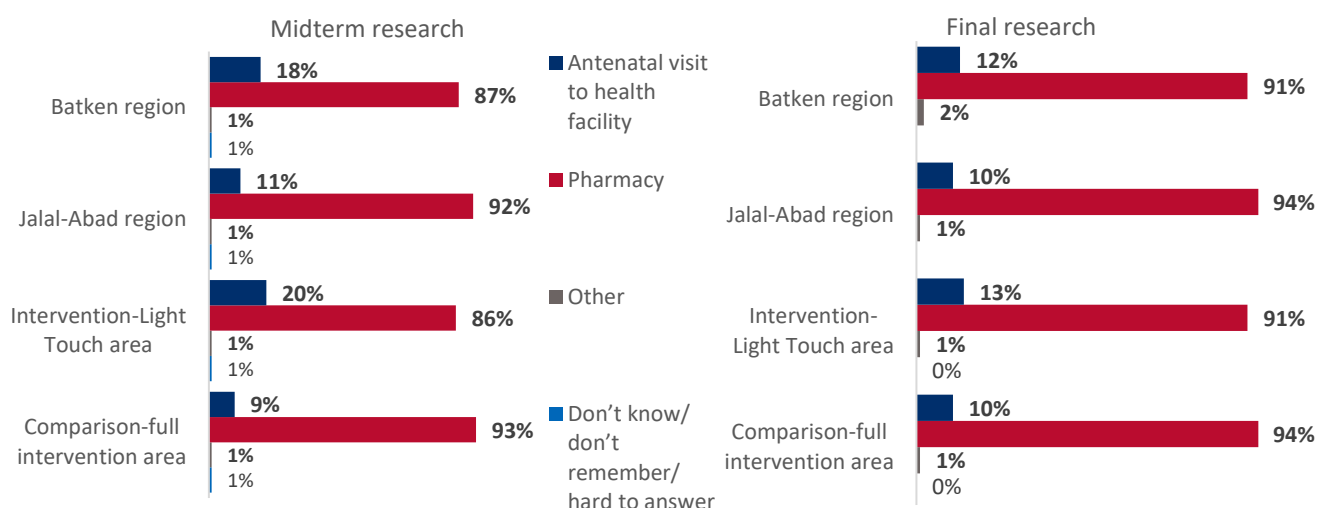
Topics covered during prenatal counseling visits to health facilities

We also asked respondents which topics they received information on during prenatal counseling visits. The most frequently mentioned topics in the endline survey were breastfeeding (94 percent), preparation for childbirth (88 percent), the introduction of solid and semi-solid complementary foods (88 percent) and danger signs during pregnancy (87 percent). Respondents were least likely to receive information about prevention of intestinal worms (only 41 percent of respondents). Figure 5.12 is a "spider chart" showing results from the

endline survey (dark blue), overlaid by midterm survey results (red). Results were similar in both surveys, but endline levels were slightly better than in the midterm, as the blue extends farther out than the red for 11 out of 12 topics. For three topics - self-care during pregnancy, the use of IFA, and breastfeeding - the increase from midterm to endline was statistically significant. The same information is shown in Table 5.4.

Figure 5.11. Topics on which women received information from medical specialists, midterm. N=1,689, endline N=1,442

$D8 Were you counseled from medical specialists on any of the following issues?

■ Final research, n=1442   ■ Midterm research, n=1689
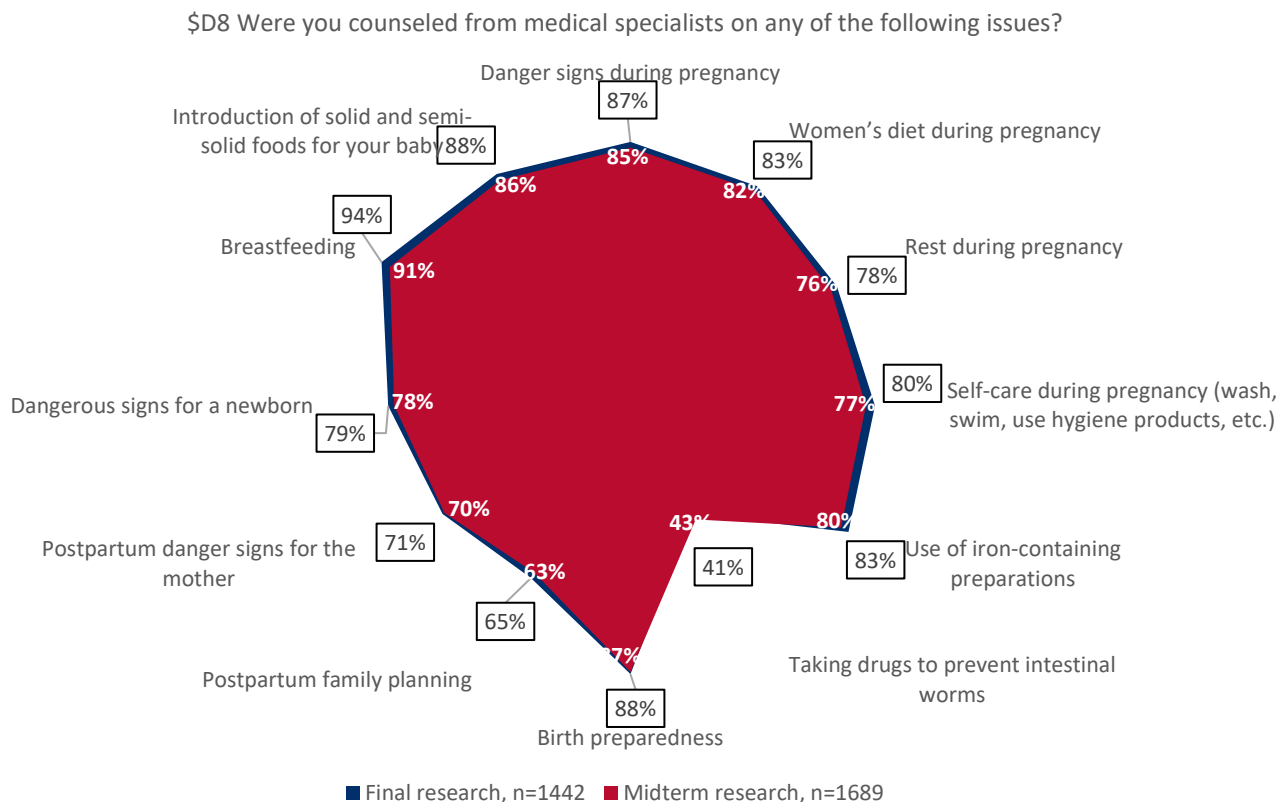
Table 5.4. Topics on which respondents received information during counseling visits

	Light touch area		Full intervention area	
	Midterm (N-1,689)	Endline (N=1,442)	Midterm (N-1,689)	Endline (N=1,442)
Danger signs during pregnancy	85,0%	87,0%	84,5%	86,3%
Women's diet during pregnancy	84,2%	84,0%	79,1%	82,4%
Rest during pregnancy	78,4%	79,7%	73,8%	77,1%
Self-care during pregnancy (wash, swim, use hygiene products, etc.)	80,4%	81,4%	74,3%	79,3%
Use of iron-containing preparations	81,6%	84,0%	78,3%	81,5%
Preventing intestinal worms	45,0%	42,4%	41,1%	39,7%

	Light touch area		Full intervention area	
	Midterm (N-1,689)	Endline (N=1,442)	Midterm (N-1,689)	Endline (N=1,442)
Birth preparedness	89,0%	88,5%	85,8%	87,6%
Postpartum family planning	64,8%	64,7%	61,6%	65,9%
Postpartum danger signs for the mother	71,8%	72,3%	69,0%	70,1%
Danger signs for a newborn	79,6%	81,5%	75,6%	77,5%
Breastfeeding	92,1%	92,7%	90,2%	95,9%
Introduction of solid and semi-solid foods for your baby	85,8%	87,1%	85,3%	88,5%

In addition, there were regional differences in the endline survey results (Figure 5.13). For 9 out of 12 topics, higher percentages of women in Batken reported that they received information than women in Jalal-Abad, and the differences were statistically significant in four cases. These included danger signs for newborns, birth preparedness, postpartum danger signs for the mother, and danger signs during pregnancy. For those 4 topics, values in Batken region were higher than Jalal-Abad by 4-7 percentage points.

Figure 5. 13. Questions on which we received consultations from medical specialists by region, endline N=1,442

$D8 Were you counseled from medical specialists on any of the following issues?

	Batken region, n=696	Jalal-Abad region, n=746
Breastfeeding	93%	95%
Birth preparedness	86%	91%
Danger signs during pregnancy	85%	89%
Introduction of solid and semi-solid foods for your baby	88%	87%
Women's diet during pregnancy	82%	84%
Use of iron-containing preparations	81%	84%
Dangerous signs for a newborn	76%	83%
Self-care during pregnancy (wash, swim, use hygiene products, etc.)	79%	82%
Rest during pregnancy	77%	79%
Postpartum danger signs for the mother	68%	75%
Postpartum family planning	65%	65%
Taking drugs to prevent intestinal worms	42%	40%

Indicator 17 looks more specifically at information received about prevention of intestinal worms during pregnancy. Such infections can lead to serious consequences during pregnancy, such as iron deficiency anemia,

low infant body weight, premature birth, etc. Results, including DID, are shown in Table 5.5. The figures are much lower than those shown in Figure 5.13 above, because they come from a different part of the questionnaire than the information for Figure 5.13. Table 5.5 percentages are for women who received advice on taking drugs for worm prevention specifically *during pregnancy*. The percentage of women receiving information in the full intervention areas was lower than in the light touch areas.

Difference in differences (DID) results were positive, as the indicator increased by 1.3 percentage points in the full intervention areas and decreased slightly in light touch zones. However, changes were slight, so the DID was not statistically significant.

Table 5.5. DID information for indicator number 17

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

Region	%, N	Light Touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	19.60%	19.37%	-0,23%	14.74%	16.04%	1,30%	1.53	0,57	no
	N	842	733	-109	821	748	-73	36		
Batken region	%	17,33%	17,82%	0,48%	12,33%	12,12%	-0,21%	-0,69	0,85	no
	N	450	449	-1	365	297	-68	-67		
Jalal-Abad region	%	22,19%	21,83%	-0,36%	16,67%	18,63%	1,96%	2,32	0,57	no
	N	392	284	-108	456	451	-5	103		

Figure 5.14 shows the DID results graphically for Indicator 17.

Figure 5.14. DID chart for indicator 17

ind_17 Percent of women who received advice to take deworming medicine during pregnancy
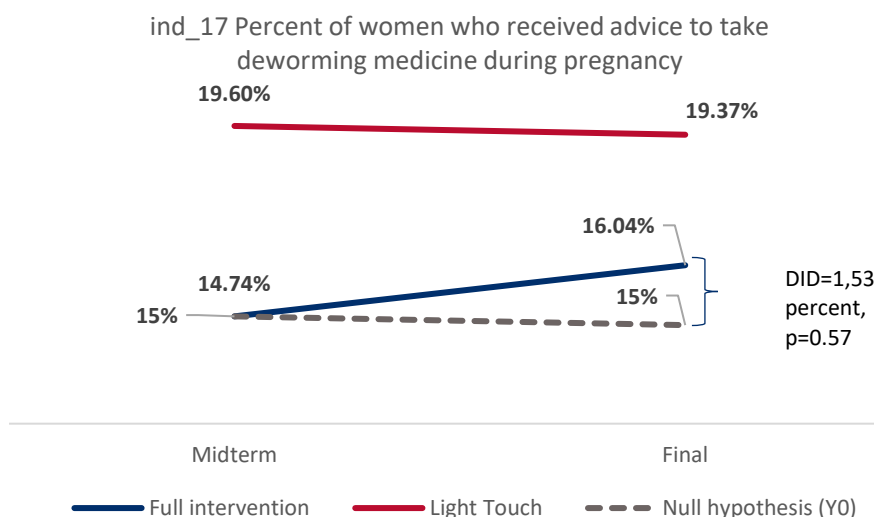
The main source of information on preventing intestinal worms, in all three surveys, was medical workers, mentioned by 89 percent of respondents. It is interesting to note that during the endline, there is a positive trend in almost all categories of responses, except for medical workers. With each new stage of the survey, increasing percentages of respondents said they got information from relatives, friends and neighbors, the Internet, etc. The percentage of respondents who indicated "Internet" as their source of information increased by the largest amount between surveys, from 3 percent at the baseline to 6 percent in the midterm, and 13 percent in the endline. Sources of information are shown graphically in Figure 5.15 below.

Figure 5.14. Sources of information on taking deworming medicine, baseline N=323,

midterm N=286, endline N=262

$G2 Where did you get the information on taking deworming medicine?

Source	Baseline	Midterm	Final
Health provider	93%	90%	89%
Friends or neighbors	3%	3%	8%
Relatives	5%	3%	8%
Internet	3%	6%	13%
Radio	1%	1%	1%
TV	3%	2%	6%
Other (specify)	3%	5%	5%

■ Baseline research, n=323   ■ Midterm research, n=286   ■ Final research, n=262
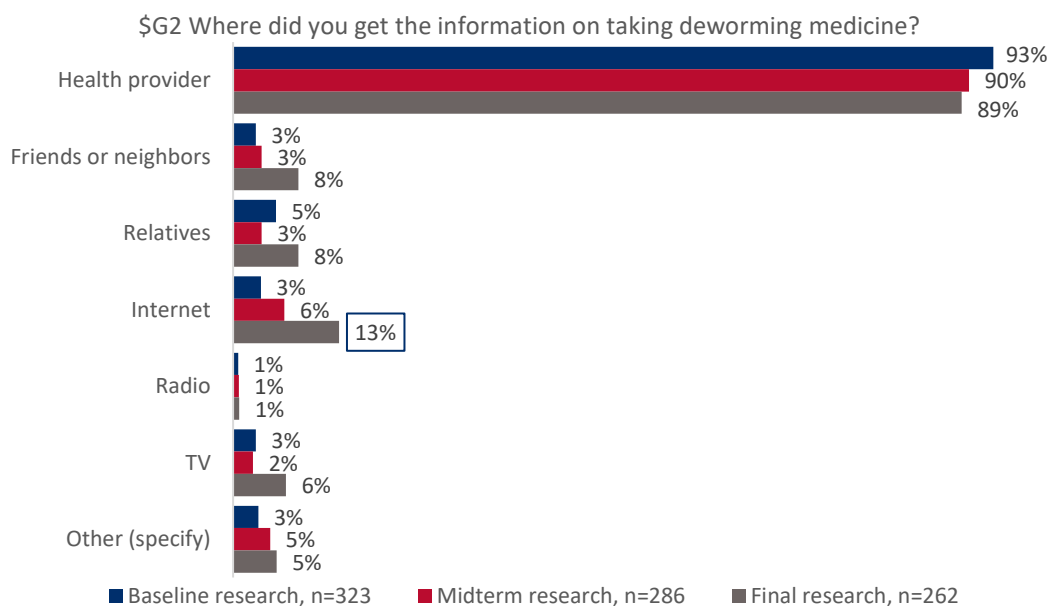
*The "Other" category includes such individual responses of respondents as a private company, FAP/SKZ (rural Health Committee), Natural Medicines, from teachers in medical school/school, Nwork, Emway firms/acquaintances work, Mykty Azyktanuu, USAID, Atomi company, etc.

Summing up this chapter, it is worth noting that 98 percent of women visited a health facility at least once during pregnancy to receive information or services. 87 percent of the respondents got registered in the first 12 weeks, including 40 percent in the period from 5 to 8 weeks, and 18 percent in the first 4 weeks of their pregnancy.

In the baseline survey, 88 percent of women bought prescribed drugs with IFA and multivitamin preparations. In the midterm survey this figure increased to 92 percent, but in the endline it decreased back to 89 percent. 49 percent of mothers took tablets containing folic acid and 27 percent used iron-containing tablets.

The average number of days women took iron tablets/syrup (among those who took tablets during the last pregnancy) was 129 days in the endline survey, which was 3 days less than in the midterm. There were regional differences: in Batken, the average number of days of iron intake by women was 10 days higher than in Jalal-Abad. Younger women on average took pills for more days than older women in all three surveys. The percentage of women who took iron for 90 days or more was 57 percent in both the midterm and endline surveys, but that was a substantial increase from the baseline, when it was 47 percent. Between midterm and endline, the indicator improved slightly in the light touch group and declined slightly in the full intervention areas, but the DID was insignificant. In terms of source of supply, 92 percent of mothers bought their iron supplements from pharmacies, while 11 percent bought or received them during an antenatal visit at a health facility.

The most common topics covered during counseling sessions were: breastfeeding (94 percent), preparation for childbirth (88 percent), the introduction of thick or semi-thick complementary foods (88 percent) and danger signs during pregnancy (87 percent). The topic that was least mentioned was prevention of intestinal worms (41 percent). For 11 out of 12 topics, the percentage of respondents who said they got information about it was higher in the endline than the midterm, and for three indicators the increase was statistically significant.

Less than one-fifth of respondents (18 percent) said they received recommendations/advice on taking deworming medications during pregnancy. There were small and insignificant differences across surveys and types of intervention group, but the percentage receiving such information was substantially higher in Jalal-Abad than in Batken.

6. Nutrition practice of women and children

6.1. Dietary diversity of women

This chapter explores nutrition practices related to women's dietary diversity and infant and young child feeding (IYCF) practices for the respondents' children. Section 6.1 begins by examining the dietary diversity of women, both in terms of food groups consumed and individual food items that make up the groups. Women of reproductive age (WRA) have special nutrient requirements because of the demands of pregnancy and lactation. Poor nutrition before and during pregnancy can have adverse effects on both women and their children (FAO 2021).

The block of questions on women's dietary diversity was answered by 1,442 women. Women were asked which foods they consumed in the previous 24 hours, using the "list-based" method, meaning that we went down a list and asked respondents whether they had consumed that specific food in the previous day[1]. Detailed results are shown in Figure 6.1.1. The foods that were consumed by most women in the endline in the previous 24 hours included cereals and grains (90 percent), potatoes (91 percent), "other fruits" which included apples, bananas, dates, grapes, kiwi, and lemon (76 percent), carrots (76 percent), other vegetables (57 percent), kefir, yogurt, etc. (58 percent), and beef (70 percent). Interestingly, consumption of some nutrient-rich foods increased substantially between the midterm and endline surveys, including beef, nuts, persimmon, lamb, and horsemeat, while consumption of carrots, kefir/yogurt, etc., and apricots. On the other hand, consumption of beef, nuts and persimmon declined between the midterm and endline. Less than 10 percent of endline respondents reported consuming peaches, duck, goat, turnip, zucchini, or lentils in the previous day.

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[1] The alternative method for asking about diet recall is open listing, where the interviewer asks which foods the woman consumed in the previous day and the interviewer records each food the respondent mentions. Both methods are considered valid for assessing 24 hour dietary recall.

Figure 6.1.1. Foods consumed by women in the last 24 hours, baseline N=1625, midterm N=1689, endline N=1,442

Food	Baseline research		Midterm research		Final research	
	Yes	No	Yes	No	Yes	No
Any food made from grains	94%	6%	92%	8%	90%	10%
Potatoes	94%	6%	91%	9%	91%	9%
Any other fruits and apples	90%	10%	78%	22%	76%	24%
Carrot	81%	19%	78%	22%	76%	24%
Any other vegetables	66%	34%	56%	44%	57%	43%
Kefir, yoghurt/curd, airan	66%	34%	58%	42%	58%	42%
Beef	65%	35%	67%	33%	70%	30%
Butter, ice cream, cream,…	62%	38%	58%	42%	56%	44%
Any nuts	54%	46%	59%	41%	64%	36%
Milk (including milk with…	51%	49%	45%	55%	41%	59%
Persimmon	41%	59%	58%	42%	45%	55%
Apricot	40%	60%	33%	67%	33%	67%
Red pepper (sweet)	39%	61%	29%	71%	32%	68%
Lamb/Mutton	38%	62%	43%	57%	42%	58%
Chicken, quail eggs or other…	38%	62%	37%	63%	36%	64%
Any dark green leafy…	35%	65%	27%	73%	31%	69%
Pumpkin	32%	68%	31%	69%	27%	73%
Liver, kidney, heart, gizzard…	23%	77%	21%	79%	21%	79%
Chiken	21%	79%	23%	77%	20%	80%
Peas	20%	80%	19%	81%	17%	83%
Kymyz, chalap or suzmo	20%	80%	13%	87%	12%	88%
Any seeds	17%	83%	18%	82%	14%	86%
Melon	16%	84%	7%	93%	13%	87%
Peaches	14%	86%	11%	89%	8%	92%
Fish and seafood	13%	87%	13%	87%	10%	90%
Hard and soft cheeses	13%	87%	16%	84%	14%	86%
Beans	10%	90%	11%	89%	10%	90%
Duck, turkey, goat, yak and…	8%	92%	7%	93%	8%	92%
Horse	7%	93%	11%	89%	12%	88%
Turnip	7%	93%	7%	93%	5%	95%
Squash	4%	96%	4%	96%	4%	96%
Lentils	3%	97%	3%	97%	4%	96%

■ Yes ■ No

More than half of respondents (52 percent) reported consuming 11 or more types of food items from the Figure above. That percentage, however, has declined since the baseline, as shown in Figure 6.1.2 below. The percentage of mothers whose diet was made up of fewer than 10 types of food in the previous day increased by 6 percent between the baseline and endline surveys, which was statistically significant (p<0.01).

Figure 6.1.2. Products consumed by women in the last 24 hours, baseline N=1,625, midterm N=1,687, endline N=1,441

E1_gr Number of products from 33 products/groups of products consumed by women in the last 24 hours

■ Baseline research, n=1625　■ Midterm research, n=1687　■ Final research, n=1441
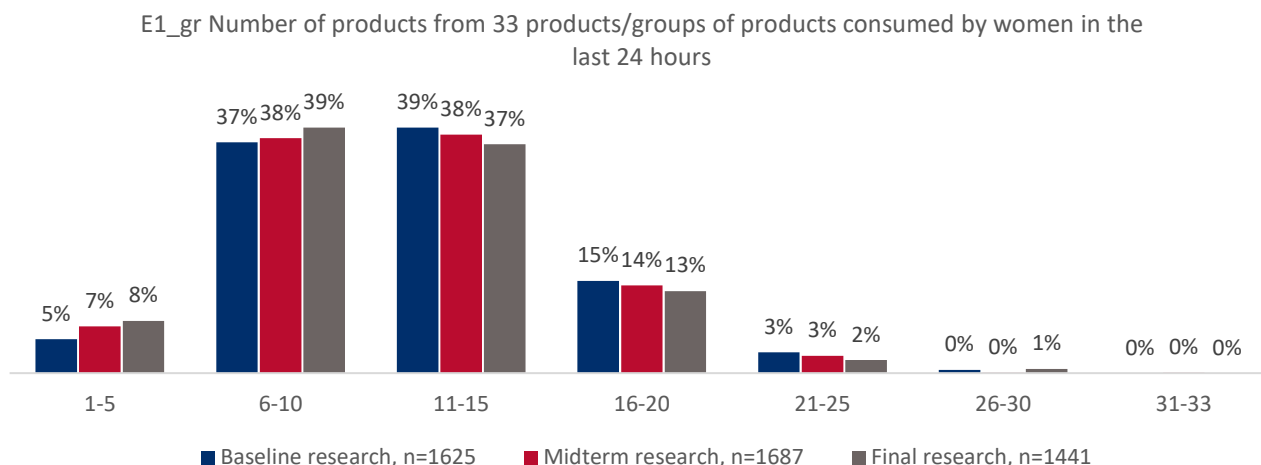
Consumption of some products varied by the age of the child and region. Mothers with older children (6–23 months) consumed 9 percent more persimmons (67 percent) and nuts (48 percent) than mothers with infants under 5 months, which was statistically significant (p<0.01). Regarding regional differences, consumption of certain kinds of animal products, such as horsemeat, mutton, chicken, as well as kymyz, chalap, and suzmo, is more common in Jalal-Abad than in Batken. However, beef consumption was higher in Batken. Respondents from Batken were also more likely to consume apricots, beans and butter/sweet dairy products than women from Jalal-Abad region. Figure 6.1.3 shows consumption of select products where there were significant differences between the regions. Differences between light touch and full intervention areas were within the sampling error and not significant.

Figure 6.1.3. Some differences in women's food consumption by region (N = 1,441, endline survey)

E1. Now we would like to know about all the foods you have eaten in the last 24 hours

■ Batken region, n=696　■ Jalal-Abad region, n=746
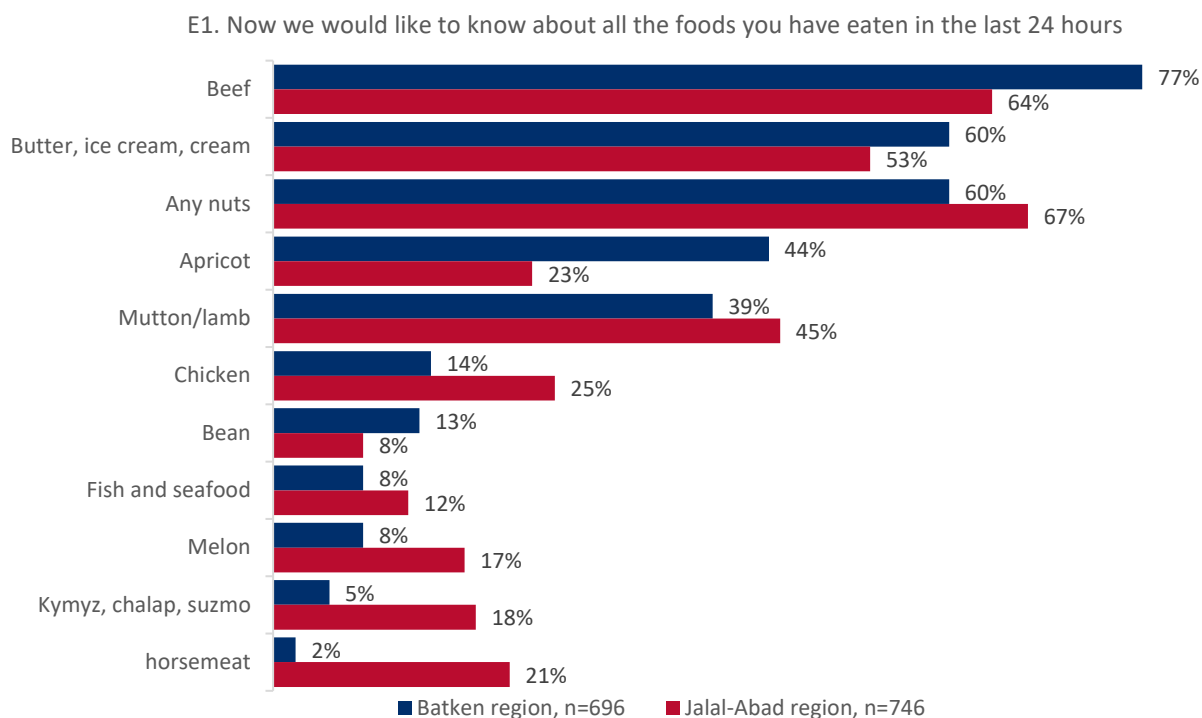
According to global standards, women's dietary diversity is considered adequate if she consumes at least five out of ten food groups that together provide a full range of nutrients. FAO and FHI 360 (FANTA Project) developed a standardized indicator (MDD-W) in 2016, updated in 2021, to measure women's dietary diversity (FAO 2021). We measured MDD-W by grouping the foods listed in Figure 6.1.1 into the 10 broader food groups shown in Table 6.1.1 below. The MDD-W indicator (our indicator number 3) is defined as the

percentage of women who reported consuming foods from five or more of those 10 groups in the previous day.

Table 6.1.1. Products included in 10 groups that provide a minimum variety of women's diet

10 food groups for calculating MCI-W	Distribution of response options by groups
1. Grains, white root vegetables and tubers, as well as psylliums	Any cereal food, such as porridge, bread, rice, buckwheat, corn, pasta/noodles or other cereal products.
	Potato
	Turnips
2. Legumes (beans, peas and lentils)	Beans
	Peas
	Lentils
3. Nuts and seeds (including peanuts)	Any nuts, such as: almonds, hazelnuts, pistachios, cashews, peanuts
	Any seeds, for example: melons, pumpkins, sesame seeds, sunflower seeds
4. Dairy products	Milk (including milk with water or in porridge)
	Hard and soft cheeses
	Kefir, yogurt/cottage cheese, ayran
	Koumiss, chalap, or suzmo
5. Meat, poultry and fish	Liver, kidneys, heart, stomach or other internal organs of animals
	Beef
	Horsemeat
	Mutton/lamb
	Poultry
	Meat of duck, goat, turkey, yak or other animals
	Fish and seafood
6. Eggs	Chicken, quail or eggs of other birds
7. Dark green leafy vegetables	Any dark green leafy vegetables, such as: broccoli, spinach, sorrel
8. Other vitamin A rich fruits and vegetables.	Pumpkin
	Carrots
	Zucchini
	Red pepper (sweet)
	Apricot
	Peaches
	Persimmon
	Melon
9. Other vegetables	Any other vegetables such as: cabbage (ordinary and red), cauliflower, celery, cucumbers, tomatoes, eggplants, green, yellow peppers, mushrooms, onions, radishes
10. Other fruits	Any other fruits and berries such as: apple, banana, dates, grapes, kiwi, lemon, tangerine, orange, pear, pineapple, plum, pomegranate (anar), cherry, raspberry, strawberry, watermelon

Grouping the individual products from Figure 6.1.1 into the 10 groups above, and calculating the proportion of mothers consuming any product from each group, we see that dietary diversity among women is quite high - most mothers consume products from 5 or more groups. Consumption of each of the 10 groups, by type of intervention area, is shown in Figure 6.1.4. Almost all respondents (98 percent) reported consuming grains, white roots and tubers. 95 percent reported consuming poultry or fish, and 90 percent consumed "other Vitamin A rich fruits and vegetables". There were small differences in food groups consumed between the light touch/full intervention groups, but most were not significant. The exception was nuts and seeds (including peanuts); in the light touch area 63 percent reported consuming foods in that group, compared to 70 percent in the full intervention areas, which was statistically significant (p<0.01).

Figure 6.1.4. The main 10 food groups in the diet of mothers, endline N=1440

Mother_FG 10 groups of maternal nutrition

Food group	Light touch area, n=713	Full intervention area, n=727
Grains, white roots and tubers, as well as plantains	98%	99%
Legumes (beans, peas and lentils)	22%	24%
Nuts and seeds (including peanuts)	63%	70%
Dairy products	73%	75%
Meat, poultry and fish	95%	95%
Eggs	37%	36%
Dark green leafy vegetables	32%	31%
Other fruits and vegetables rich in vitamin A	90%	90%
Other vegetables	58%	55%
Other fruits	91%	89%

■ Light touch area, n=713   ■ Full intervention area, n=727

In all three surveys, the large majority of women had adequate dietary diversity: over 85 percent consumed foods from at least 5 food groups in the previous day (Figure 6.1.5). Unfortunately, the indicator declined slightly over time in the three surveys, from 88 percent in the baseline and midterm to 86 percent at endline. Looking at trends over time reveals some interesting differences by region and type of intervention. For example, among respondents from the original intervention areas (received full project intervention in year one; light touch in year two), the decline in MMD-W between surveys was significant, from 91 percent in the baseline to 88 percent at midterm, and 86 percent at endline. But these trends were almost completely driven by results from Batken, where the indicator declined from 92 percent to 89 percent to 86 percent in the three surveys. Results in Jalal-Abad intervention/light touch areas were not as discouraging, declining from 88 percent in the baseline and midterm surveys to 86 percent at endline. In the areas that were comparison areas in year one and full intervention in year two, results in the two regions were almost opposite. In Batken, results improved significantly in year one from 83 percent to 89 percent, but declined slightly in the endline to 87 percent. In Jalal-Abad on the other hand, that group declined across all three surveys, from 89 percent at baseline to 88 percent at midterm and 85 percent at endline.

Figure 6.1.5 Percentage of mothers who consumed more than 5 food groups, by survey, region, and type of intervention, endline N=1,440

ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours
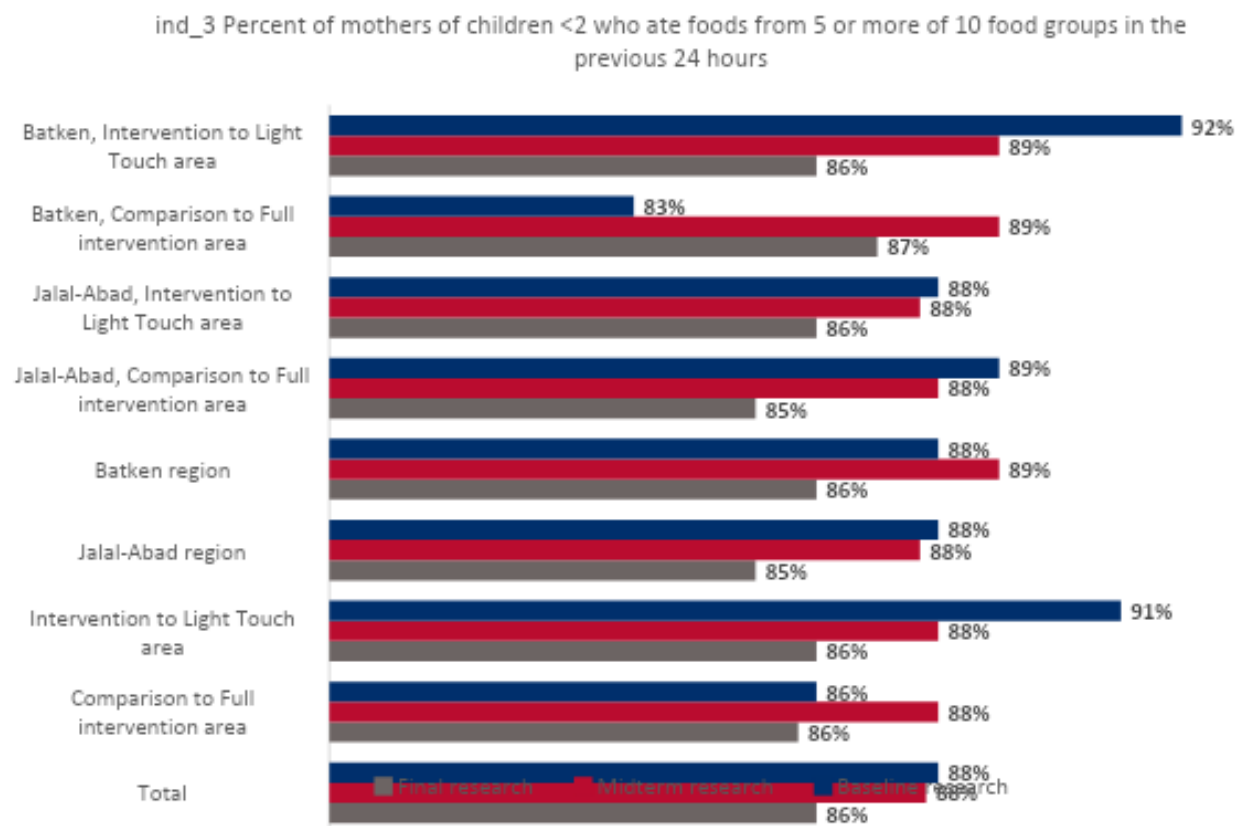
Looking at individual food groups, consumption of nuts and seeds increased by 8 percent since baseline, and meat, poultry and fish by 3 percent, both of which were statistically significant (p<0.01). Conversely, consumption of dairy products and "other vegetables" declined significantly. Further, despite the high overall levels of MDD-W, relatively small percentages of women reported eating foods from some nutrient-rich groups, such as dark green leafy vegetables (32 percent), eggs (36 percent) and beans (23 percent). These are potential areas for improvement as the Kyrgyz Republic MOH continues working to improve nutrition in the future.

Interestingly, the surveys showed a relationship between the age of the child and the mother's diet (Figure 6.1.6). In all three surveys, women with children aged 6–23 months were more likely to have a more varied diet than mothers of children aged 0–5 months. The difference was statistically significant (p<0.01). This may be due to possible stereotypes common among mothers that newborns are more prone to allergies or colic. Since the existing stereotypes were not the subject of baseline survey, this connection could be confirmed or refuted.

Figure 6.1.6 Percentage of respondents who consumed more than 5 food groups, by age group of children, endline N=1,440

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

To determine impact of the project on indicator number 3 (MDD-W) in the period between the midterm and endline surveys, we analyzed the change in the full intervention areas against changes in the Light Touch" areas for the difference in differences (DID) analysis. The following table presents the main DID results, overall and by region.

Table 6.1.2. Difference in differences analysis for indicator number3 (MDD-W)

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

Region	%, N	"Light Touch"			"Full intervention"			DID (% points)	Level of significance(p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	88,17%	85,83%	-2,34%	88,00%	85,56%	-2,44%	-0,11	0,97	no
	N	837	713	-124	850	727	-123	1		
Batken region	%	88,74%	85,82%	-2,92%	88,51%	86,74%	-1,77%	1,15	0,74	no
	N	453	416	-37	383	279	-104	-67		
Jalal-Abad region	%	87,50%	85,86%	-1,64%	87,58%	84,82%	-2,76%	-1,12	0,75	no
	N	384	297	-87	467	448	-19	68		

Trends shown in the table are somewhat discouraging, in that both types of intervention group declined in both regions between surveys, and the overall DID was negative. However, the changes were slight and not statistically significant. Further, even though there were some declines across all three surveys, it's important to note that in all cases, the large majority of women (85 percent or more) reported adequate dietary diversity in that they consumed foods from 5 or more food groups in the previous day. Therefore, despite the small declines, MMD-W does not appear to be an indicator of urgent concern at this time.

DID results are shown graphically in the following figure. As in Table 6.1.2 above, the graph shows decreases in MDD-W in both the full intervention and light touch areas, by similar amounts. The overall DID is very slightly negative (- 0.11 percentage points) and was not statistically significant.

Figure 6.1.7. DID summary for indicator 3 (MDD-W)

ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours
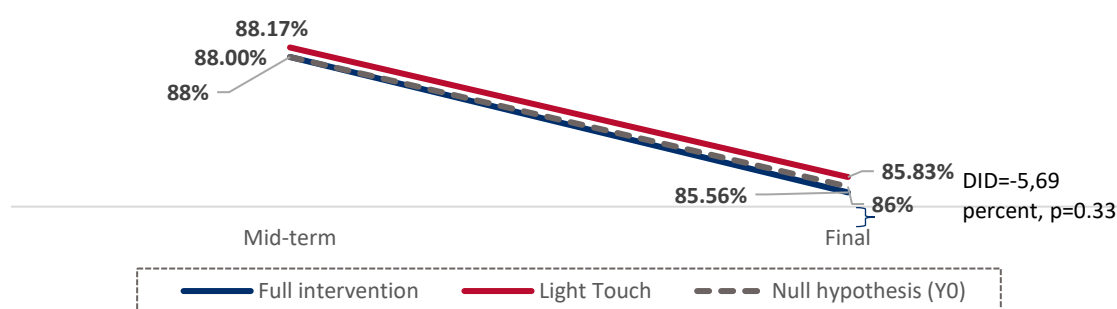
A regression model was also built for this indicator to assess whether and by how much select independent variables may have been associated with MDD-W. The dependent variable was the number of food groups out of 10 that the woman consumed, and the following were the independent variables:

- preparation/storage of any products for consumption last winter (question I1)

- number of visits to a health facility (D2)

- Internet access (J5)

- watching at least one TV commercial devoted to nutrition and hygiene issues during the previous 3 months (J4)

- education level (S5_years)

- getting information about the nutrition of pregnant women and mothers (K1a_6)

- getting advice from medical specialists on women's nutrition during pregnancy (D8_2)

- getting information about a rich and varied diet (K1a_3)

The R-square value for the full equation was 0.053, which showed a poor fit overall. Main results of the regression are shown in Table 6.1.3. Of the eight explanatory variables we used, three were found to be significant within the equation: receiving information about a rich and varied diet (0,041), receiving information about the nutrition of pregnant women and mothers (0,018), and receiving advice from medical specialists on women's nutrition during pregnancy (0,049). It is logical that these would be significant contributors to women's dietary diversity, and suggests that continuing providing such information through the health system would be beneficial for maintaining MDD-W at high levels.

Table 6.1.3. Summary for regression model No. 2 on the number of groups of 10 food groups consumed among mothers with children under 2 years of age

	Non-standardized coefficients		Standardized coefficients	t	Significance
	B	Standard error	Beta		
(Constant)	5,212	,512		10,175	,000
S5_years (education level)	,016	,030	,020	,526	,599
D2 (number of visits to a health facility)	-,002	,005	-,019	-,507	,613
K1a_3 (getting information about a rich and varied diet)	,346	,169	,085	2,045	,041
K1a_6 (getting information about the nutrition of pregnant women and mothers)	,563	,238	,100	2,369	,018
D8_2 (getting advice from medical specialists on women's nutrition during pregnancy)	,431	,219	,080	1,974	,049
J5 (Internet access)	,492	,265	,070	1,858	,064
J4 (watching at least one TV commercial devoted to nutrition and hygiene issues during the previous 3 months)	,003	,004	,024	,633	,527
I1 (preparation/storage of any products for consumption last winter)	,007	,011	,023	,612	,541

In conclusion, women's dietary diversity, as measured by the MDD-W indicator (our indicator number 3), has been at high levels in both Batken and Jalal-Abad regions across all surveys during the two-year period of this evaluation. More than 85 percent of mothers reported consuming foods from 5 or more food groups in all three surveys. There were some small declines between midterm and endline surveys, but they were minor and not statistically significant. The most common foods consumed were cereals, potatoes and "other fruits". Fewer than 10 percent of respondents ate duck meat, turkey, goat, turnips, zucchini and lentils. Consumption of nuts and seeds increased since the baseline by 8 percent, and meat/poultry/fish increased by 3 percent. Conversely, dairy products and "other vegetables" declined significantly. Variables such as receiving information about a rich and varied diet, obtaining information about the nutrition of pregnant women and mothers, and receiving advice from medical specialists on women's nutrition during pregnancy, were found to be significant predictors of women's dietary diversity according to the regression analysis we carried out.

6.2. Indicators related to infant and young child feeding

In this section, we explore many aspects of IYCF, including breastfeeding, children's dietary diversity and feeding frequency, and consumption of sugary and processed foods. We also include information on how the border conflict with Tajikistan may have affected household food consumption. The sample size for the modules in this section was 1,928 women.

6.2.1. Breastfeeding practice

Breastfeeding is a natural physiological process; it is the next step to good nutrition after pregnancy and childbirth. Both mother and child are equally in need of breastfeeding. Breastfeeding allows the mother to recover faster after childbirth, and strengthens the bond between the child and the mother. From birth to 5 months, breast milk is sufficient for a full-fledged diet, containing 100 percent of the nutrients needed by the child. Mother's milk contains the optimal amount of proteins, fats, carbohydrates needed for growth and full development, as well as antibodies that protect the baby from infections. For these reasons, breastfeeding is essential for the full development of a child, and should be the only food the child receives during her or his first six months of life.

According to the endline survey data, the vast majority of women (88 percent) living in Batken and Jalal-Abad regions gave birth in a government maternity facility. Most of the rest (11 percent) gave birth in a government hospital, with the remainder (1 percent) giving birth in a private hospital or at home or on the road (0.3 percent).

Figure 6.2.1.1. Place of birth of the child, endline N=1928

F1 Where did you give birth?

- Government hospital
- Government maternity
- Private hospital/maternity
- Other (Specify)

1%   0.4%
11%
88%
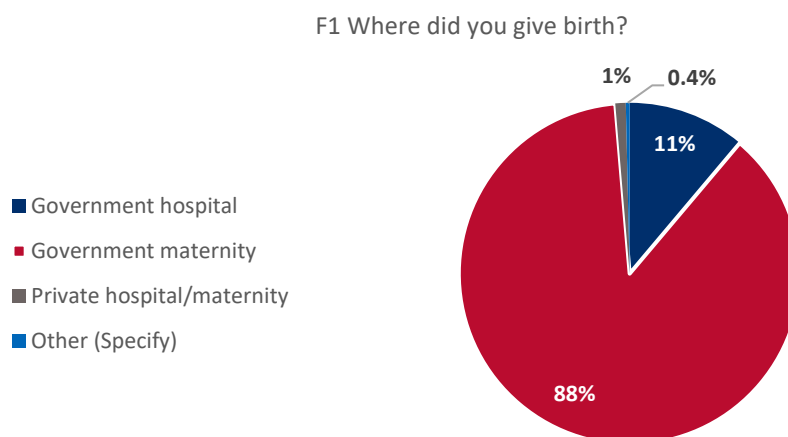
The "Other" category includes the place of birth of children at home and on the road.

Early Initiation of Breastfeeding (Indicator 10)
The attachment of a newborn to the breast within the first hour after birth is considered an early start of breastfeeding. Such early feeding improves newborn survival rates to a greater extent than starting breastfeeding in subsequent hours and days. Because of this, the percentage of women who put baby to breast within the first hour after birth was one of the indicators measured by these surveys (indicator number 10). Endline results showed that 67 percent of women began breastfeeding within the first hour after birth, a statistically significant increase from baseline levels of 63 percent (p<0.01), but a slight decrease from the midterm survey. Approximately one quarter of respondents in the endline (14 percent) said they put the baby to breast after the first hour but on the first day after birth. A small percentage of women (6 percent) said they began breastfeeding their baby after 1-2 days (Figure 6.2.1.2).

Figure 6.2.1.2. How soon after giving birth for the first time the newborn was attached to the breast, baseline N=2,086, midterm N=2,228, endline N=1,922

F3 How long after birth did you first put (NAME) to the breast?

■ Baseline research, n=2086	■ Midterm research, n=2228	■ Final research, n=1922
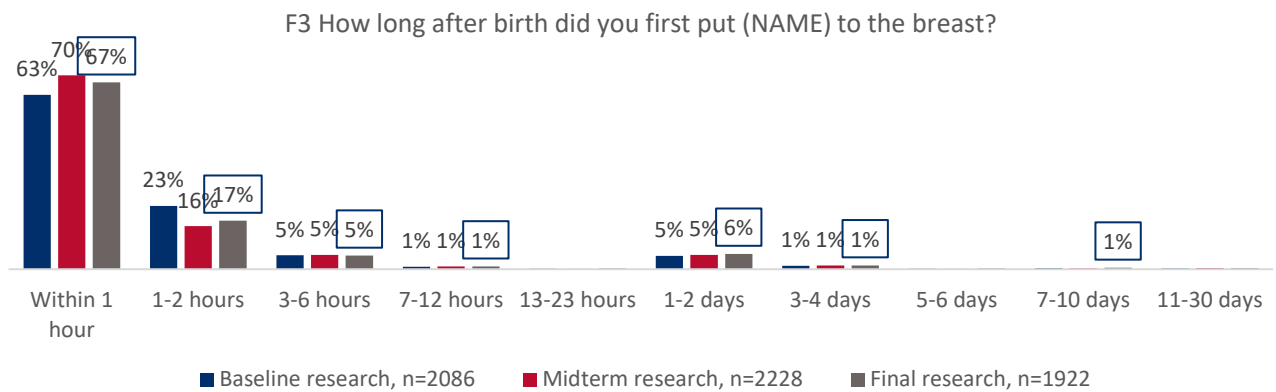
In addition, as in the baseline and midterm surveys, significant differences were found in early breastfeeding in terms of the gender of the child, and the age and education of the mother. Girls were put to the breast in the first hour 6 percent more often than boys (p<0.01). In addition, 62 percent of mothers who put baby to breast in the first hour were aged 18-24 years, 67 percent were aged 25-29 years, 71 percent were 30-39 years, and 61 percent were 40-49. A similar relationship was observed in the baseline and midterm surveys.

Figure 6.2.1.3. Percentage of children under 2 years old who were put to breast during the first hour after birth, by age of the mother, baseline N=2086, midterm N=2228, endline N=1922

ind_10 Percent of children 0-23 months who were put to breast within one hour of birth

■ Baseline research	■ Midterm research	■ Final research
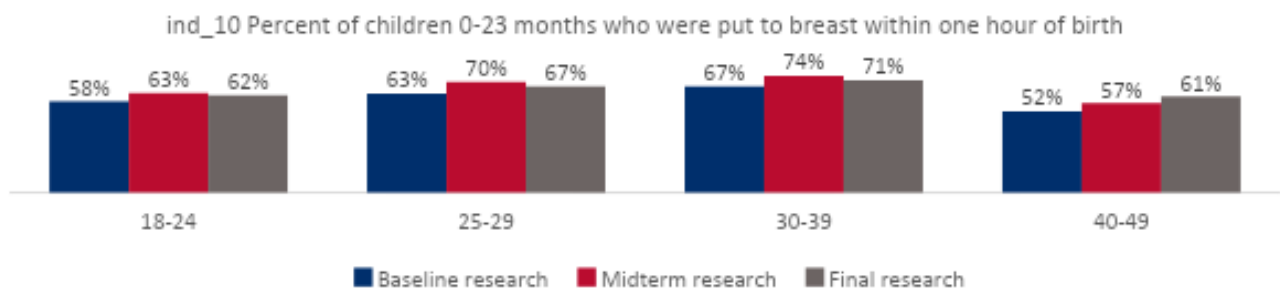
Figure 6.2.1.4 shows the percentage of children put to breast within one hour of birth by region and by type of intervention. There was slight variation between the groups. For example, in Batken, the indicator was substantially higher in Full Intervention areas compared to Light Touch, while in Jalal-Abad, the reverse was true.

Figure 6.2.1.4. Percentage of children under 2 who were put to breast during the first hour after birth, by region and type of intervention, endline N=1922
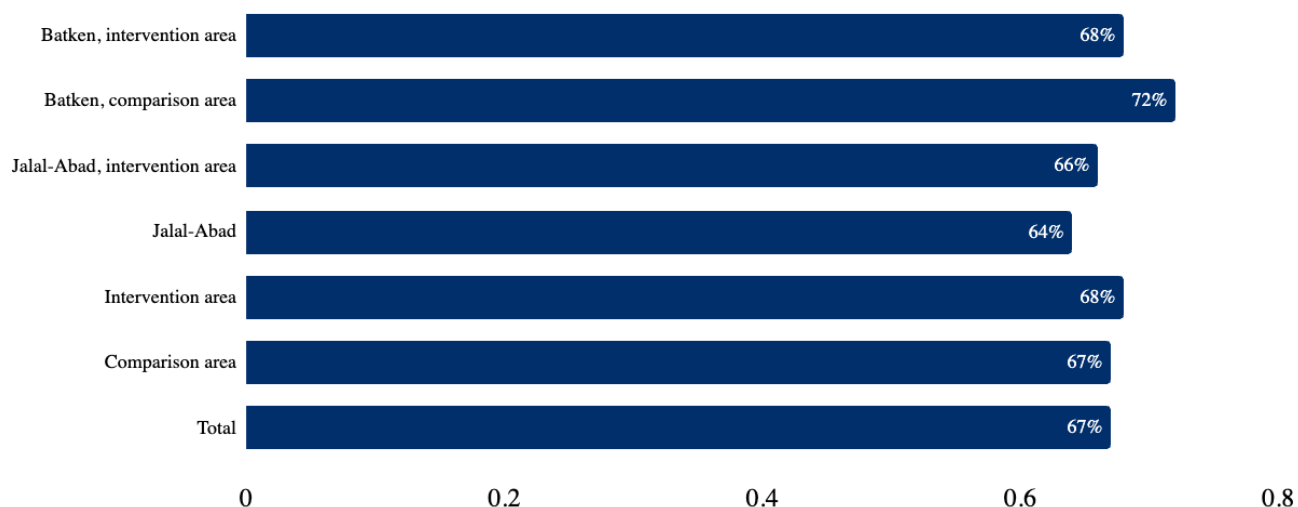
Table 6.2.1.1 shows results of the DID analysis for this indicator 10, comparing midterm to endline results. Results show slight declines in most groups between midterm and endline surveys, but smaller declines in the Full Intervention areas compared to Light Touch, indicating slightly better results in the Full Intervention zones. However, none of the changes, or DIDs, were significant.

Table 6.2.1.1. Main DID information for indicator number 10

ind_10 Percent of children 0-23 months who were put to breast within one hour of birth

Region	%, N	Light Touch			Full intervention			DID (% point change)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	70,77%	67,72%	-3,05%	69,06%	67,04%	-2,02%	1,03	0,72	no
	N	1129	951	-178	1099	971	-128	50		
Batken region	%	73,39%	68,48%	-4,90%	75,35%	72,37%	-2,98%	1,92	0,63	no
	N	605	587	-18	499	380	-119	-101		
Jalal-Abad region	%	67,75%	66,48%	-1,26%	63,83%	63,62%	-0,21%	1,05	0,81	no
	N	524	364	-160	600	591	-9	151		

Figure 6.2.1.5 shows the same information graphically.

Figure 6.2.1.5. Summary of DID results for indicator 10

ind_10 Percent of children 0-23 months who were put to breast within one hour of birth

70.77% 69.06% 69% 67.72% 66% 67.04%

DID=1,03 percent, p=0.72

Mid-term   Final

— Full intervention   — Light Touch   - - - Null hypothesis (Y0)
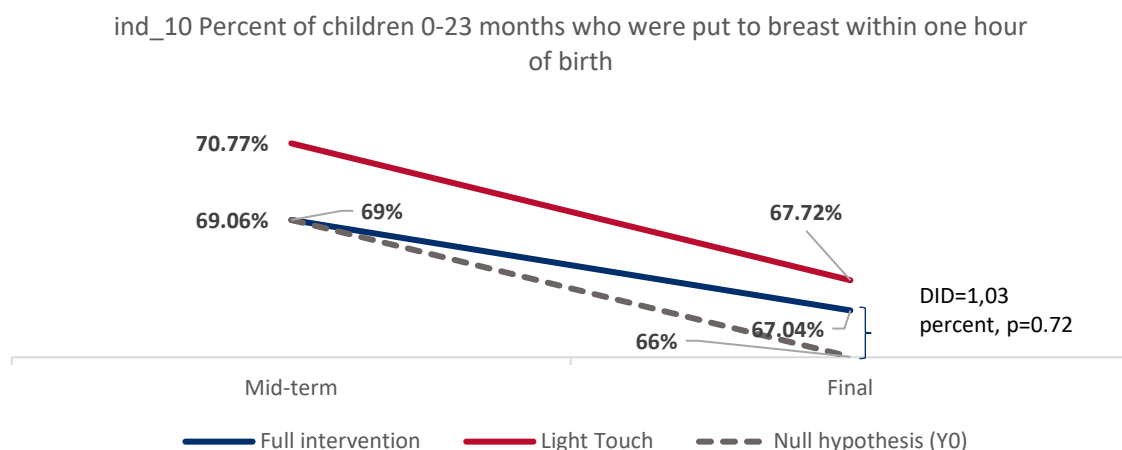
Indicator 10 was also one of the indicators for which we carried out a regression analysis. Question F3 (*How long after birth did you first put (NAME) to the breast?*) was selected as the dependent variable, where values of 1 were assigned to the answers: "within 1 hour after giving birth" and "1 hour after giving birth", and the rest of the answers were assigned a zero value. The following questions were selected as independent variables:

- watching at least one TV commercial on nutrition and hygiene during the previous 3 months (J4)

- getting advice from medical specialists on breastfeeding (D8_11)

- Internet access (J5)

- number of visits to a health facility (D2)

- level of education (S5_years)

- receive information about the need for a nutrient-rich and varied diet (K1a_1)

With this model, the R-squared measure was 0,006 which indicates a poor fit for the full equation. When we look at bivariate results for individual independent variables, we find that none were significant. More research would be needed to determine which variables are significantly associated with early initiating of breastfeeding to provide evidence on areas to focus on in future programming.

Table 6.2.1.2. Regression results for indicator 10 (early initiation of breastfeeding). Endline survey.

Model	Non-standardized coefficients		Standardized coefficients	t	Significance
	B	Standard error	Beta		
(Constant)	,626	,129		4,854	,000
S5_years (level of education)	,008	,007	,039	1,010	,313
D2 (number of visits to a health facility)	,001	,001	,048	1,252	,211
K1a_1 (receive information about the need for a nutrient-rich and varied diet)	-,032	,060	-,021	-,534	,593
D8_11 (getting advice from medical specialists on breastfeeding)	-,008	,083	-,004	-,096	,924
J5 (Internet access)	,015	,066	,009	,224	,822

J4 (watching at least one TV commercial on nutrition and hygiene during the previous 3 months)	,001	,001	,042	1,110	,267
a. Dependent variable: F3_regr					

Liquids provided to infants in the first three days

Before childbirth and in the first days after childbirth, the "first milk" or colostrum, is released from the mammary glands of women which is very rich in immune factors and is of great value for the health of the newborn. Colostrum, even in a small amount, allows mothers to feed their infant and give all the necessary components for optimal development. 98 percent of the women surveyed fed newborns colostrum during the first three days after birth. This indicator remained unchanged across all three surveys.

The World Health Organization does not recommend giving newborn babies any foods or liquids other than breast milk during the first six months of life. However, in the endline survey, 12 percent of respondents reported giving their child other liquids in addition to breast milk during the first three days after birth. Endline levels were slightly better (lower) than at baseline, but not significantly so. As shown in Figure 6.2.1.6, there was a significant difference between regions in the endline survey, with more women in Jalal-Abad giving other liquids besides breast milk (3 percentage point difference).

Figure 6.2.1.6. Feeding newborns with other fluids during the first three days after birth, endline N=1922

F5 In the first three days after delivery, was (NAME) given anything to drink other than breast milk?

No — 86.2% / 88.9%
Yes — 13.3% / 10.4%

■ Jalal-Abad region, n=955   ■ Batken region, n=967
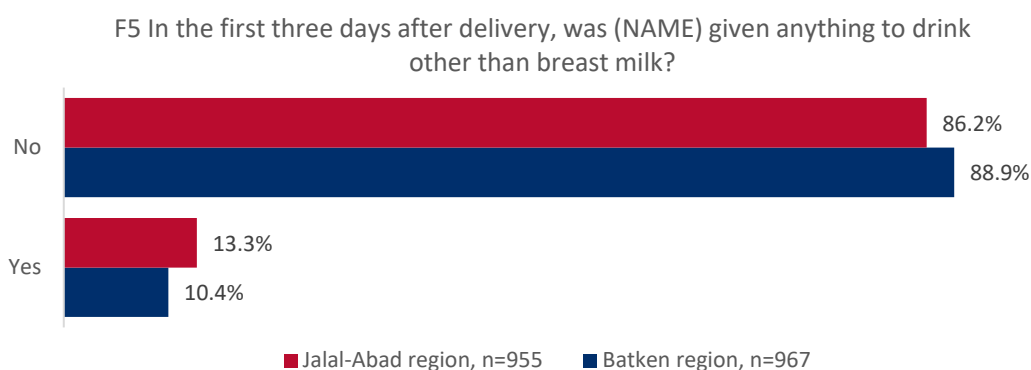
Of the women who give newborns other liquids than breast milk, 86 percent gave formula for infant, 9 percent plain water, 5 percent water with sugar or glucose, 4 percent milk (not breast milk) and 3 percent of women give other liquids, including sugar-salt solution, tea/tinctures (multiple answers allowed). Compared with baseline results, there was a significant increase in the use of infant formula in the first 3 days after birth. This is a concern for the MOH going forward, even if levels are low. Figure 6.2.1.7 shows which liquids were given to infants other than breast milk during the first 3 days after birth. Note that the figures are out of the 12 percent of women who said they gave something other than breast milk, so the sample size and absolute numbers in the figure are relatively small. Nevertheless, since the increase in use of formula was significant, it is worth watching and working to prevent formula use in the future.

Figure 6.2.1.7. Types of fluids given to newborns in the first three days (from among those who gave other fluids or products), baseline N=257, endline N=228

$F6 What liquid did you give?

- Milk (other than breastmilk): Baseline 2%, Final 4%
- Plain water: Baseline 12%, Final 9%
- Sugar or glucose water: Baseline 4%, Final 5%
- Gripe water: Baseline 0%, Final 0%
- Sugar-salt-water solution: Baseline 1%, Final 0%
- Fruit juice: Baseline 0%, Final 0%
- Infant formula (for instance, "malysh", "malutka" etc.): Baseline 76%, Final 86%
- Tea / infusions: Baseline 1%, Final 0%
- Other: Baseline 9%, Final 1%

■ Baseline research ■ Final research

It is also noteworthy that women who were forced from their place of residence due to the Kyrgyz-Tajik conflict at the border were 2 percent more likely to give other liquids in the 3 days after birth, which was statistically significant (p<0.05).

Continued breastfeeding (indicator 13)

All participants who were asked questions in the breastfeeding module were asked if they were still breastfeeding their baby. All mothers of children under 6 months of age (100 percent) and 86 percent of mothers of children aged 6–23 months reported that they are still breastfeeding. Not surprisingly, these figures were significantly lower in the case of children older than 12 months. Thus, in the endline survey, 17 percent of mothers of children aged 12-17 months and 40 percent of mothers with children aged 18-23 months report that they are no longer breastfeeding (Figure 6.2.1.8).

Figure 6.2.1.8. Does the woman continue to breastfeed, endline N=1,922

F7 Are you still breastfeeding?

- 0-5 months, n=681: Yes 100%, No 0%
- 6-11 months, n=684: Yes 97%, No 3%
- 12-17 months, n=302: Yes 83%, No 17%
- 18-23 months, n=255: Yes 60%, No 40%

■ Yes ■ No
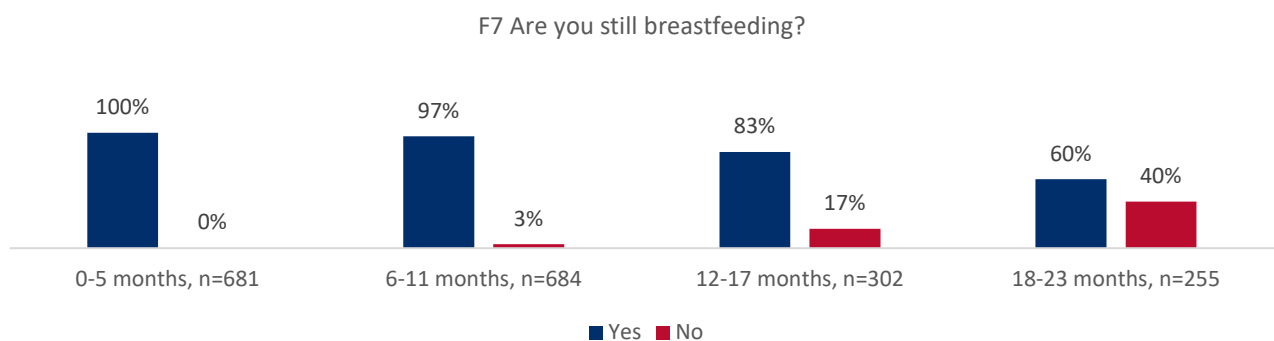
It is noteworthy that in the previous two surveys in Jalal-Abad region, there was significantly longer breastfeeding of boys aged 6–23 months than girls. However, in the endline survey, the picture changed a lot. In Jalal-Abad region in the endline, girls aged 6–23 months were fed 5 percent more than boys, which was a statistically significant difference (p<0.01). In Batken, on the other hand, the percentage of boys aged 6–23 months and still being breastfed increased. Figure 6.2.1.9 shows the breakdown of males and females still breastfeeding by region.

Figure 6.2.1.9. Percentage of children aged 6–23 months still breastfed, by gender and region, endline N=1,241

ind_13 Percent of children 6–23 months who are still breastfeeding
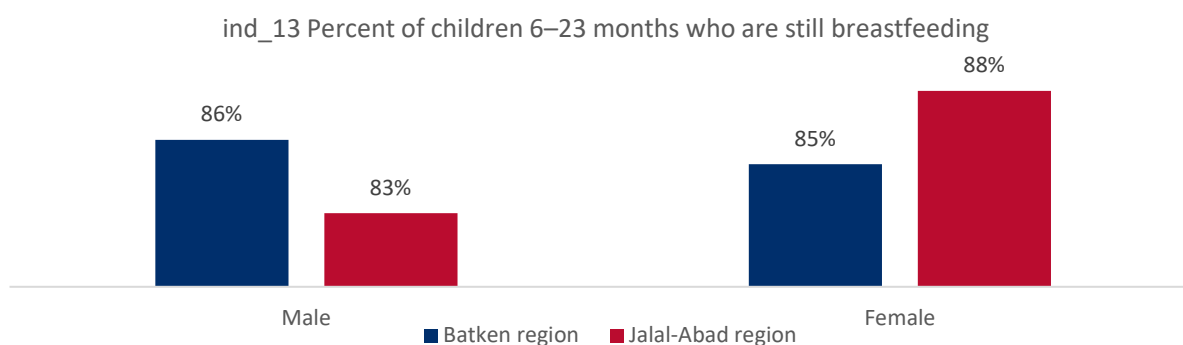
After analyzing the differences between the light touch and full intervention groups in the number of children aged 6–23 months who are still breastfed, we calculated DID values by region and overall. The overall DID was 1,69 percent.

The following table presents the main information for indicator number 13, by survey, type of area, and region. In this case, the indicator improved in all cases between midterm and endline, but the changes were small and none of the DIDs were statistically significant.

Table 6.2.1.3. Summary of DID information for indicator number 13

ind_13 Percentage of children aged 6–23 months who are still breastfeeding

Region	%, N	Light Touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	83,66%	85,43%	1,78%	82,56%	86,03%	3,47%	1,69	0,54	no
	N	777	611	-166	780	630	-150	16		
Batken region	%	85,31%	86,13%	0,82%	83,93%	85,13%	1,20%	0,38	0,92	no
	N	388	375	-13	392	269	-123	-110		
Jalal-Abad region	%	82,01%	84,32%	2,32%	81,19%	86,70%	5,52%	3,20	0,44	no
	N	389	236	-153	388	361	-27	126		

The following figure shows the same information graphically.

Figure 6.2.1.10. Summary of DID information for indicator 13

ind_13 Percent of children 6–23 months who are still breastfeeding

86.03%

DID=1,69
percent,
p=0.54

85.43%

83.66%

84%

83%

82.56%

Mid-term

Final

Full intervention ——— Light Touch ——— Null hypothesis (Y0)
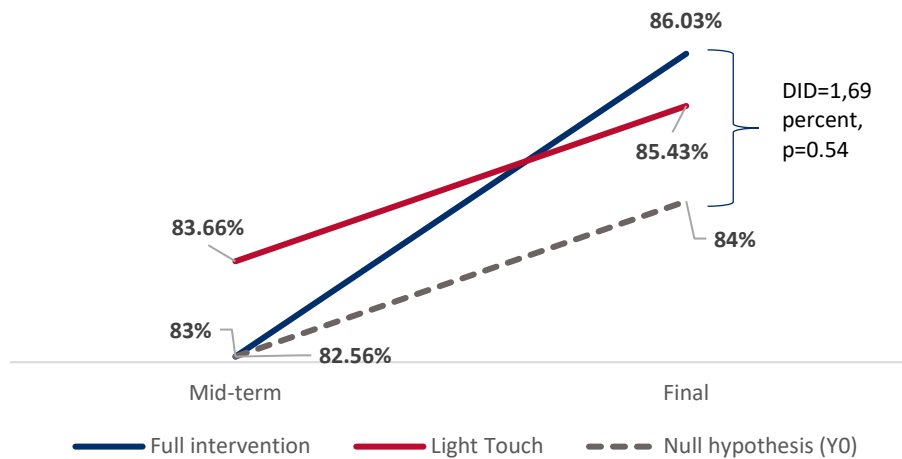
The most common reasons for stopping breastfeeding were pregnancy (31 percent), mother's illness or treatment with antibiotics (13 percent), a lot of or little milk (11 percent), and the mother's necessary to return to work (12 percent). The latter reason increased by 5 percent since baseline and midterm surveys, but the difference was not statistically significant. Pregnancy remained the main reason for stopping breastfeeding throughout the evaluation period. The "Other*" category included the following answers of the respondents: they started to feed food/ the child began to eat food well, he refused at 9 months (10 percent), the child grew up (4 percent), child get sick (2 percent), while breastfeeding the child did not want to eat other food/ accustomed to complementary foods (1 percent). Figure 6.2.1.11 show the reasons for stopping breastfeeding, by type of intervention area.

Figure 6.2.1.11. Reasons for stopping breastfeeding by type of intervention area, endline N=179

$F7_1 What was the reason for stopping breastfeeding?

Reason	Light Touch area, n=89	Full intervention area, n=90
Little or a lot of milk	11%	11%
Too liquid milk	0%	2%
Pain during feeding	6%	4%
Due to illness of the mother or her treatment with antibiotics	13%	13%
Diseases of the breast during breastfeeding (mastitis, lactostasis, etc.)	3%	1%
Milk intolerance of a child	2%	1%
The baby could not suck	0%	3%
Could not put correctly to the breast	0%	0%
Lack of support from family members	1%	0%
No time for breastfeeding, it is necessary to return to work	11%	12%
Got pregnant, therefore, I stopped the breastfeeding	30%	32%
Other (specify)	10%	11%
the child has grown	6%	2%
the child stopped eating / stopped eating solid foods	0%	0%
The mother began to feed food/ the child began to eat food well, refused to breastfeed at 9 months/ started eating early	8%	12%
Accustomed to food/ child did not want to eat other food during breast-feeding /mother had to breast-feed all time/the c	1%	1%
I wanted to accustom the child to additional foods / to start eating food / switch to additional foods	0%	2%
Child becomes ill/ stomach ache	3%	1%

■ Light Touch area, n=89 ■ Full intervention area, n=90

Bottle feeding - all ages

When asked if the child drank anything from a bottle with a nipple, a third of the women surveyed at the endline (32 percent) gave a positive answer. This figure was higher in Jalal-Abad (34 percent) than Batken (30 percent). These results are shown in Figure 6.2.1.12 and 6.2.1.13. These figures are relatively high and represent an are to be addressed in future nutrition programs.

Figure 6.2.1.12. Percentage of children who drank from a bottle with a nipple, by survey

F9 Did (NAME) drink anything from a bottle with a nipple within the last day (24 hours)?

	Yes	No
Baseline research, n=2091	35%	65%
Midterm research, n=2234	34%	66%
Final research, n=1928	32%	68%
Total, n=6523	34%	66%

■Yes ■No
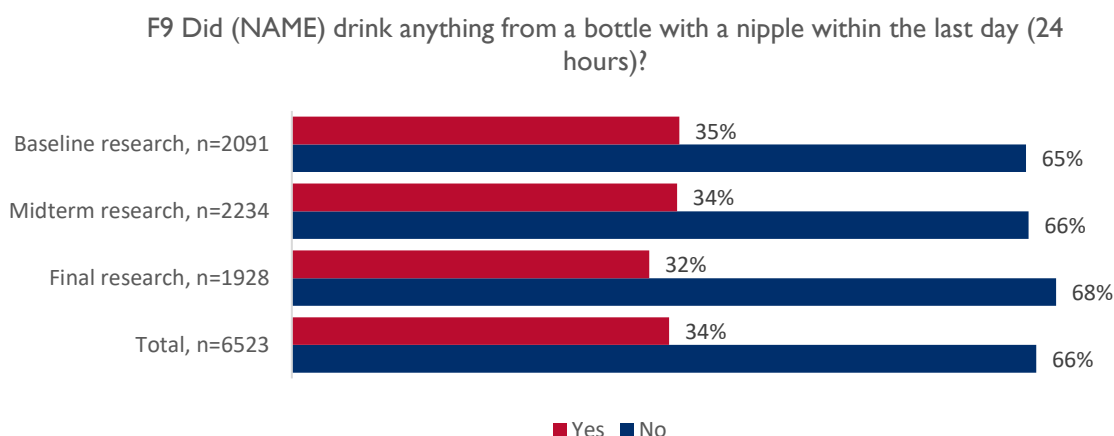
Figure 6.2.1.13. Percentage of children who drank from a bottle with a nipple, by region and type of intervention area. Endline survey. N=1,925

F9 Did (NAME) drink anything from a bottle with a nipple within the last day (24 hours)?

	Yes	No
Batken, Intervention to Light Touch area	32%	68%
Batken, Comparison to Full intervention area	32%	68%
Jalal-Abad, Intervention to Light Touch area	35%	65%
Jalal-Abad, Comparison to Full intervention area	36%	64%
Batken region	32%	68%
Jalal-Abad region	35%	65%
Intervention to Light Touch area	33%	67%
Comparison to Full intervention area	34%	66%
Total	34%	66%

■Yes ■No

Exclusive breastfeeding (Indicator 11)

WHO recommends that women exclusively breastfeed their infant children for the first 6 months of life. In our endline survey, 58 percent of mothers of children 0–5 months of age exclusively breastfed their children, while the remaining 42 percent gave other foods and liquids. This indicator (number 11) improved significantly by 8 percent since the baseline survey, which was statistically significant (p<0.01). Further, between baseline and midterm, improvement in intervention areas was significantly better than in comparison villages, and similarly, between midterm and endline, the indicator improved significantly more in Full Intervention areas than the Light Touch villages. There are significant (99.11 percent) differences in the practice of EBF in the areas of light touch and full intervention: No significant geographic, gender, or age differences in EBF among infants under six months of age were observed in the endline survey. Results are summarized in Figure 6.2.1.14 below.

Figure 6.2.1.14. Percentage of children aged 0–5 months receiving exclusive breastfeeding by region

ind_11 Prevalence of exclusive breastfeeding of children under six months of age

Baseline research, N=545 — 49% / 52%
Midterm research, N=672 — 55% / 40%
Final research, N=681 — 55% / 62%

■ Intervention to Light Touch area   ■ Comparison to Full intervention area
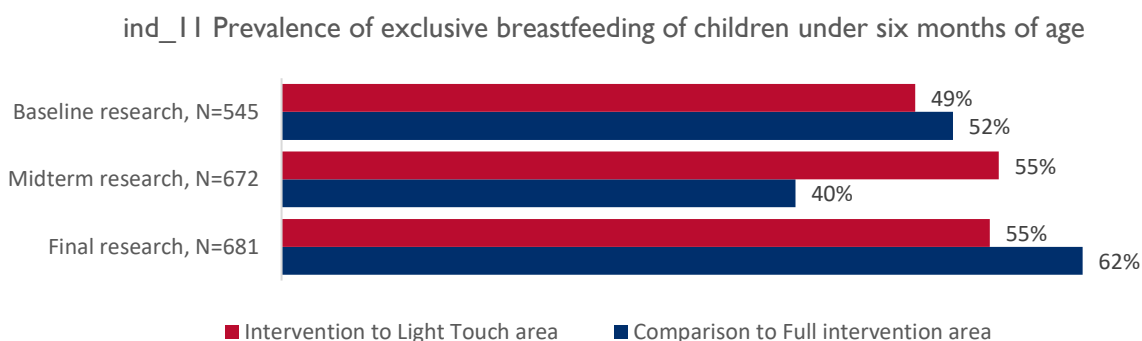
Table 6.2.1.4 and Figure 6.2.1.15 show the DID analysis for exclusive breastfeeding. The results are statistically significant and very positive, with an overall DID between midterm and endline of 22.88 percentage points, which was statistically significant at p<0.01. This analysis showed that in the full intervention area, since the start of the intervention, there were significant improvements in EBF among children aged 0–5 months, while the indicator declined slightly in the Light Touch areas. Similar trends occurred between baseline and midterm, but in that case it was the intervention areas increasing significantly while EBF actually declined in comparison areas. All of these results are very encouraging and suggest that the project's activities likely had a direct and positive impact on this important nutrition practice.

Table 6.2.1.4. Summary of DID information for indicator number 11

ind_11 Prevalence of exclusive breastfeeding of children under six months of age

Region	%, N	"Intervention to Light Touch"			"Comparison to Full Intervention"			DID (% points)	Level of significance (p-value)	
		Midterm	Fin	Diff	Midterm	Fin	Diff			
Total	%	55,40%	54,71%	-0,69%	39,69%	61,88%	22,19%	22,88	0,00	**
	N	352	340	-12	320	341	21	33		
Batken region	%	59,45%	56,13%	-3,31%	41,67%	60,36%	18,69%	22,01	0,01	**
	N	217	212	-5	108	111	3	8		
Jalal-Abad region	%	48,89%	52,34%	3,45%	38,68%	62,61%	23,93%	20,47	0,01	**
	N	135	128	-7	212	230	18	25		

Figure 6.2.1.15. Summary of DID results for indicator 11

ind_11 Prevalence of exclusive breastfeeding of children under six months of age
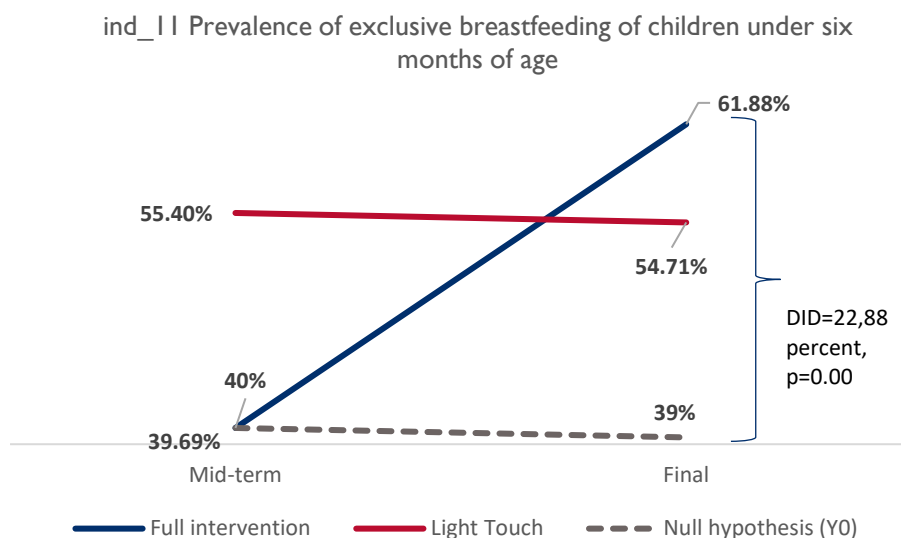
For a more in-depth analysis of indicator 11 (EBF), the research team built a regression model with EBF as the dependent variable. Results are shown in Table 6.2.1.5. The independent variables we used included:

- obtaining information about breastfeeding (K1a-1)
- obtaining advice from medical specialists on breastfeeding (D8-11)
- knowledge of the practice of exclusive breastfeeding up to 6 months (K2_1=2)
- Internet access (J5)
- number of visits to a health facility (D2)
- level of education (S5_years)

The R-square value of this model was 0,33, which indicates a poor fit of the overall equation. Of the independent variables in the overall equation, knowledge of EBF up to 6 months was the only significant predictor of EBF practice ($p < 0.05$). This may indicate that the project's success in influencing EBF was mostly a matter of improving knowledge about it, and continuing to provide information about EBF would be important for future programs, especially for young couples who are about to have children and who might not have been exposed to EBF messages to date.

Table 6.2.1.5 provides a summary of the regression results.

Summary of the regression model for EBF (indicator 11)

Model		Non-standardized coefficients		Standardized coefficients	t	Significance
		B	Standard error	Beta		
1	(Constant)	,331	,312		1,061	,291
	S5_years (level of education)	,001	,017	,007	,082	,935
	D2 (number of visits to a health facility)	,001	,003	,028	,353	,725
	K1a_1 (obtaining information about breastfeeding)	,087	,133	,053	,651	,516
	D8_11 (obtaining advice from medical	,026	,149	,014	,172	,863

specialists on breastfeeding)					
J5 (Internet access)	-,056	,169	-,026	-,329	,743
K2_1 (knowledge of the practice of exclusive breastfeeding up to 6 months)	,237	,118	,161	2,005	,047
a. Dependent variable: ind_11					

Summarizing this subchapter, there were many positive results related to breastfeeding practices. Breastfeeding in general is very widely practiced among survey participants. Over two-thirds (67 percent) of women put their baby to the breast in the first hour after birth, with levels somewhat higher in Batken (70 percent) than in Jalal-Abad (65 percent). 98 percent of the women surveyed in the final stage fed newborns with colostrum during the first three days after birth. On the other hand, 12 percent of the women surveyed fed their newborns not only breast milk, but also other liquids, such as infant formula, plain water, water with sugar or glucose during the first 3 days after birth. 100 percent mothers of children under 6 months of age and 86 percent mothers of children aged 6–23 months reported that they were still breastfeeding. Pregnancy was the main reason cited for stopping breastfeeding in all three surveys. When asked if their child drank anything from a nipple bottle, 32 percent of those surveyed said they did. Especially positive results were seen with exclusive breastfeeding. Not only did EBF increase significantly since the baseline and midterm surveys in the overall sample, from 50 percent at baseline to 58 percent at endline, but almost all of the improvements came in the full intervention groups. According to the DID analysis, EBF was the indicator where the project seems to have had the greatest impact in improving the desired behavior.

6.2.2. Diversity of intake of foods and liquids by children during the last 24 hours

Liquids consumed by children

To achieve optimal growth and development of children, WHO recommends breastfeeding as an exclusive source of nutrition for the first six months of life. The consumption of any liquids and solids other than breast milk at this age is unnecessary and even harmful to the health of the child (World Health Organization. No date. Electronic library of data on the action in the nutrition area. http://www.who.int/elena/titles/en/). At the same time, children above 6 months should be given certain soft and semi-solid foods and liquids apart from breast milk; they provide additional sources of nutrients. To define the diversity of liquids intake of children in different age categories, we asked mothers to recall what liquid their children have received in the last 24 hours.

The table below (6.2.2.1) shows how children of both age groups consume different liquids for all stages of the project evaluation. Plain water was by far the liquid most consumed by children 0–5 months of age, followed by tea, and infant formula (especially in Jalal-Abad comparison/full intervention areas). Fortunately, consumption of all three of those kinds of liquids declined substantially between baseline and endline among the 0–5 month age group, in all types of intervention group except in the light touch area of Jalal-Abad, where consumption of infant formula increased from 10 percent to 16 percent in the youngest age group. Among the older age group of 6–23 months, consumption of most types of liquids did not change very much across surveys, except for animal milk and tea, whose consumption declined markedly in all groups. Consumption of sugar-sweetened beverages also declined in all groups, though by a smaller amount. Less consumption of tea and sweetened beverages among both age groups is a positive result. Animal milk is healthy as a complementary food, so less consumption by children in the 6–23 month age range may be a negative result.

Table 6.2.2.1. Fluid intake by children 0–5 and 6–23 months by region and type of area, baseline N=2,091, midterm N=2,234, endline N=1,928

Name of Liquid	Baseline/ Midterm/ Endline	Batken Region				Jalal-Abad Region			
		Intervention- Light touch Area		Comparison- Full intervention Area		Intervention -Light touch Area		Comparison- Full intervention Area	
		0–5	6–23	0–5	6–23	0–5	6–23	0–5	6–23
Breast milk	Baseline	99%	83%	100%	85%	100%	77%	97%	82%
	Midterm	100%	84%	97%	84%	99%	81%	98%	80%
	Final	100%	85%	99%	84%	97%	84%	100%	85%
Animal milk	Baseline	4%	21%	4%	19%	0%	19%	5%	24%
	Midterm	2%	13%	4%	19%	3%	12%	2%	15%
	Final	2%	12%	2%	15%	1%	12%	2%	14%
Plain water	Baseline	34%	87%	32%	85%	40%	85%	38%	84%
	Midterm	25%	83%	35%	86%	39%	78%	44%	83%
	Final	27%	83%	29%	84%	30%	79%	26%	82%
Commercially available infant formula	Baseline	10%	11%	10%	11%	10%	8%	14%	9%
	Midterm	6%	11%	10%	7%	11%	11%	16%	11%
	Final	9%	9%	7%	13%	16%	15%	10%	9%
Any fortified, commercially available food	Baseline	3%	20%	1%	22%	0%	22%	4%	22%
	Midterm	2%	23%	7%	20%	4%	21%	5%	18%
	Final	4%	15%	1%	18%	3%	24%	3%	18%
Tea	Baseline	13%	71%	16%	76%	12%	77%	12%	69%
	Midterm	10%	60%	18%	73%	7%	69%	12%	63%
	Final	9%	56%	10%	60%	9%	60%	6%	48%
	Baseline	5%	39%	7%	40%	1%	39%	6%	39%

Any sugar-sweetened beverages	Midterm	5%	44%	10%	54%	3%	52%	3%	46%
	Final	6%	35%	4%	36%	2%	35%	5%	35%
Any other liquids	Baseline	2%	16%	1%	16%	1%	13%	3%	15%
	Midterm	1%	6%	1%	7%	2%	9%	2%	10%
	Final	1%	4%	0% percent	6%	1%	8%	0%	8%

Tea consumption by children is not recommended. It is well known that tea contains tannin, which prevents iron absorption and can lead to iron deficiency anemia. According to the findings of other studies, tea also worsens the synthesis of Vitamin D in the organism which can lead to rickets development in children below 2 years (Feeding and nutrition of infants. WHO guidelines with a special focus on the countries of the former Soviet Union. https://www.euro.who.int/__data/assets/pdf_file/0005/98303/WS_115_2000FE_R.pdf). Besides, tea consumption is harmful for the tooth enamel and can cause allergic reactions and rashes in children. In Table 6.2.2.1, tea ranks fourth in the prevalence of liquid consumption among children aged 0–5 months and third among children aged 6–23 months. The majority (55 percent) of children aged 6–23 months consumed tea in the previous 24 hours in the endline survey, but that was 18 percentage points less than baseline levels (p<0.01). Endline consumption was much lower among infants aged 0–5 months (8 percent), but even that level is of concern as it is being provided at the ages when the infant should be exclusively breastfed. Over the course of the three surveys, tea consumption among children aged 0–5 months declined significantly by 5 percentage points (p<0.01). Trends in tea consumption in both age groups (indicator number 11) are shown in Figure 6.2.2.1 below.

Figure 6.2.2.1. Percentage of children 0–5 and 6–23 months who consumed tea in the previous 24 hours, baseline N=2,091, midterm N=2,234, endline N=1,928

ind_16_1 Percent of children 0–5 and 6–23 months who consumed tea in the previous 24 hours
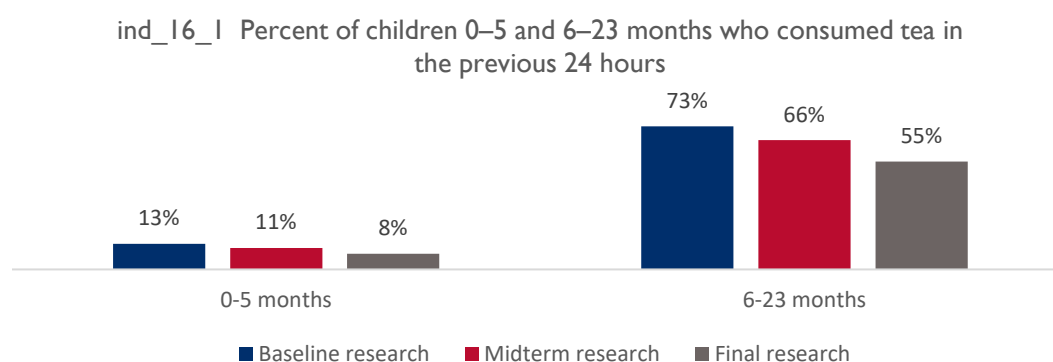
Figure 6.2.2.2 shows levels of tea consumption by survey, region, and type of intervention. Differences between types of intervention were significant at the 99 percent level. Care must be taken when interpreting the figure, because of the way the types of interventions changed between years 1 and 2. For example, looking at the first two rows of the figure, between baseline and midterm tea consumption declined from 10 percent to 13 percent in the intervention area, but increased in the comparison areas where no project activities took place. This may be considered a very positive result, because the implication is that there may have been national level trends of infants drinking more tea, but in the areas where the project worked, tea consumption declined. Then in year 2, the original Batken intervention area became light touch, while the initial comparison area received Full Interventions in year 2. Thus between midterm and endline, we see a very small decline in the light touch areas from 10 percent to 9 percent, but a major, significant decline in the full intervention areas from 18 percent to 10 percent. Results were similar in Jalalabad. No other significant differences were found with regard to gender or mother's age. Overall, these results were among the most positive achieved by the project over the course of the two years.

Figure 6.2.2.2. Percentage of children 0–5 months and 6–23 months who consumed tea in the previous 24 hours, by region and type of area, baseline N=2,091, midterm N=2,234, endline N=1,928
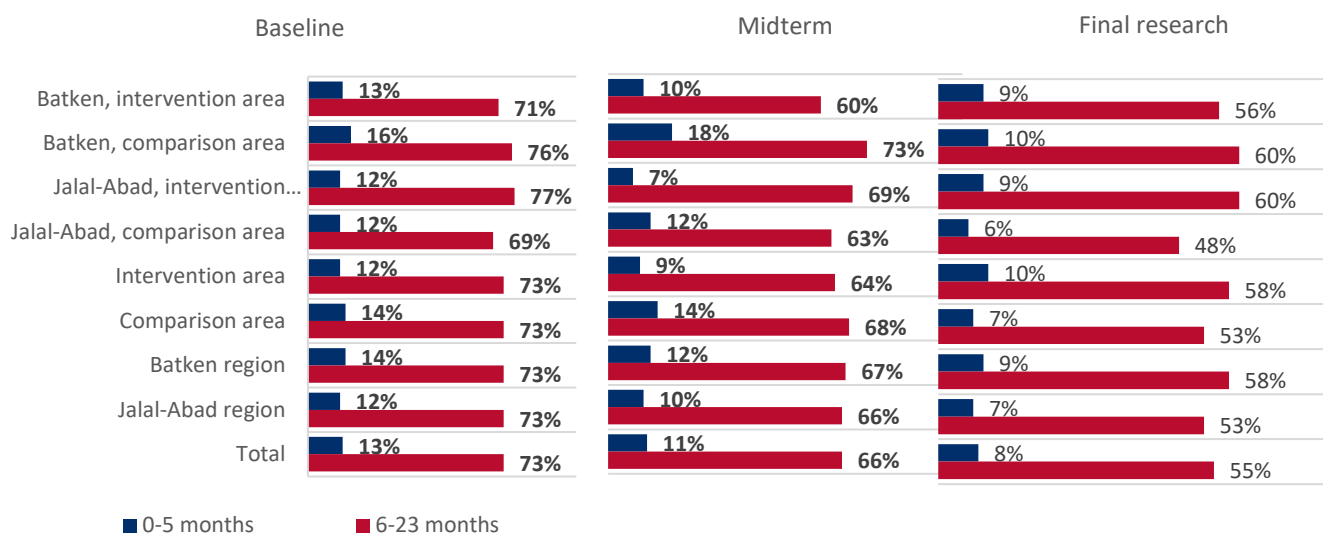
As with the other outcome indicators measured by the impact evaluation, we used the DID method to track the significance of changes between midterm and final levels, and to what extent the findings could be attributed to the project. Results are shown in Table 6.2.2.2 below. The table shows results for both age groups. For both ages, the indicator declined in both regions and intervention types, except Light Touch in Jalal-Abad and Light Touch overall. Further, the size of the declines between midterm and endline surveys were larger in the full intervention areas than light touch, suggesting that the full intervention activities were more effective than light touch. This is illustrated by negative DID values in all cases (in this case negative is desired because we want the indicator to decline.

Table 6.2.2.2. Main DID information for indicator number 16

Region	% percent, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Final	Diff	Midterm	Final	Diff		
ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours									
Total	%	8,52%	9,41%	0,89%	13,75%	7,33%	-6,42%	-7,31	0,02
	N	352	340	-12	320	341	21	33	*
Batken region	%	9,68%	9,43%	-0,24%	17,59%	9,91%	-7,68%	-7,44	0,15
	N	217	212	-5	108	111	3	8	no
Jalal-Abad region	%	6,67%	9,38%	2,71%	11,79%	6,09%	-5,71%	-8,41	0,06
	N	135	128	-7	212	230	18	25	no
ind_16_2 Percent of children 6–23 months who consumed tea in the previous 24 hours									
Total	%	64,36%	57,56%	-6,80%	68,03%	53,48%	-14,55%	-7,75	0,04
	N	780	615	-165	782	632	-150	15	*
Batken region	%	60,15%	55,97%	-4,19%	72,84%	60,37%	-12,47%	-8,29	0,12
	N	389	377	-12	394	270	-124	-112	no
Jalal-Abad region	%	68,54%	60,08%	-8,46%	63,14%	48,34%	-14,80%	-6,34	0,22
	N	391	238	-153	388	362	-26	127	no

The following figures show the same DID results for indicator 16 graphically.

Figure 6.2.2.3. Summary of DID results for indicator 16_1 and 16_2

ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours

13.75%
13.75%
14.64%
9.41%
8.52%
7.33%
DID=-7,31 percent, p=0.02

Mid-term · Final

— Full intervention — Light Touch
- - - Null hypothesis (Y0)

ind_16_2 Percent of children 6–23 months who consumed tea in the previous 24 hours

68.03%
68.03%
64.36%
61.23%
57.56%
53.48%
DID=-7,75 percent, p=0.04

Mid-term · Final

— Full intervention — Light Touch
- - - Null hypothesis (Y0)
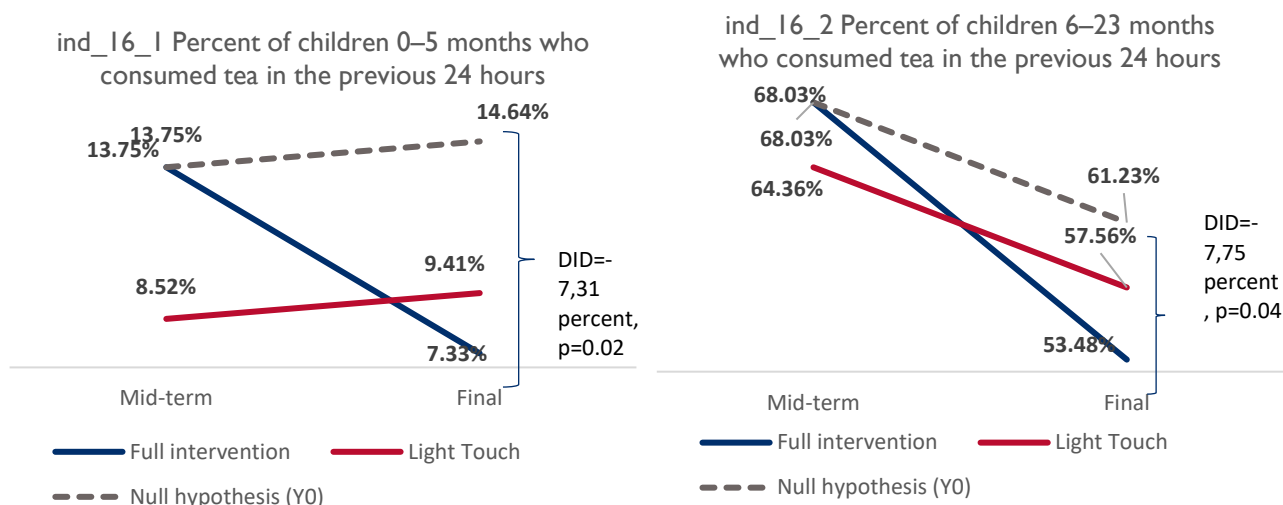
Introduction of complementary foods and dietary diversity of children under 2 year (Indicator 12)

When a child reaches the age of six months, it is advisable to introduce soft and semi-solid foods and liquids into the child's diet while the child is aged 6–8 months. After reaching eight months, thick cereals, fruits and vegetables, meat, fish, milk and bread can replace mashed potatoes and diluted cereals. During this period, to ensure healthy development, it is necessary to provide the child with a diverse and nutritious diet. Figure 6.2.2.4 below summarizes complementary feeding indicator across all three surveys, by region and type of intervention. The figure shows lower levels at endline than at baseline or midterm in most cases. However, the levels of the indicator are reasonably high (over 78 percent) in all cases, and the sample size was very small because of the age range, so differences were not significant.

Figure 6.2.2.5. Percentage of children 6–8 months who received semi-solid or solid food by region and type of area, baseline N=264, midterm N=336, endline N=373

ind_12_1 Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)

Batken, intervention to Light touch area: 87%, 87%, 81%
Batken, comparison to Full intervention area: 85%, 78%, 82%
Jalal-Abad, intervention to Light touch area: 90%, 82%, 83%
Jalal-Abad, comparison to Full intervention area: 88%, 83%, 81%
Total: 87%, 83%, 82%

■ Baseline research ■ Midterm research ■ Final research

A consideration with regard to this indicator is that some of the complementary foods that are introduced could potentially be unhealthy, e.g., sweetened or processed foods. We therefore calculated the indicator both with and without sweet and processed foods. Results for both methods are shown in Table 6.2.2.3, and in Figure 6.2.2.6. Fortunately, the quantities of sweet and processed foods given to this age group were not very

large, so the two halves of the table are quite similar. In general, the indicator declined in all the light touch groups and increased in all the full intervention rows except those for Jalal-Abad. The DID was positive as desired but small in all cases, and because of the small sample size, no DIDs were significant.

Table 6.2.2.3. Summary of DID information for indicator 12_1 and 12_2, by survey, type of area, and region.

Region	%, N	light touch			full intervention			DID (points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
ind_12_1 Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)										
Total	%	84,43%	82,04%	-2,40%	81,07%	81,55%	0,49%	2,88	0,62	no
	N	167	167	0	169	206	37	37		
Batken region	%	86,81%	81,31%	-5,50%	77,78%	82,35%	4,58%	10,08	0,24	no
	N	91	107	16	63	68	5	-11		
Jalal-Abad region	%	81,58%	83,33%	1,75%	83,02%	81,16%	-1,86%	-3,61	0,66	no
	N	76	60	-16	106	138	32	48		
ind_12_2 Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (with sweet, processed products)										
Total	%	88,62%	86,83%	-1,80%	82,84%	83,01%	0,17%	1,97	0,71	no
	N	167	167	0	169	206	37	37		
Batken region	%	89,01%	87,85%	-1,16%	79,37%	85,29%	5,93%	7,09	0,37	no
	N	91	107	16	63	68	5	-11		
Jalal-Abad region	%	88,16%	85,00%	-3,16%	84,91%	81,88%	-3,02%	0,14	0,99	no
	N	76	60	-16	106	138	32	48		

Figure 6.2.2.6. Summary of DID results for indicators 12_1 and 12_2

ind_I2_I Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)

84.43%

81%   82.04%
                       81.55%
81.07%   DID=2,
                                    88
                        79%   percent
                                    ,
      Mid-term   Final   p=0.62

—— Full intervention   —— Light Touch
- - - Null hypothesis (Y0)

ind_I2_2 Percent of children 6-8 months who received semi-solid or solid food during the previous 24 hours (with sweet, processed products)

88.62%   86.83%

83%   83.01%
82.84%   DID=-
                                    1,97
                        81%   percent
                                    ,
      Mid-term   Final   p=0.71

—— Full intervention   —— Light Touch
- - - Null hypothesis (Y0)

Children's Dietary Diversity (Indicator 4)

To calculate children's dietary diversity, we grouped all the foods that mothers reported giving their child, excluding sweet and processed foods, into 8 major food groups (see Table 6.2.2.4) according to the standard WHO and UNICEF definitions and guiding principles (https://apps.who.int/iris/bitstreьım/handle/10665/44306/9789241599290_eng.pdf?ua=1).

Table 6.2.2.4 Foods, classified into 8 food groups among children, endline N=1928

8 food groups for children	Food classification by groups
Breast milk	F10 – Breast milk
Grains, roots and tubers	1. Porridge (bylamyk), bread, rice, buckwheat, corn, noodles, or other cereal products 3. Potatoes, turnips or any other food made from roots
Legumes and nuts	12. Any foods made with beans, peas, lentils, nuts, or seeds
Dairy products (baby food, milk, yogurt, cheese)	13. Hard and soft cheese, kefir, yogurt/cottage cheese, suzmo
Flesh foods (meat, fish, poultry and liver/organ meats)	8. Liver, kidneys, heart, stomach or other organ meats
	9. Any meat: beef, goat, lamb, mutton, chicken, duck, turkey, other birds
	11. Fish and seafood
Eggs	10. Chicken, quail eggs, or any other bird eggs
Vitamin A–rich fruits and vegetables	2. Pumpkin, carrots, squash, that are yellow or orange inside, red pepper (sweet)
	4. Any dark green leafy vegetables: broccoli, spinach, sorrel
	5. Apricot, peaches, persimmon or melon

Other fruits and vegetables	6. Other fruits or vegetables: apple, banana, dates, grapes, kiwi, lemon, mandarin orange, orange, pear, pineapple, plum, pomegranate (anar), cherries, raspberry, strawberry, watermelon
	7. Cabbage (common and red varieties), cauliflower, celery, cucumbers, tomatoes, eggplant, green, yellow pepper, mushroom, onion, radish

Figure 6.2.2.7 shows consumption levels of each of the eight food groups, both for 0–5 months and 6–23 months age groups. In the endline survey, the most common food groups among children aged 6–23 months were grains, roots and tubers, as well as "other fruits and vegetables" and breast milk. The least popular foods included beans and nuts, and eggs. The food group with dairy products was also reported consumed by fewer than half of the children in the survey.

Figure 6.2.2.7. Foods classified into 8 food groups among children of both age categories (N=1,245 for 6–23 months, N=675 for 0–5 months), endline N=1,920

$Child_FG 8 groups of children's nutrition
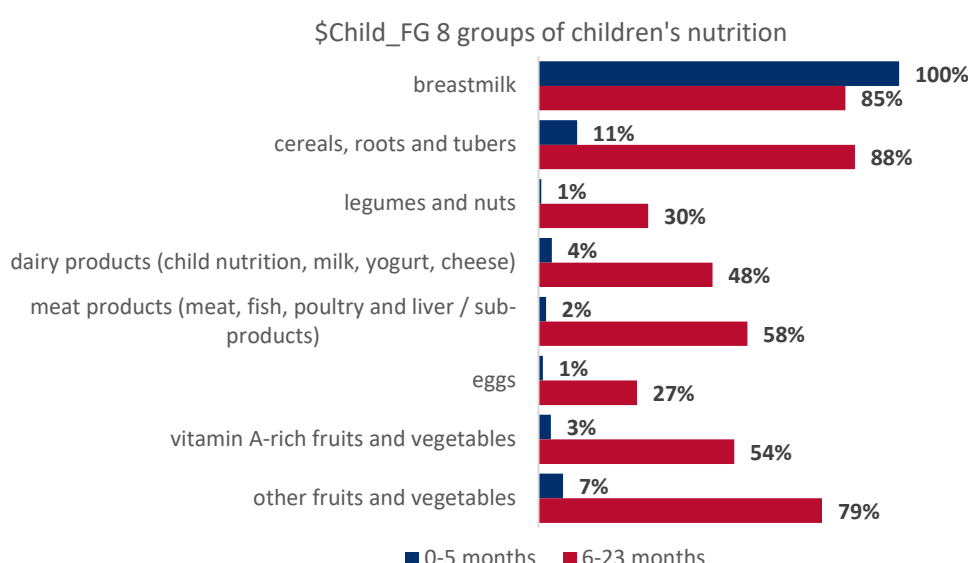
Table 6.2.2.5 shows the same information, but disaggregated into more detail. In this case, it shows all three survey results, and disaggregates by region, type of intervention, as well as children's age. Consumption of most foods declined between baseline and endline, in some cases quite notably.

Table 6.2.2.5. 8 food groups among children aged 0–5 and 6–23 months by survey, region, and type of intervention, baseline N=2,091, midterm N=2,234, endline N=1,920

| Child food groups | BL/MT/FN | Batken region | | | | Jalal-Abad region | | | |
| | | Comparison-Full intervention area | | Intervention-Light touch area | | Comparison-Full intervention area | | Intervention-Light touch area | |
		0–5	6–23	0–5	6–23	0–5	6–23	0–5	6–23
Breastmilk	Baseline	100%	83%	100%	85%	100%	77%	98%	82%
	Midline	100%	84%	99%	84%	99%	82%	99%	80%
	Final	100%	85%	100%	85%	100%	84%	100%	85%
Cereals, roots and tubers	Baseline	13%	91%	12%	92%	11%	92%	13%	91%
	Midline	13%	89%	23%	93%	14%	89%	18%	88%
	Final	14%	88%	9%	92%	8%	88%	10%	85%
Legumes and nuts	Baseline	1%	27%	1%	39%	0%	34%	1%	33%
	Midline	2%	31%	4%	39%	2%	40%	1%	34%
	Final	1%	27%	1%	28%	0%	37%	0%	32%

Dairy products (child nutrition, milk, yogurt, cheese)	Baseline	7%	62%	5%	65%	5%	62%	7%	62%
	Midline	7%	60%	11%	56%	7%	55%	3%	52%
	Final	5%	51%	3%	50%	3%	47%	3%	45%
Meat products	Baseline	2%	57%	4%	64%	4%	73%	5%	66%
	Midline	4%	66%	7%	66%	6%	67%	3%	60%
	Final	2%	55%	1%	59%	1%	62%	3%	57%
Eggs	Baseline	1%	35%	0%	29%	1%	34%	1%	33%
	Midline	1%	28%	4%	34%	3%	31%	1%	29%
	Final	2%	27%	1%	28%	0%	26%	1%	28%
Vitamin A-rich fruits and vegetables	Baseline	4%	60%	3%	67%	3%	56%	2%	55%
	Midline	5%	64%	6%	63%	6%	60%	5%	52%
	Final	4%	56%	4%	59%	2%	54%	3%	49%
Other fruits and vegetables	Baseline	50%	55%	36%	49%	35%	43%	28%	50%
	Midline	10%	86%	13%	84%	10%	88%	10%	81%
	Final	7%	79%	7%	77%	7%	83%	6%	76%

We again built a regression model for the number of food groups consumed out of the 8 in the above table (dependent variable). Independent variables included:

- preparation / storage of any food for consumption last winter (I1)

- number of visits to health centers (D2)

- Internet access (J5)

- watched at least one TV commercial on nutrition and hygiene in the past 3 months (J4)

- level of education (S5_years)

- obtaining advice from medical specialists on the introduction of solid and semi-solid foods for a child (D8_12)

- obtaining information about a rich and diverse diet (K1a_2)

- knowledge about the introduction of complementary foods at 6 months (K2_2)

- number of people in the household (S9)

This model had an R-square value of 0.065. Significant variables for determining the effect on the 8 food groups mentioned above are the number of visits to a health facility ($p<0.05$) and the consultation received from medical specialists on the introduction of solid and semi-solid foods for a child ($p<0.01$), which is quite logical in view of their actual relationship.

Table 6.2.2.6. Summary for the regression model number 3 on the number of groups consumed from 8 food groups among children aged 6–23 months

	Model	Non-standardized coefficients		Standardized coefficients	T	Significance
		B	Standard error	Beta		
1	(Constant)	2,027	1,116		1,816	,070
	S5_years (level of education)	-,035	,061	-,032	-,572	,568
	D2 (number of visits to health centers)	,027	,012	,120	2,176	,030

K1a_2 (obtaining information about a rich and diverse diet)	,283	,393	,042	,720	,472
D8_12 (obtaining advice from medical specialists on the introduction of solid and semi-solid foods for a child)	1,166	,425	,159	2,743	,006
K2_2 (knowledge about the introduction of complementary foods at 6 months)	-,218	,298	-,041	-,731	,465
J5 (Internet access)	,854	,510	,094	1,675	,095
S9 (number of people in the household)	-,048	,074	-,036	-,655	,513
J4 (watched at least one TV commercial on nutrition and hygiene in the past 3 months)	,016	,009	,100	1,823	,069
I1 (preparation / storage of any food for consumption last winter)	,197	,436	,025	,453	,651

Indicator 4 is minimum dietary diversity (MDD) for children aged 6–23 months, a well-known, standardized IYCF indicator. MDD is considered to be achieved if the child consumes foods from at least five of the eight food groups shown in Table 6.2.2.5. Among children aged 6–23 months in our endline survey, 57 percent consumed at least 5 or more food groups. That result was 7 percent below midterm survey levels and 9 percent below the baseline, and was statistically significant in both cases at the 99 percent level. If we consider this indicator by region, the decline in the past year was especially steep in Batken, falling from 67 percent of children with MDD in the midterm to 57 percent in the endline (Figure 6.2.2.8). It is quite possible that the Kyrgyz-Tajik conflict on the border with Tajikistan could have adversely affected this indicator and contributed to the significant decline in the past year.

Figure 6.2.2.8. Indicator 4. Children 6–23 months who received foods from 5 or more out of 8 food groups the past day, by survey and region, baseline N=1,546, midterm N=1,562, endline N=1,247

ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours
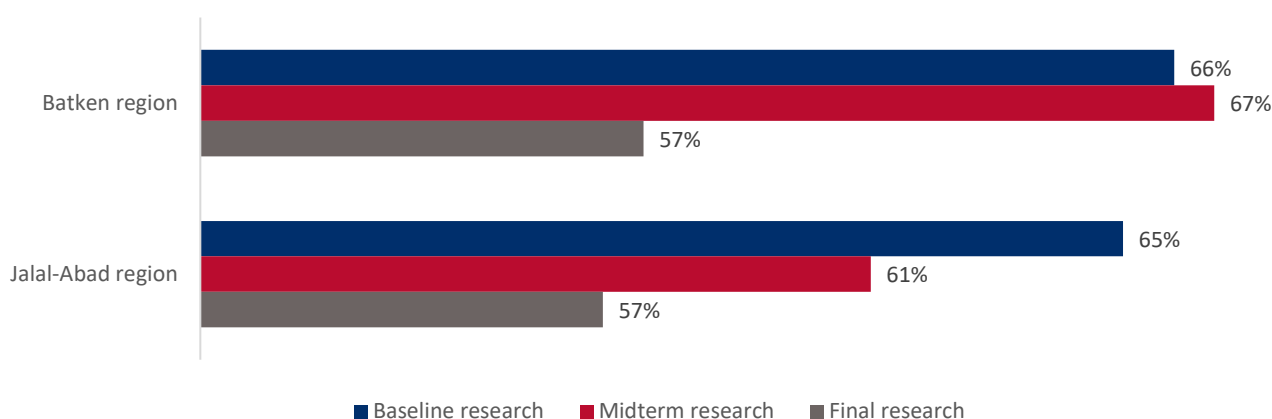
Table 6.2.2.7 and Figure 6.2.2.9 show results of the DID analysis for this indicator. In this case, reflecting figures shown previously, the indicator declined overall and in both regions and both intervention types. The overall DID and the Jalal-Abad DID were both positive, but that is because the decline in the full intervention areas was less than the decline in the light touch areas. The differences were all small and not significant.

Table 6.2.2.7. Main DID information for indicator number 4

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	64,74%	57,40%	-7,35%	63,17%	56,65%	-6,53%	0,82	0,82	no
	N	780	615	-165	782	632	-150	15		
Batken region	%	65,30%	56,76%	-8,53%	68,27%	58,15%	-10,13%	-1,59	0,76	no
	N	389	377	-12	394	270	-124	-112		
Jalal-Abad region	%	64,19%	58,40%	-5,79%	57,99%	55,52%	-2,46%	3,33	0,54	no
	N	391	238	-153	388	362	-26	127		

Figure 6.2.2.9. Summary of DID results for indicator 4

ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours
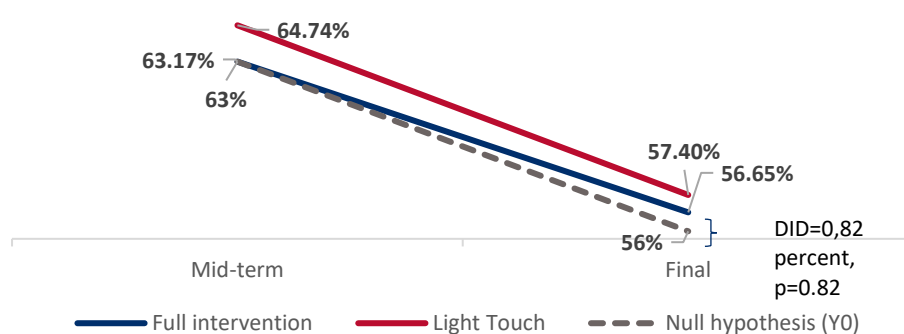
Minimum Meal Frequency (Indicator 9)

In addition to a varied diet for children, feeding frequency is also very important. We asked survey participants how often their child consumed thick, semi-thick or soft foods in the previous day. This did not include thin soups or broths, watery slurries or other liquids. Minimum meal frequency (MMF) varies depending on the age of the child and breastfeeding status. The minimum frequency of consuming solid, semi-solid, and soft foods is 2 times for breastfed children aged 6–8 months, 3 times for breastfed children aged 9–23 months; and 4 times for children aged 6–23 months who are not breastfed, according to the guidelines of WHO/UNICEF and the Ministry of Health of the Kyrgyz Republic.

In the endline survey, 72 percent of children aged 6–23 months did not receive food the minimum number of times allowed for their age, which is a serious problem for the development and formation of the child. The situation was worse in cases where the child was not breastfed (91 percent of children were not fed at minimum frequency). Among breastfed children aged 9–23 months only 23 percent received MMF, while the highest levels (51 percent) of MMF were among children aged 6–8 months. Overall, only 28 percent of children aged 6–23 months received the recommended number of meals for their age and breastfeeding status. Detailed results for this indicator are shown in figure 6.2.2.10.

Figure 6.2.2.10. Children of 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status, by survey, age group, and breastfeeding status. baseline N=1,433, midterm N=1,441, endline N=1,433
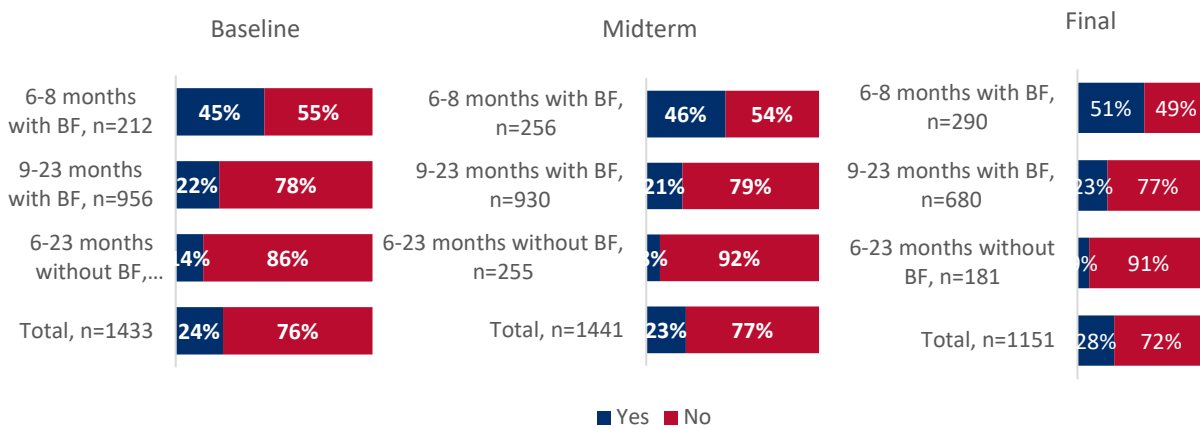
Figure 6.2.2.11 shows results for indicator 9 across surveys and by type of intervention. Despite the overall low numbers, this indicator increased slightly in the intervention group in year one between the baseline and midterm surveys, and likewise increased substantially in the full intervention areas between midterm (21 percent) and endline (26 percent). During the same periods of time, the indicator declined in year one in the comparison areas, and increased by only one percentage point in light touch areas.

Figure 6.2.2.11. Children of 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status by type of area, baseline N=1,433, midterm N=1,441, endline N=1,151
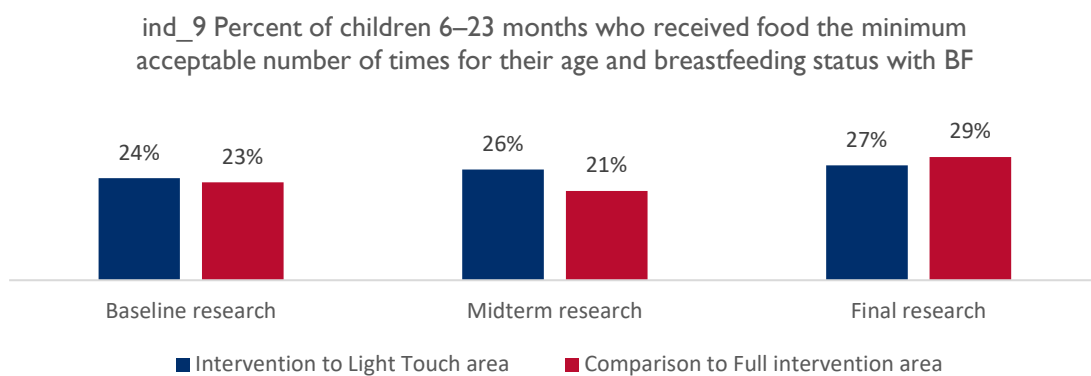
The DID analysis for indicator 9 was significant and positive, with the overall DID 7,27 percentage points (Table 6.2.2.8 and Figure 6.2.2.12). The DID in Batken and Jalal-Abad were both positive, but only in Jalal-Abad was it significant. This is an encouraging result for the project, with positive changes between surveys in all cases except a very slight decline in the Jalal-Abad light touch areas, and significantly larger increases in the full intervention zones compared to light touch, where fewer activities took place. Thus, despite the continuing overall low levels of this indicator, those levels improved significantly since the baseline and the midterm, and the DID results suggest that the project directly contributed to those improvements.

Table 6.2.2.8. Main DID information for indicator number 9

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	25,83%	27,00%	1,17%	20,50%	28,94%	8,44%	7,27	0,03	*
	N	724	574	-150	717	577	-140	10		
Batken region	%	25,82%	27,92%	2,11%	20,05%	24,51%	4,45%	2,35	0,62	no
	N	368	351	-17	364	253	-111	-94		
Jalal-Abad region	%	25,84%	25,56%	-0,28%	20,96%	32,41%	11,44%	11,73	0,02	*
	N	356	223	-133	353	324	-29	104		

Figure 6.2.2.12. Summary of DID Results for indicator 9

ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status
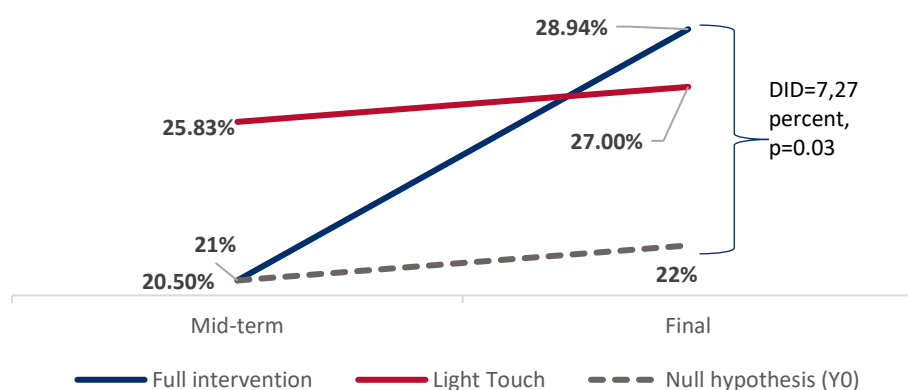
Minimum Acceptable Diet for children 6–23 months (Indicator 5)

A minimum acceptable diet (MAD) for ages 6–23 months is based on two factors: (1) minimum dietary diversity (MDD), which is defined as consumption of foods from five or more food groups (out of eight) and 2) minimum meal frequency (MMF). Because one component is MMF, it must be calculated separately for the same age and breastfeeding categories as MMF. For MAD to be achieved, the child has to have both MDD and MMF. Figure 6.2.2.13 shows results for MAD by survey and age/breastfeeding category.

Figure 6.2.2.13. Children of 6–23 months fed minimum acceptable diet, baseline N=1,433, midterm N=1,441, endline N=1,151
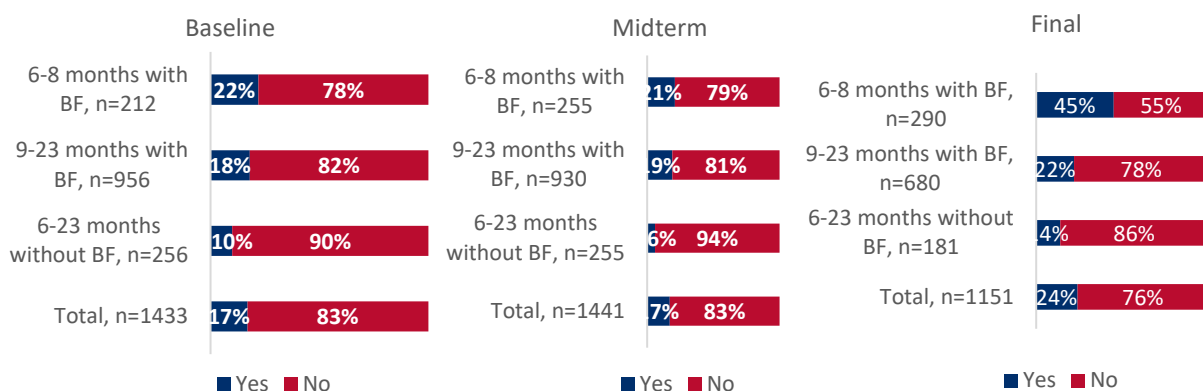
DID results are shown in Table 6.2.2.9 and Figure 6.2.2.14. Given low levels of MMF, and the fact that in order to achieve MAD the child also needs MMF, by definition MAD levels were low in all three surveys. MMF is the limiting factor, and as long as MMF levels remain low, MAD will remain low as well. Nevertheless, despite the low levels of the indicator, there were important improvements between the midterm and endline surveys. Overall MAD improved significantly from 14.8 percent to 17.8 percent in the full intervention area, while in the light touch area, the indicator actually declined. Results in Jalal-Abad were quite interesting. There, MAD declined by over 5 percentage points in the light touch areas, but increased by over 8 percentage points in the full intervention areas. Because of these trends, the DID was positive in all cases, and significant at the 99 percent level in Jalal-Abad and overall. This is another encouraging result for the project, even if the overall levels for MAD remain low.

Table 6.2.2.9. Main DID information for indicator number 5

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	18,78%	16,38%	-2,41%	14,80%	19,76%	4,95%	7,36	0,01	*
	N	724	574	-150	716	577	-139	11		
Batken region	%	17,66%	17,38%	-0,28%	14,84%	15,81%	0,98%	1,26	0,76	no
	N	368	351	-17	364	253	-111	-94		
Jalal-Abad region	%	19,94%	14,80%	-5,15%	14,77%	22,84%	8,07%	13,21	0,00	**
	N	356	223	-133	352	324	-28	105		

Figure 6.2.2.14. Summary of DID results for indicator 5

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

19.76%

18.78%

15%

14.80%

16.38%

12%

DID=7,36 percent, p=0,01

Mid-term   Final

— Full intervention   — Light Touch   - - - Null hypothesis (Y0)
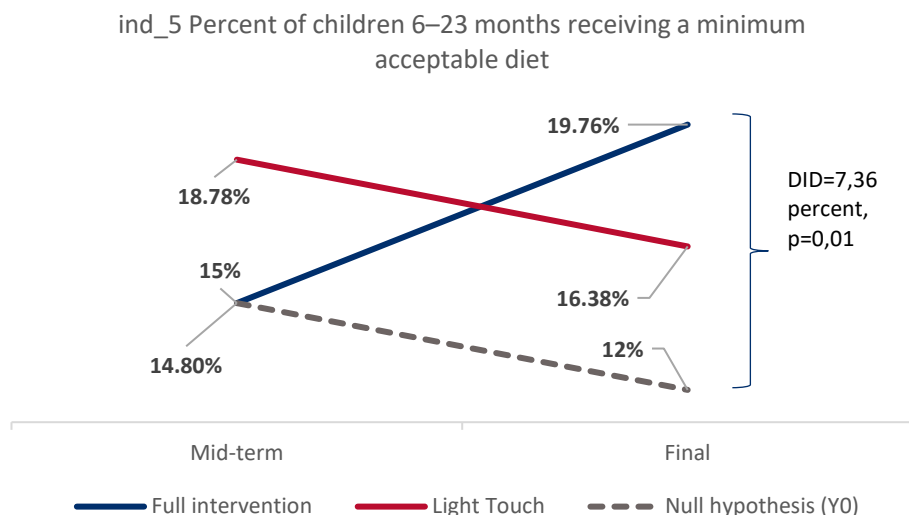
Consumption of iron-rich foods (indicator 6)

In addition to the frequency, diversity and diet of children, the survey also answered questions about the quality and nutritional content of the foods they consumed, in particular those rich in various nutrients and vitamins. The food groups in the survey were classified according to the type of vitamins they contain, according to the following principle:

Table 6.2.2.10. Distribution of foods rich in Vitamin A and iron

Vitamin A-rich foods	Iron-rich foods
Vitamin A 2. Pumpkin, carrots, squash that are yellow or orange inside, red pepper (sweet) 4. Any dark green leafy vegetables such as broccoli, spinach, sorrel/dock 5. Apricot, peaches, persimmon, or melon	**Iron** 8. Liver, kidney, heart, stomach, or other organ meats 9. Any meat, such as beef, goat, lamb, mutton, chicken, duck, turkey, other birds 11. Fish and seafood

According to WHO, children are especially susceptible to iron-deficiency anemia, which is due to the increased need for iron during periods of rapid growth (mainly in the first five years of life). Iron deficiency anemia in children is associated with increased levels of morbidity, as well as impaired cognitive development and poor school performance. Iron supplements are effective in increasing hemoglobin levels, especially in children with anemia (Daily intake of iron supplements among children of 6-23 months // The World Health Organization https://www.who.int/elena/titles/iron_supplementation_children/en/). Iron is found both in animal products (meat and meat by-products, poultry, fish) and certain vegetable products (legumes, spinach, apples, cereals, nuts, dried fruits). The survey measured data of foods containing iron and divided it into the following food groups: (1) liver, kidney, heart, stomach, or other organ meats; (2) any meat, such as beef, goat, mutton, lamb, chicken, duck, turkey, and other poultry; and (3) fish and seafood. If the child of the respondent consumed at least one product from the mentioned food groups, the entire food group was marked. According to respondent data, 58 percent of children consumed iron-rich foods in the last 24 hours, representing significant decreases since the baseline and midterm surveys. Detailed results for indicator 6 are shown in Figure 6.2.2.15, by survey, region, and type of intervention.

Figure 6.2.2.15. Children of 6–23 months who consumed iron-rich foods in the previous 24 hours, baseline N=1,546, midterm N=1,562, endline N=1,247

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

| | Batken, Intervention to Light Touch area | Batken, Comparison to Full intervention area | Jalal-Abad, Intervention to Light Touch area | Jalal-Abad, Comparison to Full intervention area | Intervention to Light Touch area | Comparison to Full intervention area | Total |

Baseline research: 57%, 64%, 73%, 66%, 63%, 65%, 64%
Midterm research: 66%, 66%, 67%, 60%, 66%, 63%, 65%
Final research: 55%, 59%, 62%, 57%, 58%, 58%, 58%

■ Baseline research   ■ Midterm research   ■ Final research

Table 6.2.2.11 and Figure 6.2.2.16 show results of the DID analysis. Unfortunately, consumption of iron-rich foods declined in all groups in both regions between the midterm and endline surveys. Therefore, the difference columns in the table below are all negative. However, the declines were greater in the Light Touch than in the Full Intervention areas, so all the DID values are positive. The differences were slight, however, so none of the DIDs were significant.

Table 6.2.2.11. Main DID information for indicator number 6

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Всего	%	66,15%	57,89%	-8,27%	62,92%	57,91%	-5,00%	3,26%	0,38	no
	N	780	615	-165	782	632	-150	15		
Баткенская область	%	65,55%	55,17%	-10,38%	65,74%	58,89%	-6,85%	3,53%	0,50	no
	N	389	377	-12	394	270	-124	-112		
Джалал-Абадская область	%	66,75%	62,18%	-4,57%	60,05%	57,18%	-2,87%	1,70%	0,75	no
	N	391	238	-153	388	362	-26	127		

Figure 6.2.2.16. Summary of DID results for indicator 6

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

66.15%
62.92%
63%
57.91%
57.89%
55%

DID=3,26 percent, p=0.38

Mid-term   Final

Full intervention — Light Touch — Null hypothesis (Y0)
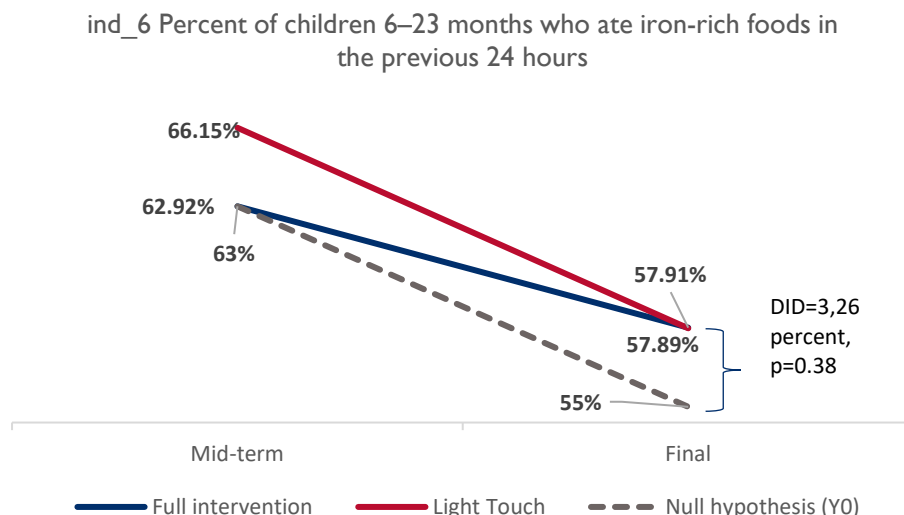
Consumption of Vitamin A-rich foods (indicator 7)

About 190 million preschool children suffer from vitamin A deficiency. Vitamin A promotes rapid growth in infants and young children and helps them fight infections. 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 infections (Vitamin A supplementation in infants and children 6–59 months of age // World health organization https://www.who.int/elena/titles/vitamina_children/en/). Vitamin A-rich foods in this survey are represented by the following food groups: 1) pumpkin, carrots, zucchini, yellow or orange inside, red pepper (sweet); 2) any dark green leafy vegetables: broccoli, spinach, sorrel, and 3) apricots, peaches, persimmons or melons. If at least one product from the above food groups was consumed by a child, the entire food group was marked.

In the endline survey, more than a half of respondents (54 percent) reported that their children had consumed foods rich in vitamin A during the last 24 hours. Detailed results by survey, region, and type of intervention are shown in Figure 6.2.2.17. The patterns shown are somewhat similar to those of iron-rich foods, with declines in all groups between midterm and endline. Overall figures declined significantly by 6 percent compared to the baseline and midterm surveys, from 60 percent consuming Vitamin A-rich foods down to 54 percent.

Figure 6.2.2.17. Children of 6–23 months who consumed vitamin A-rich foods in the previous 24 hours, baseline N=1,546, midterm N=1,562, endline N=1,247

indicator 7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours

	Baseline	Midterm	Final
Batken, Intervention to Light Touch area	60%	64%	56%
Batken, Comparison to Full intervention area	67%	63%	59%
Jalal-Abad, Intervention to Light Touch area	56%	59%	54%
Jalal-Abad, Comparison to Full intervention area	55%	52%	49%
Intervention to Light Touch area	58%	62%	55%
Comparison to Full intervention area	61%	57%	53%
Total	60%	60%	54%

Baseline research ■ Midterm research ■ Final research

Table 6.2.2.12 and Figure 6.2.2.18 show results of the DID analysis for indicator 7. Results are very similar to those for iron-rich foods (indicator 6). Levels of consumption of Vitamin A-rich foods declined between surveys in all groups. However, because the declines were greater in the light touch than in the full

intervention areas, all the DIDs were positive. Even so, the differences were slight, so the DIDs were not significant and it cannot be said that the project had a positive impact on this indicator.

Table 6.2.2.12. Main DID information for indicator number 7

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Baseline	Midterm	Final	Baseline	Midterm	Final			
Total	%	61,79%	55,12%	-6,67%	57,29%	53,48%	-3,81%	2,86	0,45	no
	N	780	615	-165	782	632	-150	15		
Batken region	%	64,27%	55,70%	-8,56%	62,69%	59,26%	-3,43%	5,13	0,33	no
	N	389	377	-12	394	270	-124	-112		
Jalal-Abad region	%	59,34%	54,20%	-5,13%	51,80%	49,17%	-2,63%	2,50	0,65	no
	N	391	238	-153	388	362	-26	127		

Figure 6.2.2.18. Summary of DID results for indicator 7

ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours
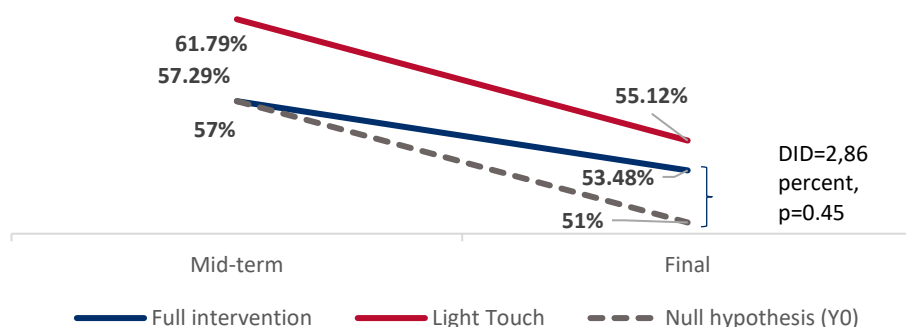
Consumption of sugary and processed foods (indicators 14 and 15)

Doctors do not recommend giving sweets to children under one year due to the fact that the baby's immune and digestive systems are not yet sufficiently developed. Sugar can cause intestinal disorders and allergic rashes.

According to the endline survey findings, a majority of mothers (69 percent) gave their baby aged 6–23 months sweet or processed foods or sugar-sweetened drinks during the last 24 hours. Encouragingly, that percentage decreased significantly by 17 percentage points since the baseline survey (p<0.01). A much smaller percentage of children aged 0–5 months (10 percent) received sugary foods, processed foods, or drinks containing sugar. The indicator among children aged 0–5 months decreased by 5 percentage points compared to the baseline and midterm surveys, which was also statistically significant at the 99 percent level. These results are shown in Figure 6.2.2.19 below. Although only a small proportion of children aged 0–5 months consumed sugary foods/drinks or processed foods, this fact is in any case of concern, since children of that age group should receive only breast milk.

Figure 6.2.2.19. Children of both age categories who consumed sweet or processed foods in the previous 24 hours, baseline N=2,091, midterm N=2,234, endline N=1,928

indicator 14 Percent of children 0–5 months who consumed sugary or processed food/liquids in the previous 24 hours

■ 0-5 months ■ 6-23 months
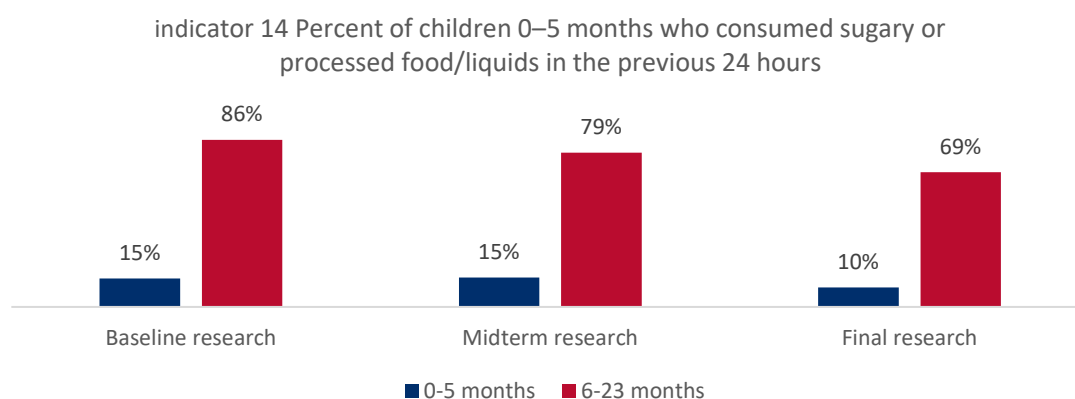
Table 6.2.2.13 shows detailed information on "junk food" consumption (indicator 14) by survey, region, type of intervention, and age group, including the DID analysis. The top half of the table shows results for children 0–5 months of age, while the bottom half shows the same for children 6–23 months. Results were very favorable in both cases, with improvements in both the light touch and full intervention areas, but significantly greater improvements among Full Intervention respondents.

This indicator measures a negative result, because the desired result is fewer children consuming unhealthy foods. Therefore, we desire the indicator to decline between surveys, and this is indeed what the table shows. For children 0–5 months, results in Batken increased slightly in the light touch areas but declined sharply in the full intervention zones. In Jalal-Abad, the indicator declined in both types of intervention group. For children 6–23 months, junk food consumption declined in both groups, but significantly more in the full intervention areas. As a result, all the DIDs were strongly negative (the desired direction), implying strong project impact on this important outcome.

Table 6.2.2.14. Main DID information for indicator number 14

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
ind_14_1 Percent of children 0–5 months who consumed sugary or processed food in the previous 24 hours										
Total	%	11,65%	11,47%	-0,18%	17,81%	9,38%	-8,43%	-8,25	0,02	*
	N	352	340	-12	320	341	21	33		
Batken region	%	11,98%	13,68%	1,70%	25,00%	9,91%	-15,09%	-16,79	0,00	**
	N	217	212	-5	108	111	3	8		
Jalal-Abad region	%	11,11%	7,81%	-3,30%	14,15%	9,13%	-5,02%	-1,72	0,72	no
	N	135	128	-7	212	230	18	25		
ind_14_2 Percent of children 6–23 months who consumed sugary or processed food in the previous 24 hours										
Total	%	78,33%	71,54%	-6,79%	79,41%	66,93%	-12,48%	-5,69	0,08	no
	N	780	615	-165	782	632	-150	15		
Batken region	%	77,12%	72,41%	-4,71%	85,03%	71,48%	-13,54%	-8,84	0,05	*
	N	389	377	-12	394	270	-124	-112		
Jalal-Abad region	%	79,54%	70,17%	-9,37%	73,71%	63,54%	-10,18%	-0,80	0,87	no
	N	391	238	-153	388	362	-26	127		

The figure below shows the main information of the above table graphically.

Figure 6.2.2.20. Summary of DID results for indicators 14_1, 14_2

ind_14_1 Percent of children 0–5 months and 6–23 months who consumed sugary or processed food in the previous 24 hours

17.81%
18%
18%
11.47%
11.65%
9.38%
Mid-term
Final
DID=-8,25 percent, p=0.02

— Full intervention — Light Touch
- - - Null hypothesis (Y0)

ind_14_2 Percent of children 0-5 months and 6-23 months who consumed sugary or processed food in the previous 24 hours

79.41%
79%
78.33%
73%
71.54%
66.93%
Mid-term
Final

— Full intervention — Light Touch - - Null hypothesis (Y0)

We also measured the mean number of times children consumed sugary or processed "junk foods" (indicator 15). To calculate the indicator, we summed the average number of times children consumed sweet, processed foods or sugar-sweetened drinks, since the questions were asked separately for each type of food. At the same time, the total number of respondents was calculated according to the following logic: if the answer was given in at least one of the three questions, then it was counted as a "yes".

Using this method, children aged 0–5 months consumed sweet, processed food or sugary drinks on average almost 4.09 times a day. For children aged 6–23 months, the situation is worse: on average, they consumed junk food 5.58 times. Results for children 0–5 months improved between midterm (4.68 times on average) and endline (4,09 times), among the 6–23 month ages, frequency of consuming junk foods increased slightly, from 5.41 to 5.58 times. Thus while the percentage of children consuming junk food declined significantly across all surveys for both age groups, the frequency of consumption among those who did consume was not as favorable, and even worsened among the 6–23 month age category.

Effects of the border conflict with Tajikistan on food consumption

It is worth noting that during the armed conflict on the border of Kyrgyzstan and Tajikistan, many residents of the Batken region were forced to move. This situation affected villages in both light touch and full intervention areas. Because of the lack of a permanent home and living conditions, we hypothesized that household diets may have changed significantly as a result of the conflict, and that this could have adversely affected endline results. To investigate this, we asked women from Batken whether the border conflict forced them to leave their main residence, and whether the conflict resulted in changes in household food consumption. Results of both questions are shown together in Figure 6.2.2.21. Overall, 55 percent of respondents said they did not have to leave their primary residence. Of those, 85 percent said the conflict did not change household food consumption, while only 7 percent said it changed for the worse, and 8 percent actually said it changed for the better. This contrasts markedly with the 45 percent of respondents who were forced to leave their homes. Of those, a smaller percentage (57 percent) said that the conflict did not change their household food consumption, and a much higher percentage (33 percent) said that household diets changed for the worse. Interestingly, 10 percent of those who were forced to move said their household's food consumption actually improved, which could be due to favorable conditions in the household where they went to after leaving their main home. Thus, the conflict seems to have had a serious adverse effect on women's and children's diets if the family was forced to leave their main home. Among those whose diet changed for the worse, there were almost 5 times more people who changed their place of residence than those who remained in the same place, which is a statistically significant difference (p<0.01).

Figure 6.2.2.21. Effect of border conflict on residence status and household food consumption, endline N=970

T1 Did the recent events on Kyrgyz-Tajik border affect your permanent residence status?

Nothing has changed in the nutrition — 85% / 57%
Nutrition has changed for the worse — 7% / 33%
Nutrition has changed for the better — 8% / 10%

■ Yes, we have moved   ■ No, we haven't moved
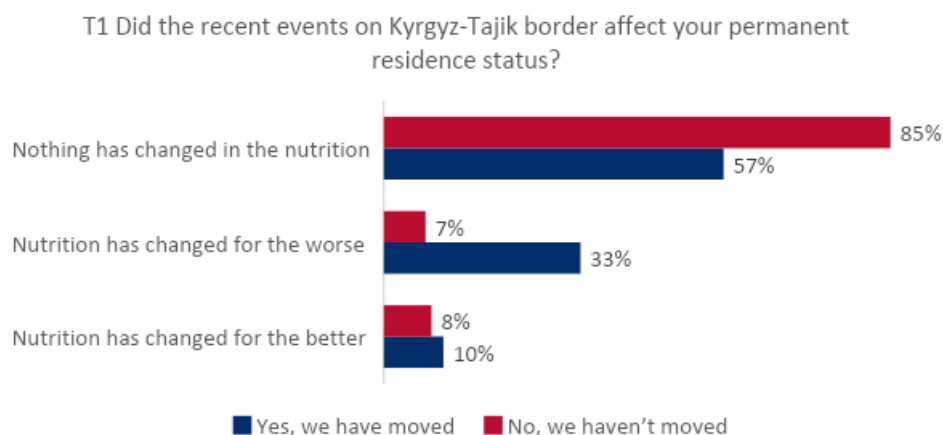
To summarize sub-chapter 6.2, the most common food groups among children both of 6–23 months and 0–5 months remain grains, roots and tubers, as well as other fruits and vegetables and breast milk, the least popular are eggs, legumes and nuts among both age groups. In terms of dietary diversity, 57 percent of children of 6–23 months consumed at least 5 or more food groups out of 8 available, which was 7 percent below midterm levels. MMF and MAD were low at 29 percent and 20 percent, respectively, but both improved from midterm levels over the past year, and the increases in the full intervention areas were significantly greater than in light touch. 58 percent of children consumed iron-rich foods, and 54 percent consumed vitamin A-rich foods, and those levels decreased in both the Light Touch and Full Intervention areas. Consumption of sugary and processed foods remains a serious issue but has declined significantly since the midterm survey. Results were especially good in full intervention areas, where "junk food" consumption declined from 18 percent to 9 percent in the past year among children aged 0–5 months, and from 79 percent to 67 percent among those aged 6–23 months. Favorable DID results suggest that this was an area where project activities contributed to improved nutrition outcomes.

7. Preservation and storage of foods

Fresh food storage (frozen vegetables, fruits and berries) allows households to enjoy quality foods all year round, preserving their taste, color, texture and nutrients, enabling families to diversify their diets with healthy foods, even in winter months. Preservation helps to evenly distribute products throughout the year and every month, when fresh products are not available, to get enough vitamins and micronutrients.

In this chapter, we look at food preservation and storage practices and their potential impact on women's and children's dietary diversity. Specifically, we measured the percentage of women who stored or preserved nutrient-dense products for consumption during the last winter (indicator 20). At the baseline stage, before project interventions began, the majority of women interviewed (95 percent) said that they preserve or otherwise store food, showing that this already was an established, common practice in Kyrgyz Republic. At the same time, the COVID-19 pandemic possibly also contributed to the high levels of food storage, as it discouraged people from using public transport and going to crowded places like markets. The pandemic also adversely affected global supply chains and transportation, causing price increases and shortages of various goods around the world. In the midterm survey, the percentage of women (94 percent) who stored and prepared food remained at the same level. In the endline survey, the indicator decreased by another 4 percent to 90 percent, which was statistically significant at the 99 percent level.

As in the previous surveys, the endline found a direct correlation between food preparation/storage and maternal dietary diversity. Women in households that did store/preserve foods were more likely to have adequate MDD-W (consuming 5 or more food groups out of 10, as described in Chapter 6.1), As shown in Figure 7.1 below, 89 percent of women who stored any foods for winter consumption had adequate MDD-W, while only 80 percent of women who did not store foods had adequate dietary diversity.

Figure 7.1. Preservation/storage of foods and diet diversity of mother of children under 2 years, N=1,452

11. Did you preserve or store any food for consumption during the last winter?

- ■ Mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours
- ■ Mothers of children <2 who did not ate foods from 5 or more of 10 food groups in the previous 24 hours

	Yes	No
Blue	89%	80%
Red	11%	20%
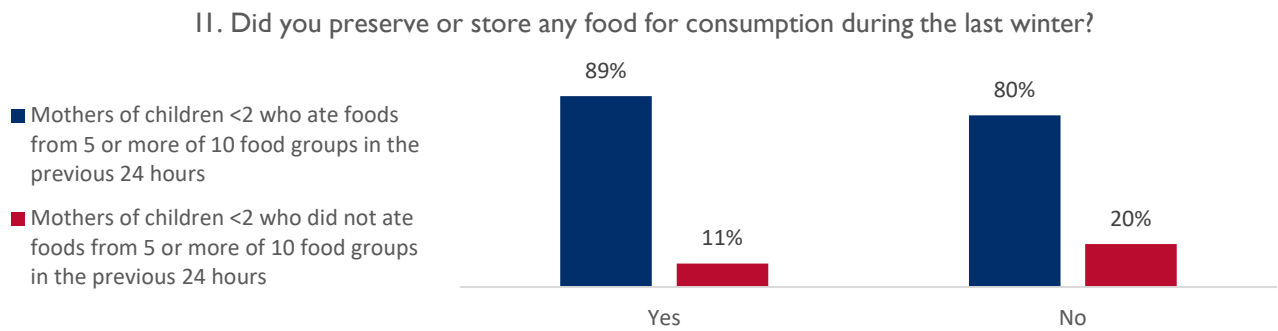
Figure 7.2 below shows the relation between women's age and food storage practices. For women 25-49 years old, there was no correlation. Interestingly, however, younger women aged 18-24 were significantly less likely to store foods than those in older age groups (85 percent compared to 91 percent or 92 percent, $p<0.01$). This may be due to the fact that the older generation, due to their age, has more experience in storing and canning food. A correlation with child age was also observed (not shown), with mothers of older children more likely to store foods than mothers of younger children.

Figure 7.2. Women who preserved/stored food last winter by mother's age, N=1452

ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter

	18-24, n=337	25-29, n=492	30-39, n=572	40-49, n=50
Yes	85%	91%	92%	92%
No	15%	9%	8%	8%

■ Yes ■ No
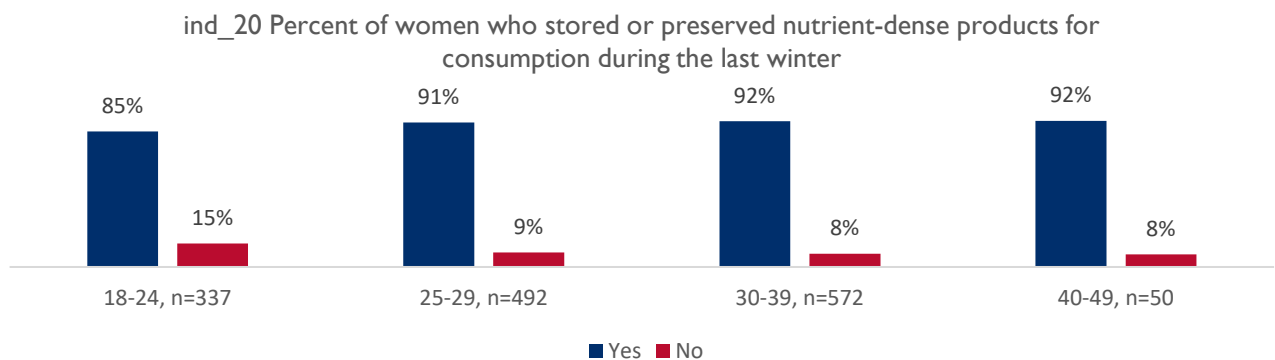
In terms of region and type of intervention area, there were only slight differences (Figure 7.3). In general, food storage/preservation was slightly higher in Batken full intervention areas, and in the full intervention zones overall, but the differences were not significant.

Figure 7.3. Women who preserved/stored food in the last winter by region and type of intervention area, N=1,452

ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter

Batken, Light Touch area, n==455	89.00%
Batken, Full intervention area, n=291	91.00%
Jalal-Abad, Light Touch area, n=260	90.00%
Jalal-Abad, Full intervention area, n=446	89.90%
Light Touch area, n=715	89.00%
Full intervention area, n=737	91.00%
Total, n=1452	90.00%
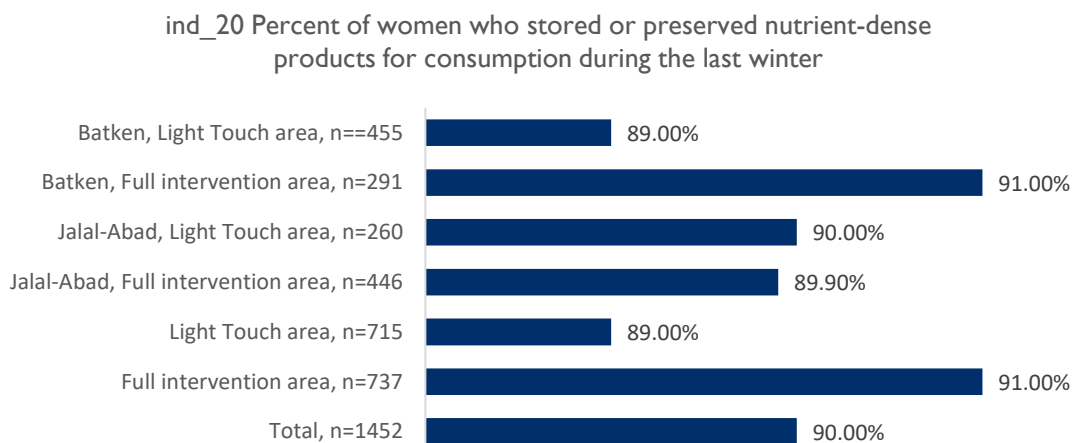
DID analysis for indicator 20 is shown in the table below, and in Figure 7.4. Endline levels were lower than midterm levels for all rows in the table, for reasons described previously, so all the Difference columns are negative. However, the declines were somewhat less among full intervention respondents than among those in light touch areas, so all the DID values are positive. The changes were slight, however, so the DIDs were not significant. Overall these results are mostly neutral. On the positive side, despite the fact that the indicator levels declined between surveys, the overall levels remain very high in all areas, indicating that food storage/preservation remains very widely practiced.

Table 7.1. Main DID information for indicator number 20

ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	94,16%	89,23%	-4,93%	94,10%	90,50%	-3,59%	1,34	0,48	no
	N	874	715	-159	830	737	-93	66		
Batken region	%	94,43%	88,79%	-5,64%	96,37%	91,41%	-4,96%	0,68	0,80	no
	N	467	455	-12	386	291	-95	-83		
Jalal-Abad region	%	93,86%	90,00%	-3,86%	92,12%	89,91%	-2,21%	1,65	0,57	no
	N	407	260	-147	444	446	2	149		

Figure 7.4. Summary of DID results for indicator 20

ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter
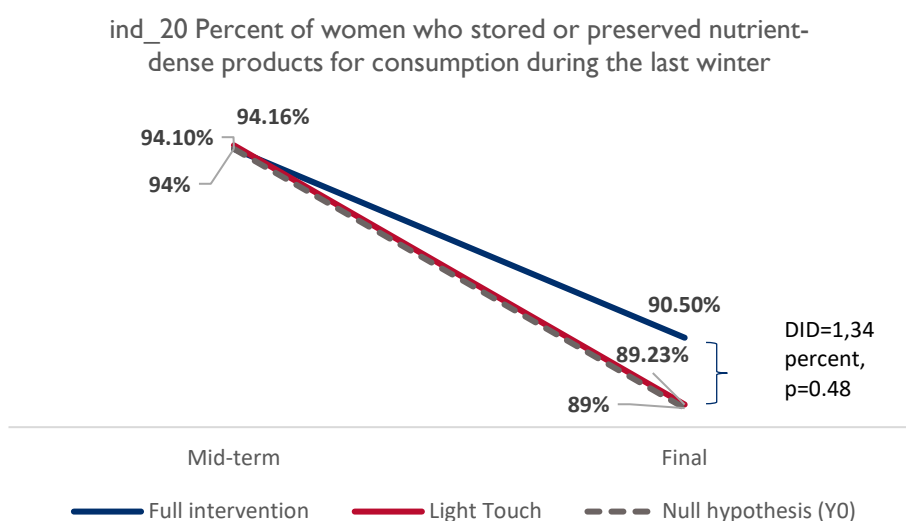
We next looked at methods for storing and/or preserving foods. Boiling (95 percent), preparations with added sugar (93 percent) and storage in the basement under the house (75 percent) remain the most common methods. Over the past year, the use of some methods increased significantly, including freezing, which increased by 7 percent (p<0.01), various types of drying which increased by 5 percent (p<0.01), salting by 4 percent (p<0.01), and storage in a cold room by 4 percent (p<0.05). Regionally, there were some significant differences between Batken and Jalal-Abad (Figure 7.5). Methods used by substantially more families in Batken than Jalal-Abad included drying in the sun or other drying methods, and salting. Methods used more commonly in Jalal-Abad included freezing and pickling.

Figure 7.5. Methods of preservation and storage of foods, by region, endline N=1305

$12 What methods of preserving and storing products did you use last winter?

	Jalal-Abad region, n=635	Batken region, n=670
In a cold room or building	63%	59%
In a cellar under the house	75%	74%
Buried under dirt or straw	14%	14%
Freezing	43%	35%
Pickling	37%	32%
Sugaring (jam making)	92%	94%
Salting	66%	67%
Canning	13%	20%
Boiling	93%	97%
Sun drying or other drying	42%	61%
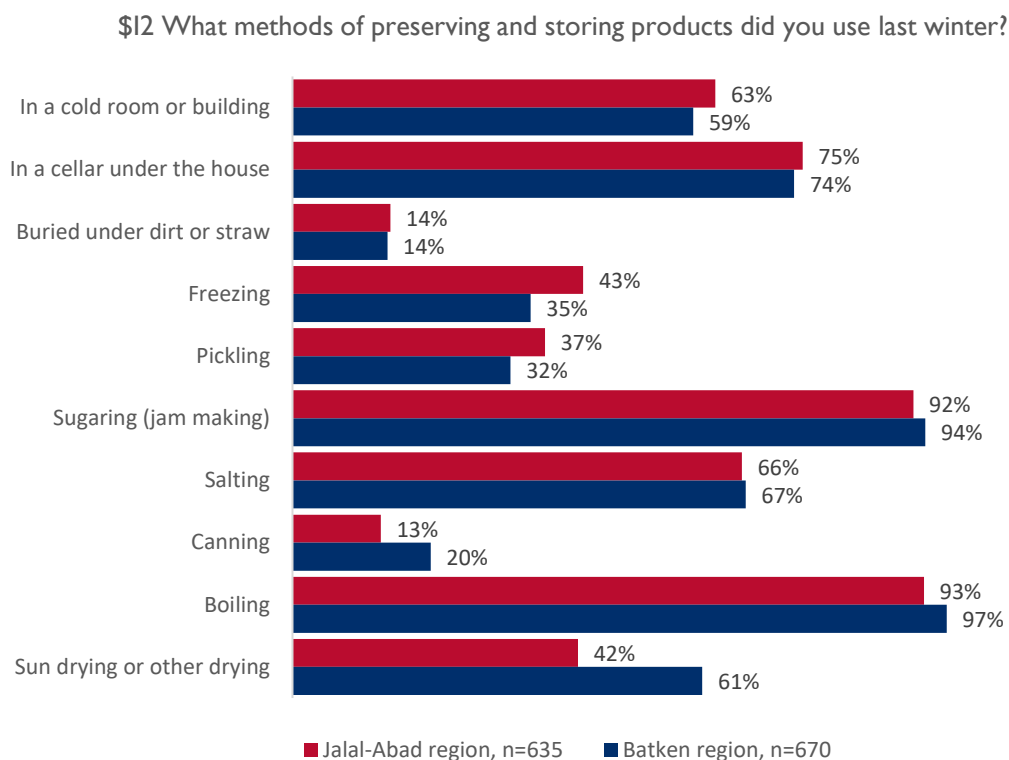
We also looked at what kind of food families store or prepare (Table 7.2). Some products were asked about as a group of foods, and if a specific food was mentioned, the group was counted. The food groups that were stored or preserved most commonly included: apples, peaches, pears, quinces, pomegranates, plums or cherries (80 percent), tomatoes, cucumbers (76 percent), and strawberries/raspberries (74 percent). Most products were stored/preserved less in the endline than in the baseline survey. As shown in the following table, the decrease in preservation/storage of products such as carrots or pumpkins (64 percent and 55 percent), cabbage (51 percent and 43 percent), onions (68 percent and 59 percent) over the entire survey period is especially notable. This is probably due to supply chain issues and elevated prices due to the pandemic, as mentioned earlier.

Table 7.2. Foods for preservation and storage, baseline N=1536, midterm N=1604, endline N=1305

Food for storage/preservation	BL /MT/ FN	Batken, intervention-Light touch	Batken, comparison-Full intervention	Jalal-Abad, intervention-Light touch	Jalal-Abad, comparison-Full intervention	intervention-Light touch area	comparison-Full intervention area	Batken region	Jalal-Abad region	Total	
Persimmons or Apricots	BL	87%	86%	69%	56%	79%	71%	87%	62%	75%	1155
	MT	71%	79%	57%	51%	65%	64%	75%	54%	65%	1037
	FN	79%	82%	55%	50%	71%	63%	80%	52%	67%	868
Carrots or Pumpkin	BL	63%	59%	68%	68%	65%	64%	61%	68%	64%	988
	MT	60%	61%	58%	61%	59%	61%	60%	59%	60%	961
	FN	55%	57%	55%	55%	55%	56%	56%	55%	55%	721
Apples, peaches, pears, quinces,	BL	87%	88%	81%	80%	84%	84%	87%	80%	84%	1291

Food for storage/preservation	BL/MT/FN	Batken, intervention-Light touch	Batken, comparison-Full intervention	Jalal-Abad, intervention-Light touch	Jalal-Abad, comparison-Full intervention	intervention-Light touch area	comparison-Full intervention area	Batken region	Jalal-Abad region	Total	
pomegranate, plum or cherry / sweet cherry	MT	86%	87%	84%	82%	85%	85%	87%	83%	85%	1360
	FN	83%	83%	79%	76%	82%	79%	83%	77%	80%	1048
Bell peppers	BL	54%	55%	54%	49%	54%	52%	55%	51%	53%	815
	MT	52%	51%	54%	51%	53%	51%	52%	52%	52%	836
	FN	52%	52%	54%	52%	53%	52%	52%	53%	52%	685
Cabbages	BL	53%	50%	49%	50%	51%	50%	52%	49%	51%	777
	MT	52%	50%	46%	45%	49%	48%	51%	46%	48%	776
	FN	45%	42%	39%	42%	43%	42%	44%	41%	43%	557
Onion	BL	64%	68%	67%	72%	65%	70%	66%	69%	68%	1038
	MT	61%	61%	56%	60%	59%	60%	61%	58%	59%	954
	FN	59%	61%	59%	59%	59%	60%	60%	59%	59%	772
Potatoes	BL	63%	75%	73%	75%	68%	75%	69%	74%	71%	1098
	MT	64%	67%	62%	63%	63%	65%	65%	63%	64%	1028
	FN	66%	71%	70%	67%	68%	69%	68%	68%	68%	891
Beetroot	BL	20%	20%	26%	30%	23%	25%	20%	28%	24%	365
	MT	17%	17%	24%	21%	21%	19%	17%	22%	20%	317
	FN	15%	17%	23%	23%	18%	21%	16%	23%	19%	254
Broccoli, corn, peas and other vegetables	BL	23%	25%	24%	23%	24%	24%	24%	24%	24%	365
	MT	20%	17%	20%	15%	20%	16%	19%	18%	18%	291
	FN	18%	19%	18%	19%	18%	19%	18%	19%	18%	241
Strawberry and/or raspberry	BL	74%	77%	82%	84%	77%	81%	75%	83%	79%	1211
	MT	73%	75%	76%	78%	74%	77%	74%	77%	75%	1209
	FN	73%	74%	71%	78%	72%	77%	73%	76%	74%	971
Tomatoes, cucumbers	BL	81%	85%	81%	75%	81%	80%	83%	78%	80%	1235
	MT	78%	76%	76%	74%	77%	75%	77%	75%	76%	1221

Food for storage/preservation	BL/MT/FN	Batken, intervention-Light touch	Batken, comparison-Full intervention	Jalal-Abad, intervention-Light touch	Jalal-Abad, comparison-Full intervention	intervention-Light touch area	comparison-Full intervention area	Batken region	Jalal-Abad region	Total	
	FN	77%	76%	73%	76%	76%	76%	77%	75%	76%	992
Other	BL	2%	1%	1%	2%	1%	1%	1%	1%	1%	22
	MT	5%	5%	4%	3%	5%	4%	5%	4%	4%	70
	FN	3%	2%	2%	2%	3%	2%	3%	2%	3%	33

The following figure also shows the frequencies of storing/preserving food groups across the three surveys.

Figure 7.6. Foods for preservation and storage, baseline N=1536, midterm N=1604
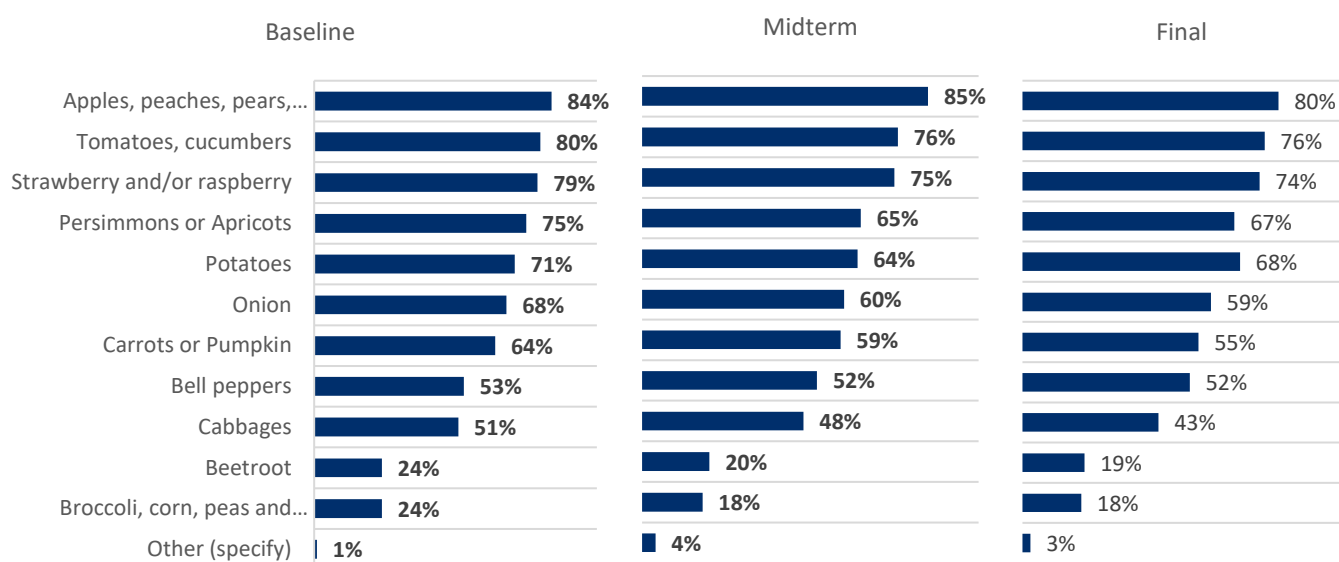
Figure 7.7 shows some of the notable regional differences of foods stored/preserved in the endline survey. Persimmons and apricots were stored significantly more often in Batken than Jalal-Abad (80 percent and 52 percent). The group containing apples, peaches, pears, quinces, pomegranates, plums or cherries/cherries was also more commonly stored in Batken than Jalal-Abad, (83 percent and 77 percent), and cabbages were slightly more often stored in Batken as well (44 percent and 41 percent). Beet storage, on the other hand, was more common in Jalal-Abad (23 percent) than in Batken (16 percent).

Figure 7.7. Certain foods for preservation/storage by regions, endline N=1305

$I3 Which of the following products did you store or preserve
for consumption during the last winter?

Persimmons or Apricots — 80% / 52%

Apples, peaches, pears, quinces, pomegranate, plum or cherry / sweet cherry — 83% / 77%

Cabbages — 44% / 41%

Beetroot — 16% / 23%

■ Batken region, n=670   ■ Jalal-Abad region, n=635
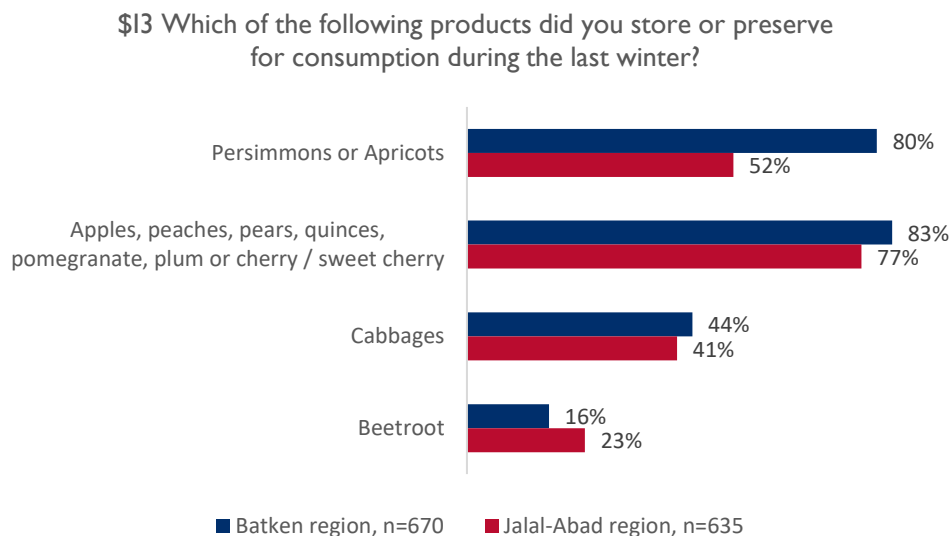
Summary

Several interesting conclusions can be drawn from this chapter. Ninety percent of women stored and prepared food last winter, which was lower than in the baseline and midterm surveys. Many factors related to the COVID-19 pandemic likely contributed to the declines. Despite the declines, overall levels of the storage/preservation indicator (number 20) remain very high at approximately 90 percent in the endline. Boiling (95 percent), adding sugar (93 percent), and storage in the basement under the house (75 percent) remain the most common methods of preserving and storing food. The most used products for storage and preservation were the following: apples, peaches, pears, quinces, pomegranates, plums or cherries/cherries (80 percent), tomatoes, cucumbers (76 percent), strawberries and raspberries (74 percent). Importantly, women who stored or preserved foods for winter were significantly more likely to have sufficiently diverse diets. Therefore, it is important to keep encouraging this practice and to make sure that nutrient-rich foods and effective storage/preservation methods are emphasized.

8. Practices Related to Handwashing and Hygiene

This section examines the practice of handwashing including when women wash hands and how often, and types of handwashing facilities in respondents' households. Specifically, we measured two handwashing indicators: the percentage of households that reported having at least one handwashing station with soap and water, and the proportion of women reporting they routinely wash their hands in at least three out of five critical times.

For indicator 19, we asked respondents whether their household had an operational handwashing station (a place in the house or compound with both water and soap. The overwhelming majority (99 percent) reported that they did. Although this figure is encouraging, it is important to note that one of the advantages of conventional face-to-face surveys is that interviewers can observe handwashing stations and judge if they are operational, whereas our phone surveys did not allow such observation. It is therefore possible that the true value of this indicator may be lower than shown.

Figure 8.1. Percentage of households with at least one handwashing facility with water and soap, N=1487

ind_19 Percent of households with soap and water at a handwashing station on premises
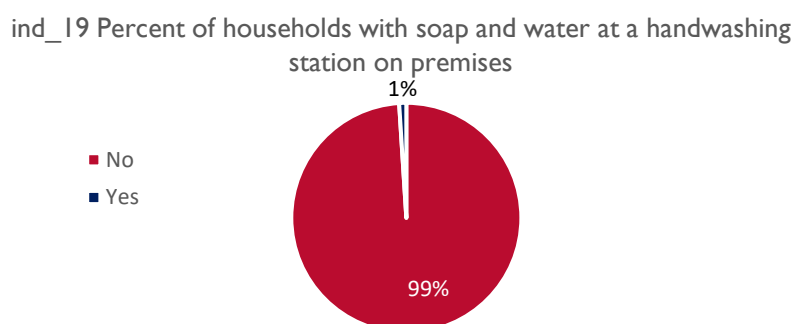
Table 8.1 and Figure 8.2 show results from the DID analysis. In the case of this indicator, so close to 100 percent for both surveys in both types of intervention, the differences are very slight. Nevertheless, for consistency sake they are shown below. None of the changes between surveys or DIDs were significant.

Table 8.1. Main DID information for indicator number 19

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	99,76%	99,46%	-0,31%	99,27%	99,20%	-0,07%	0,24	0,66	no
	N	846	737	-109	823	750	-73	36		
Batken region	%	100,00%	99,34%	-0,66%	98,91%	98,99%	0,08%	0,75	0,36	no
	N	452	452	0	366	297	-69	-69		
Jalal-Abad region	%	99,49%	99,65%	0,16%	99,56%	99,34%	-0,22%	-0,38	0,60	no
	N	394	285	-109	457	453	-4	105		

Figure 8.2. Summary of DID results for indicator 19

ind_19 Percent of households with soap and water at a handwashing station on premises
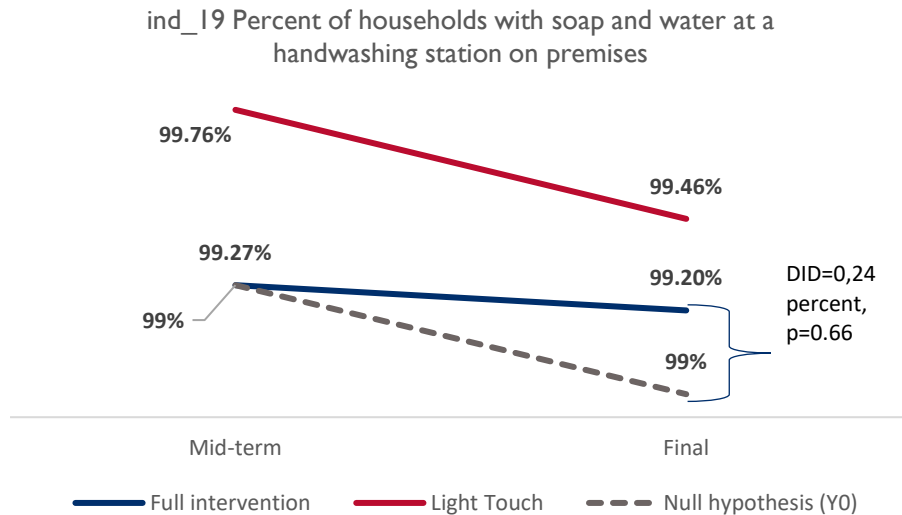
Regarding the characteristics of handwashing stations, most households reported having more than one such station: 90 percent of the respondents said they had a jug with a basin, while 64 percent said they had portable facilities (washbasins, hanging bucket and etc.), and 61 percent said they had fixed installations such as a sink with a tap, a water heater, etc. Results are shown in the figure below, for all three surveys. Again, however, these answers were self-reported, because the surveys were carried out by telephones, it was not possible to observe the handwashing areas.

Figure 8.3. Types of handwashing facilities with water and soap, baseline, N=1625, midterm, N=1669, endline N=1487

$H1_1 What kind of handwashing stations does your house have?
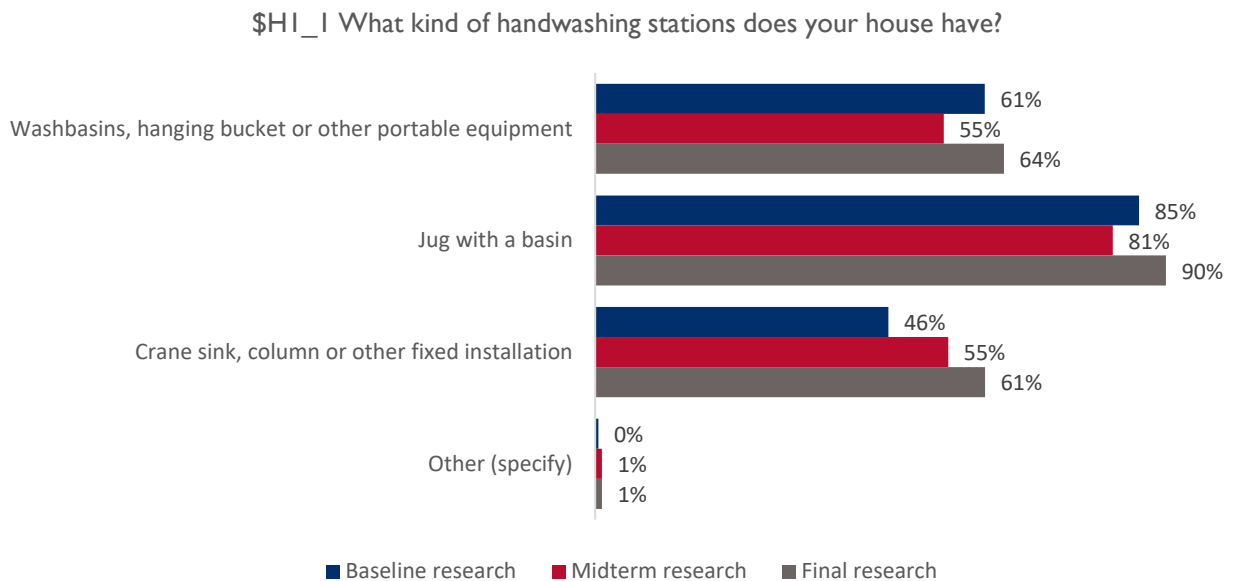
Figure 8.4 below shows the same information, but by region instead of by survey. The only type of station where the difference between regions was significant was fixed handwashing installations like sinks. In Jalal-Abad, 64 percent of respondents said their households had fixed facilities, compared to 58 percent in Batken.

Figure 8.4. Types of handwashing facilities with water and soap, by region, endline N=1487

$H1_1 What kind of handwashing stations does your house have?

Facility type	Batken region, n=749	Jalal-Abad region, n=738
Washbasins, hanging bucket or other portable equipment	63%	65%
Jug with a basin	89%	90%
Crane sink, column or other fixed installation	58%	64%
Other (specify)	1%	1%

■ Batken region, n=749   ■ Jalal-Abad region, n=738
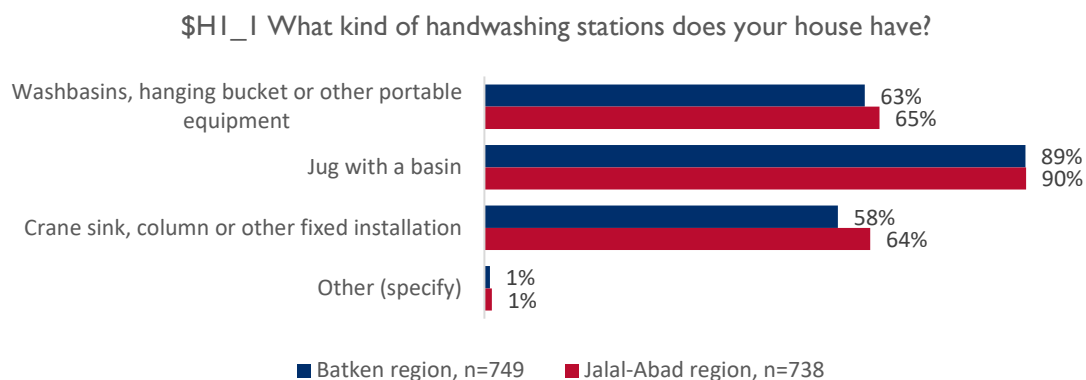
The endline survey next asked respondents to name the times or instances in which they "usually" wash hands. To do this, we posed an open-ended question to respondents without prompting with possible answers. Answers were distributed among the available options, including five categories that are traditionally viewed as the critical times for handwashing to ensure good hygiene (the five first items in Figure 8.5 below). In the endline survey, most women said they washed their hands after going to the toilet (68 percent), followed by "before feeding children" (38 percent), "before eating" (37 percent), and "before food preparation" (32 percent). Least mentioned of the five critical times was "after cleaning defecation of a child" (28 percent). Figure 8.5 also shows other commonly cited times for handwashing, such as after arriving home, after handling livestock, and after cleaning the house.

Figure 8.5. Personal hygiene practices, by survey. baseline N=1638, midterm N=1669, final N=1487

$H2a When do you usually wash your hands?

Practice	Baseline research, n=1638	Midterm research, n=1669	Final research, n=1487
Before food preparation	33%	33%	32%
Before feeding children	38%	42%	38%
Before eating	33%	37%	37%
After using the toilet	64%	66%	68%
After cleaning defecation of a child	33%	33%	28%
After handling livestock	15%	19%	13%
Other	51%	62%	71%
after sweeping the house / after cleaning the house / after cleaning / after mopping the floor	4%	8%	7%
Upon arrival home	16%	20%	17%

■ Baseline research, n=1638   ■ Midterm research, n=1669   ■ Final research, n=1487

*The "Other" category included handwashing practices that scored less than 1 percent such as: after washing dishes, after dusty and dirty work, before bathing and caring for a child etc.

Table 8.2 provides detailed information on responses related to handwashing, by critical time, by survey, by region, by type of intervention. There are some interesting regional differences. Most critical times were

mentioned more often in Batken than in Jalal-Abad. The biggest difference was regarding the practice of washing hands after caring for a child who defecated (22 percent in Jalal-Abad and 34 percent in Batken region). Also, people from the light touch areas reported washing their hands before feeding children more often than in the full intervention area (45 percent compared to 39 percent). For other handwashing cases, there were no significant differences observed between regions or areas of intervention/comparison.

Table 8.2. Most common personal hygiene practices by regions and type of area, baseline N=1638, midterm N=1669, endline N=1487

Region/area	BL/MT/FN	Before cooking		Before feeding children		Before eating		After the toilet		After cleaning a child who defecated		After caring for livestock		Other	
		%	N	%	N	%	N	%	N	%	N	%	N	%	N
Total	**Baseline**	33%	542	39%	627	33%	535	65%	1049	33%	539	15%	240	72%	1178
	Midterm	33%	559	42%	698	37%	612	66%	1107	33%	556	19%	309	71%	1189
	Final	32%	469	38%	563	37%	546	68%	1008	28%	422	13%	191	81%	1205
Batken region, Intervention- Light touch	**Baseline**	39%	182	45%	208	39%	182	66%	305	41%	189	19%	86	62%	287
	Midterm	36%	162	49%	223	37%	169	70%	317	41%	186	18%	82	68%	306
	Final	31%	141	40%	179	36%	162	64%	290	34%	153	10%	46	83%	374
Batken region, Comparison-Full intervention	**Baseline**	30%	119	35%	139	33%	130	56%	224	37%	149	20%	80	77%	306
	Midterm	34%	123	40%	148	39%	141	65%	238	36%	131	24%	89	73%	267
	Final	33%	97	39%	115	38%	114	67%	198	35%	103	19%	57	77%	229
Jalal-Abad region, Intervention- Light touch	**Baseline**	36%	131	35%	128	25%	92	67%	241	23%	83	10%	36	77%	279
	Midterm	34%	133	39%	154	40%	158	64%	251	28%	111	16%	64	71%	278
	Final	32%	90	32%	92	41%	116	72%	205	24%	67	13%	38	82%	233
Jalal-Abad, Comparison-Full intervention	**Baseline**	27%	110	38%	152	32%	131	69%	279	29%	118	9%	38	76%	306
	Midterm	31%	141	38%	173	32%	144	66%	301	28%	128	16%	74	74%	338
	Final	31%	141	39%	177	34%	154	70%	315	22%	99	11%	50	81%	369
Intervention- Light touch area	**Baseline**	38%	313	41%	336	33%	274	66%	546	33%	272	15%	122	69%	566
	Midterm	35%	295	45%	377	39%	327	67%	568	35%	297	17%	146	69%	584
	Final	31%	231	37%	271	38%	278	67%	495	30%	220	11%	84	82%	607
Comparison- Full intervention area	**Baseline**	29%	229	36%	291	33%	261	63%	503	33%	267	15%	118	76%	612
	Midterm	32%	264	39%	321	35%	285	65%	539	31%	259	20%	163	74%	605

	Final	32%	238	39%	292	36%	268	68%	513	27%	202	14%	107	80%	598
Batken region	**Baseline**	35%	301	40%	347	36%	312	62%	529	39%	338	19%	166	69%	593
	Midterm	35%	285	45%	371	38%	310	68%	555	39%	317	21%	171	70%	573
	Final	32%	238	39%	294	37%	276	65%	488	34%	256	14%	103	81%	603
Jalal-Abad region	**Baseline**	32%	241	37%	280	29%	223	68%	520	26%	201	10%	74	76%	585
	Midterm	32%	274	38%	327	35%	302	65%	552	28%	239	16%	138	72%	616
	Final	31%	231	36%	269	37%	270	70%	520	22%	166	12%	88	82%	602

Figure 8.6 below shows handwashing frequency (rarely, often, always) by critical time among respondents who said they washed their hands in these situations. In the endline survey, the very large majority of women said they "always" wash hands in all situations, while small percentages said they "often" do, and hardly anyone said "rarely". Respondents were most likely to say they "always" washed hands after using the toilet and after handling livestock (94 percent in each case). They were least likely to say "always" before food preparation (85 percent).

Figure 8.6. Frequency of handwashing practices, Endline survey. N = 1487

Final

	Rarely	Often	Always
Before food preparation, n=469	1%	16%	83%
Before feeding children, n=563	3%	15%	81%
Before eating, n=546	2%	9%	89%
After using the toilet, n=1008	1%	7%	92%
After cleaning defecation of a child, n=422	2%	10%	87%
After handling livestock, n=191		7%	93%
Other, n=1189	4%	10%	86%

■Rarely ■Often ■Always
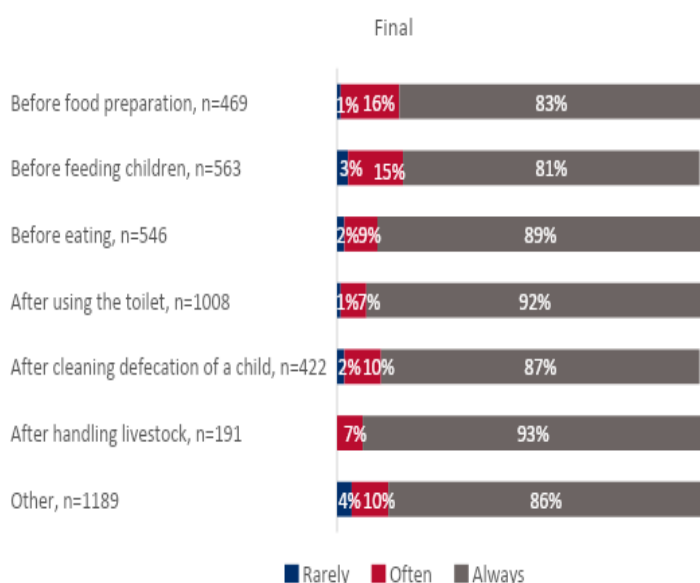
* Similar to Figure 8.5, the "Other" category includes cases mentioned by the respondents that did not fall easily in the main answer options, for example, after contact with anything on the street, after waking up in the morning/morning and evening, etc.

Differences in the frequency of handwashing by region, mother's age, or type of intervention area, were not statistically significant.

To ensure optimal hygiene, it is important not only to wash your hands in critical cases, but also to do it constantly and use soap. Survey results showed (Figure 8.7) that among women who wash their hands, more than half of them (51 percent) said they always use soap, but this figure was significantly lower than baseline levels by 8 percent (p<0.01). About one-third of respondents (35 percent) said they use soap often/in most cases, and 14 percent said they rarely use soap. Older women were more likely to report that they use soap when handwashing. Among mothers aged 18-24, 45 percent reported always using soap, compared with 53 percent among women aged 30-39. The frequency of soap use did not differ significantly between the two regions or the areas of intervention/comparison.

Figure 8.7. Frequency of soap use during handwashing, baseline N=1625, midterm N=1669, endline N=1487

H4 When you wash your hands, how often do you use soap?

	Rarely	Often / Most of the time	Always
Baseline research, n=1625	10%	32%	59%
Midterm research, n=1669	12%	32%	55%
Final research, n=1487	14%	35%	51%
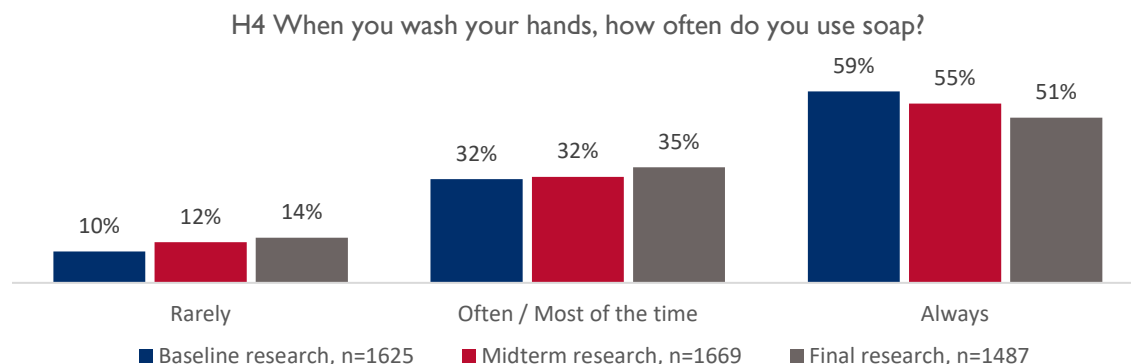
The main handwashing indicator measured by the survey (indicator 18) calculated the percentage of women who washed their hands in at least three out of five critical times. The five critical times were: after using the toilet, after defecation of a child, before food preparation, before feeding the baby, and before eating. Handwashing in all these situations is important to prevent intestinal infections or diarrhea, which can reduce the body's ability to absorb nutrients from food.

In the midterm survey, just over a third of respondents (36 percent) washed their hands at least three of the five critical times. The results of the endline showed a 5 percent drop in that same percentage, which was a statistically significant decline at the 99 percent level. Results by survey are shown in the figure below.

Figure 8.8. Percentage of women who wash their hands at least in three out of five critical times, baseline N=1625, midterm N=1669, endline N=1487

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

	Yes, I wash hands at least 3 out 5 critical times	No, I wash hands 0-2 out 5 critical times
Baseline research, n=1625	33%	67%
Midterm research, n=1669	36%	64%
Final research, n=1487	31%	69%
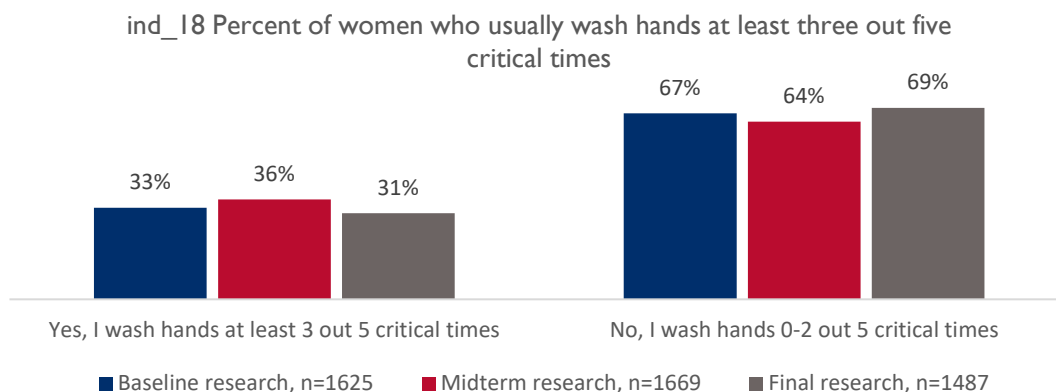
Endline results are shown in detail in Figure 8.9, by region and intervention type and compared to midterm results. In most cases, handwashing rates declined between the two surveys. For example, in the Light Touch area of Batken region, 44 percent washed hands in at least three critical instances in the midterm survey, while in the endline survey, the rate had fallen to 33 percent, which was statistically significant (p<0.05). Changes also occurred in other areas and regions, more often negative than positive, but most changes were not significant. However, it is somewhat encouraging that declines were substantially larger in light touch areas overall than in the full intervention villages, indicating that perhaps if there were broader trends causing fewer people to wash hands, the areas with a full range of project activities may have fared better than they would have without the project.

Figure 8.9. Percentage of women who wash hands at least in three out of five critical times, by region and type of area, midterm N=1,669, endline N=1,487

ind_18 Percent of women who usually wash hands at least three out five critical times
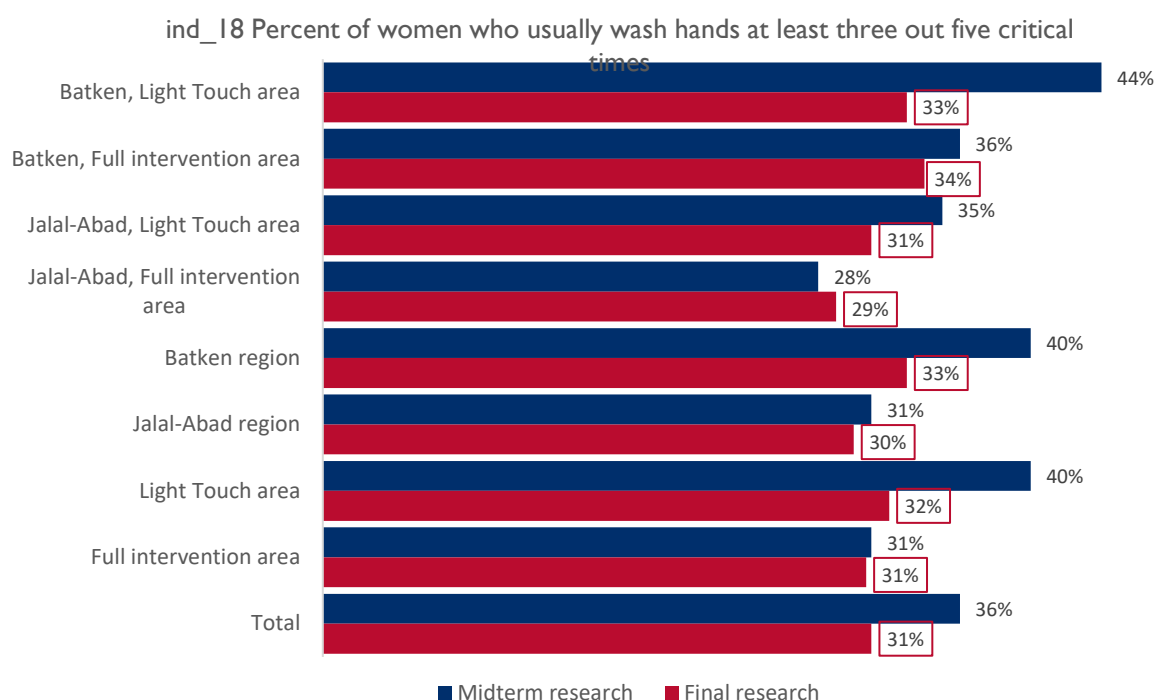
Table 8.3 and Figure 8.10 show results of the DID analysis. Consistent with previous tables and figures, the indicator declined in most cases between surveys, with the one exception being the Full Intervention areas of Jala-Abad, which experienced a very slight increase in the indicator. However, as described above, changes in the light touch areas were generally substantially more negative than full intervention zones, so interestingly, the overall DID is not only positive but significantly so (p<0.05). Thus, even though the indicator did decline even in the full intervention group, project activities there may have encouraged enough handwashing to keep results from being even worse.

Table 8.3. Main DID information for indicator number 18

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

Region	%, N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	39,72%	32,02%	-7,69%	31,47%	30,80%	-0,67%	7,02	0,04	*
	N	846	737	-109	823	750	-73	36		
Batken region	%	43,81%	32,74%	-11,06%	36,07%	34,01%	-2,06%	9,00	0,07	no
	N	452	452	0	366	297	-69	-69		
Jalal-Abad region	%	35,03%	30,88%	-4,15%	27,79%	28,70%	0,91%	5,06	0,28	no
	N	394	285	-109	457	453	-4	105		

Figure 8.10. Summary of DID results for indicator 18

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

	Midterm	Final
	39.72%	32.02%
	31.47%	30.80%
	31%	24%

DID=7,02 percent, p=0.04

— Full intervention — Light Touch --- Null hypothesis (Y0)
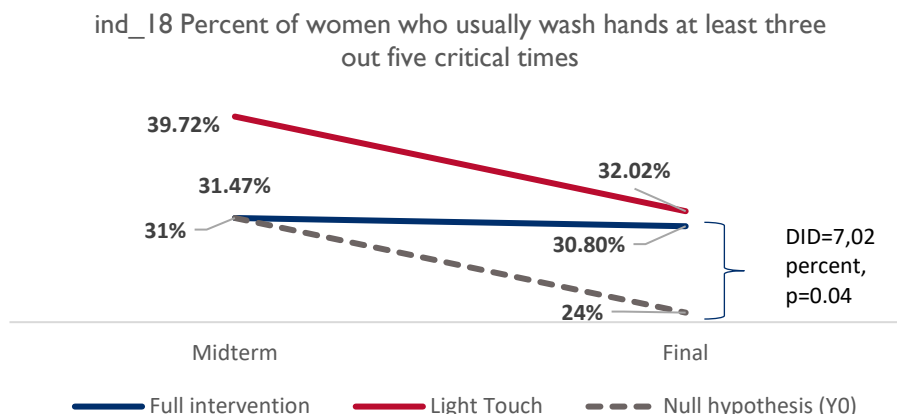
A number of conclusions can be drawn from Chapter 8. Almost all women (99 percent) reported that their households had handwashing facilities with soap and water. However, since the survey was conducted by phone, the interviewers did not have the opportunity to observe and check the accuracy of the information, as they would have done with a normal face-to-face household survey. The most common handwashing installation in all three surveys was a jug with a basin (90 percent). Many households had more than one handwashing installation and different types of stations. Slightly less than one-third of respondents (31 percent) said they washed hands in at least three of the five critical moments when handwashing is most recommended, down from 36 percent in the midterm survey. However, in areas with full interventions, the decline was significantly less than in Light Touch areas. The overall DID for this indicator was therefore positive and significant ($p < 0.05$). This may indicate that the project had some positive impact by preventing declines that might otherwise have occurred in the Full Intervention areas. The critical time when the largest percentage of women washed their hands was after going to the toilet (68 percent). As for the frequency of soap use, 51 percent of respondents said they always use soap when washing their hands. A Little over a third (35 percent) said they often use soap.

9. Sources of information on nutrition and exposure to USAID Advancing Nutrition project activities children

To gain a more complete understanding of outcome level results measured in this impact evaluation, we asked respondents what information they had received about nutrition and hygiene in the previous year, where they got the information and in what format. We also asked questions on select topics to assess their level of knowledge or recall about the information they received.

9.1 Sources of received information - television and smartphones

The majority of respondents (73 percent) reported watching TV, which was significantly less midterm and baseline levels (Figure 9.1.1). Most respondents said they watched TV in the evenings (63 percent) (Figure 9.1.2).

Figure 9.1.1. Percentage of respondents who said they watched television

J1 Do you watch television?

Yes	83% / 81% / 73%
No	17% / 19% / 27%

■ Baseline research, n=1356
■ Midterm research, n=1385
■ Final research, n=1063
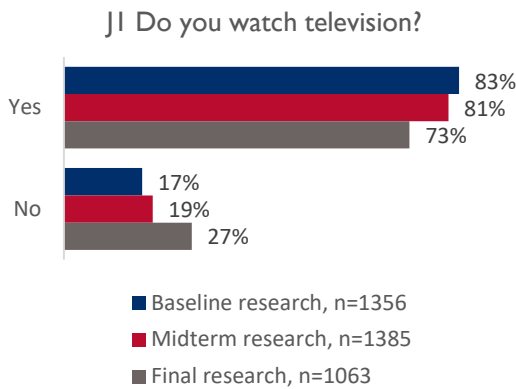
Figure 9.1.2: Most popular times of day to watch TV

J2 What times of day do you watch television most often?

Morning	Mid-day	Afternoon	Evening	Late night
7%	13%	6%	67%	7%
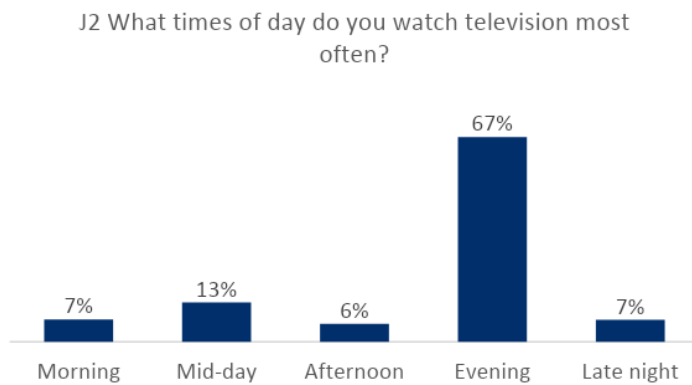
TV viewership was directly correlated with respondent's age, as shown in the figure below. The older the mother was, the more likely she was to watch television. Among mothers aged 18-24, 67 percent said they watched television, while among those aged 30-39, 78 percent said they watched, a statistically significant difference (p<0.01).

Figure 9.1.3 Three most viewed TV channels, endline N=1456

J1 Do you watch television?

18-24, n=338	25-29, n=493	30-39, n=574	40-49, n=50
67%	70%	78%	88%
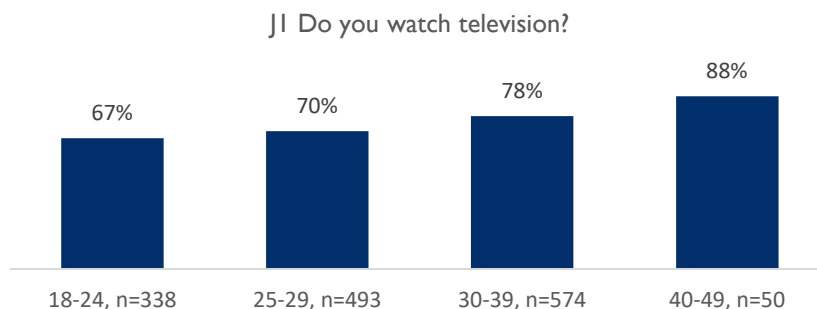
The most popular TV channels were the line of KTRK Corporation, including KTRK-Balastan, KTRK and KTRK-Music. It is also worth noting that mothers between the ages of 40 and 49 are less likely to watch KTRK-Balastan, while most young mothers said they preferred KTRK-Music. These findings are similar to the baseline and midterm surveys (Figure 9.1.4). The differences between full intervention and light touch areas were not statistically significant. All the TV channels presented in Figure 9.1.3 below, with the exception of Jalal-Abad TV, Osh TV, KTRK-Sport and Batken TV, were mentioned by respondents of both regions, indicating coverage of regional and national channels in both regions.

Figure 9.1.4: Most watched TV channels in the past 3 months, baseline N=1,356, midterm N=1,385, endline N=1,063

	Baseline research, n=1356	Midterm research, n=1385	Final research, n=1063
KTRK-Balastan	51%	52%	42%
KTRK	44%	34%	34%
KTRK-Muzyka	36%	37%	37%
ELTR	27%	33%	32%
Yntymak	23%	22%	16%
KTRK-Ala-Too 24	12%	7%	10%
Kyrgyzstan	9%	3%	5%
7 kanal	7%	8%	6%
ORT	5%	6%	5%
Batken-TV	5%	4%	7%
uzbekstan/	5%	5%	3%
Sevinli	4%	3%	0%
RTR	4%	3%	2%
5 kanal	3%	2%	5%
Piramida	3%	4%	6%
Osh TV	3%	2%	2%
Ilim-bilim	2%	1%	4%
JTR (Jalal-Abad TV)	2%	2%	4%
MIR/MIR-24	1%	2%	2%
Balazhan	1%	2%	1%
KTRK-Sport	1%	2%	1%
Region	1%	2%	3%
music tv	1%	2%	2%
Other	16%	13%	11%

The category «Other» included TV channels, which were marked by 1 percent or less of respondents, such as Lyubimyi, Keremet, Asia TV, Echo Manasa, Nur, TNT, Super TV, Kino 312, KTRK Madaniat, Disney, HTC+HTB, Osh-Pirim, Domashnii and others.

Indicator 32 was the percentage of women who reported seeing a TV spot about nutrition and/or hygiene in the past three months. In the endline survey, 31 percent of respondents said they had seen at least one such spot about nutrition/hygiene, most often on Batken TV, Yntymak or JTR (Jalal-Abad TV) channels. Since the baseline survey, the indicator decreased by 6 percentage points, which is statistically significant at the 95 percent level. The decline since the midterm, however, was only 1 percentage point (Figure 9.1.5).

Figure 9.1.5: Percentage of women who saw TV spots on nutrition and hygiene in the past 3 months, by survey, region, and type of intervention. baseline N=1,356, midterm N=1,348, endline N=1,032

ind_32 Percent of people who had seen at least one TV spot dedicated to nutrition and hygiene messages
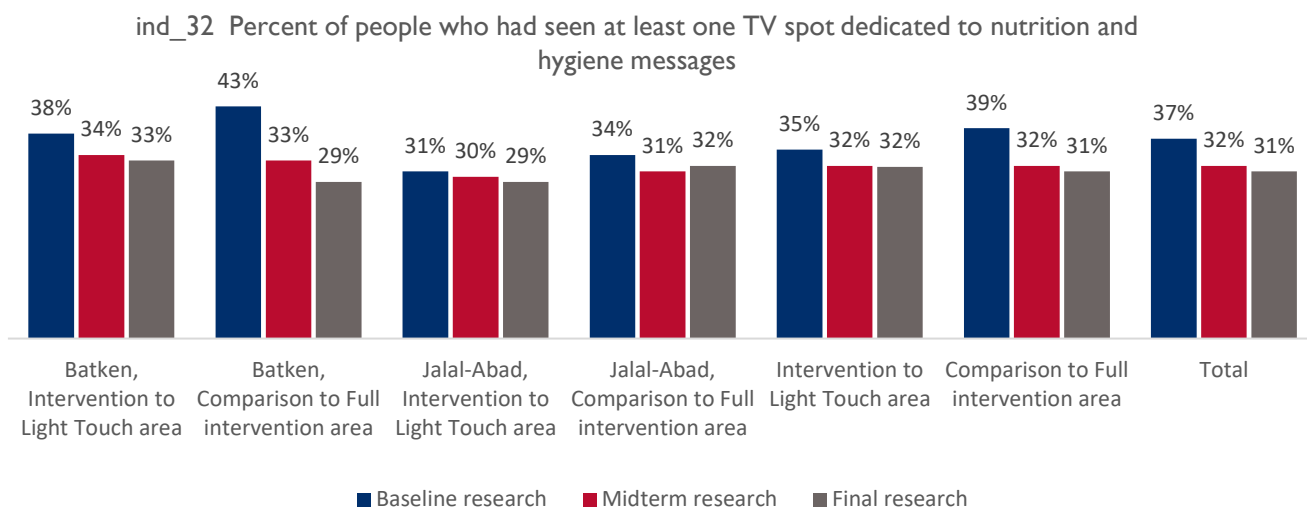
Table 9.1.1 and Figure 9.1.6 show results of the DID analysis. Changes between midterm and endline were very slight and not significant, so it is not surprising that the DID is small and not significant as well. This is not really surprising. Because TV channels cover relatively large areas, in some cases even the entire country, it is impossible to keep comparison areas from getting the same TV messages as in intervention areas. Thus it is not surprising in this case that changes between surveys, and DID levels, were very small.

Table 9.1.1. Main DID information for indicator number 32

ind_32 Percent of people who had seen at least one TV spot

Region	' N	Light touch			Full intervention			DID (% points)	Level of significance (p-value)	
		Midterm	Final	Diff	Midterm	Final	Diff			
Total	%	32,19%	31,55%	-0,65%	31,89%	31,06%	-0,83%	-0,18	0,96	no
	N	702	504	-198	646	528	-118	80		
Batken region	%	34,13%	32,80%	-1,33%	33,44%	29,33%	-4,12%	-2,79	0,62	no
	N	375	314	-61	299	208	-91	-30		
Jalal-Abad region	%	29,97%	29,47%	-0,50%	30,55%	32,19%	1,64%	2,14	0,70	no
	N	327	190	-137	347	320	-27	110		

Figure 9.1.6. Summary of DID results for indicator 32

ind_32 Percent of people who had seen at least one TV spot

- Full intervention
- Light Touch
- Null hypothesis (Y0)

32.19%
32%
31.89%
31.55%
31%
DID=-0,18 percent, p=0.96
31.06%

Mid-term   Final
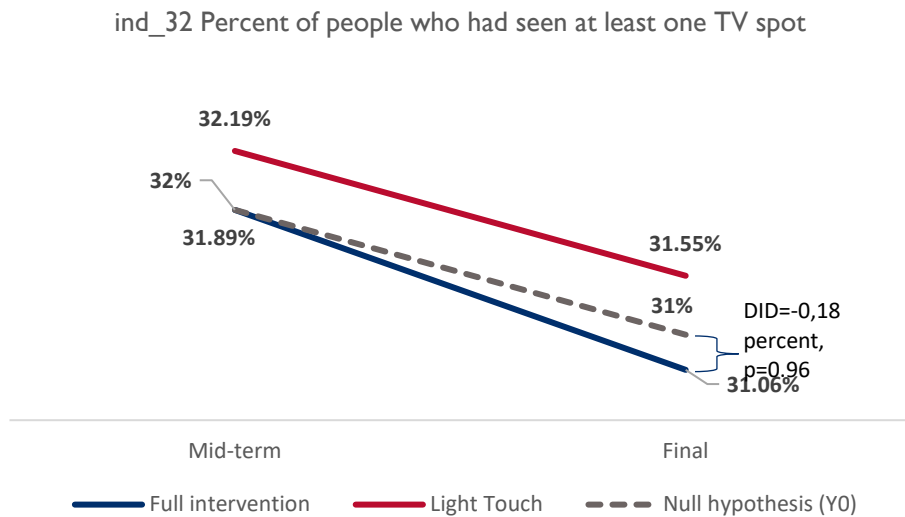
Other potential media sources for information include social media/smartphones. The vast majority of respondents use a smartphone with Internet access (92 percent). In the light touch and full intervention groups, as well as in two regions, changes of 1-2 percent are observed, which are somewhat surprising given the popularity of social media, but within the sampling error and not significant. Almost all respondents (97 percent) who have a smartphone with Internet access also use WhatsApp. Across the three surveys, use of Instagram, Tik Tok, and Telegram increased substantially, while use of «Odnoklassniki» declined. Women using Instagram increased from 59 percent to 70 percent across the three surveys, and use of Tik Tok increased from 1 percent to 16 percent (both changes significant at the 99 percent level). The proportion of young women aged 18 to 24 who use Instagram is almost twice as high as the proportion of respondents aged 40 to 49. A similar situation can be observed with TikTok in the endline (12 percent vs. 22 percent). Features of social media use are shown in the figure below.

Figure 9.1.7: Smartphone and social media use, by survey and by platform. baseline N=1473, midterm N=1574, endline N=1344

J5 Do you use a Smartphone (with access to the Internet)?

- Yes
- No

8%
92%
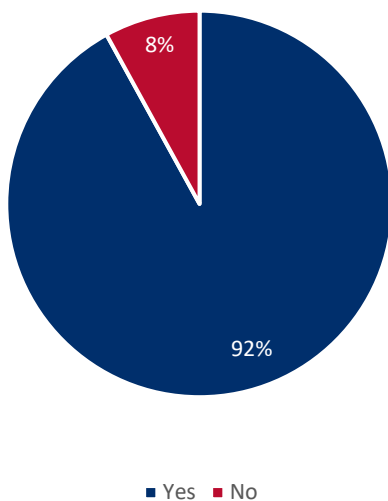
$J6 What social media and messengers do you use?

Platform	Baseline	Midterm	Final
WhatsApp	98%	97%	97%
Instagram	59%	65%	70%
You Tube	65%	64%	68%
Facebook	19%	19%	21%
Odnoklassniki	34%	25%	22%
Vkontakte	7%	6%	7%
Other	1%	0%	0%
Tik-Tok	1%	7%	16%
Telegram	4%	8%	14%

- Baseline research
- Midterm research
- Final research
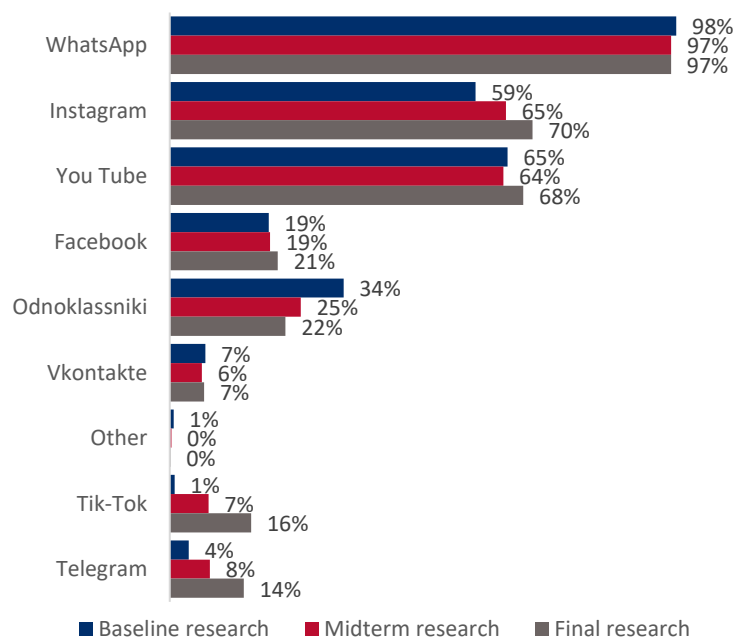
In conclusion, we can say that the vast majority of respondents have a smartphone (92 percent), and 73 percent watch TV. The majority of respondents watch television programs of the KTRK package in the evening. Slightly less than one-third (30 percent) of the women surveyed said they had seen a TV spot on maternal nutrition and hygiene on Batken TV, Yntymak or JTR (Jalal-Abad TV) in the last three months, which was slightly less (1 percent) than in the midterm survey. Almost all respondents (97 percent) who use a smartphone had the WhatsApp application on their phone, and other social media platforms are widely used, especially Instagram and YouTube. The popularity of some social networks has increased dramatically since the time of the baseline two years ago. Many more women reported using Instagram at endline compared to baseline (59 percent vs. 70 percent), with similar increases seen in Tik Tok (1 percent vs. 16 percent) and Telegram (4 percent vs. 14 percent). These all represent good potential platforms for reaching women in the future with nutrition messages.

9.2 Experience of receiving information received on various aspects of nutrition

This sub-chapter analyzes specific topics of information received, sources of information, format of information received, whether the information was shared with others, and respondents' knowledge about the content of messages.

Figure 9.2.1 below shows the percentage of women or other members of their household who received different nutrition messages by topic, by survey, by region, and by type of intervention, during the previous year. There were large differences in the specific topics mentioned, with breastfeeding (88 percent), hygiene (87 percent), nutrition for pregnant women and mothers (86 percent) and complementary foods (85 percent) mentioned most frequently in the endline. Information about the prevention of intestinal worms (54 percent), food storage and preservation (59 percent) and other nutrition-related topics was mentioned the least.

Table 9.2.1. Receiving information on nutrition by topic, region and type of intervention, baseline N=1,625, midterm N=2,234, endline N=1,928

Topics	Stages	Batken Intervention → Light touch	Batken Comparison → Full intervention	Jalal-Abad Intervention → Light touch	Jalal-Abad Comparison → Full intervention	Total
Breastfeeding	BL	85%	86%	81%	83%	84%
	MT	88%	81%	85%	82%	84%
	FN	84%	89%	87%	91%	88%
Complementary feeding	BL	81%	87%	84%	84%	84%
	MT	85%	80%	83%	82%	83%
	FN	84%	86%	85%	85%	85%
Having a diverse and nutrient-rich diet	BL	66%	70%	71%	69%	69%
	MT	69%	64%	70%	62%	66%
	FN	68%	71%	67%	71%	69%
Ways to prevent/treat anemia	BL	57%	68%	64%	67%	64%
	MT	68%	61%	64%	55%	62%
	FN	58%	66%	66%	64%	63%
	BL	92%	94%	92%	93%	93%

Topic						
Hygiene, including handwashing and other sanitation measures	MT	91%	88%	89%	86%	88%
	FN	86%	88%	87%	86%	87%
Nutrition for pregnant women and mothers	BL	84%	87%	82%	85%	85%
	MT	88%	84%	85%	82%	85%
	FN	85%	87%	84%	86%	86%
Food storage and preservation	BL	60%	65%	66%	62%	63%
	MT	60%	60%	66%	64%	62%
	FN	53%	59%	62%	63%	59%
Preventing intestinal worms	BL	42%	52%	49%	50%	48%
	MT	54%	54%	57%	51%	54%
	FN	49%	55%	58%	56%	54%

Interestingly, for most topics, the percentage of women who said they received information about the topic did not change much over the two-year period of the evaluation, suggesting that women were already getting substantial amounts of information on nutrition even at the time of the baseline. Since the baseline, the percentage of respondents who received information on hygiene and sanitation measures decreased from 93 percent to 87 percent, and food storage/preservation declined from 63 percent to 59 percent. On the other hand, the percentage of women who got information on breastfeeding increased from 84 percent to 88 percent, and the percentage receiving information on prevention of intestinal worms increased from 48 percent to 54 percent. Information received on other topics was little changed between surveys.

Another interesting aspect of Table 9.2.1 is the changes by survey in the groups receiving different types of interventions. In the period between the baseline and midterm surveys, the "Intervention → Light Touch" groups would have received a full set of project activities, while the "Comparison → Full Intervention" would have received no project interventions except mass media. In the period between midterm and endline, project support shifted, so the "Intervention → Light Touch" received only minimal streamlined support during that period, while the "Comparison → Full Intervention" groups began getting a full set of project activities. It is not surprising therefore that in most cases, the percentages of women saying they received information on a given topic increased more in the "Intervention → Light Touch" groups in year one, while the "Comparison → Full Intervention" groups increased more in year two.

We next asked respondents to name the main source of information for each topic they said they had heard about in the previous year. The large majority of survey participants cited visits to health facilities as the main source of information on almost all topics (Table 9.2.2). It was named as the main source by over 60 percent of respondents for all topics except food storage/preservation (49 percent). Social networks were the second most popular source of information, particularly on: food storage and preservation (23 percent), dietary diversity (14 percent) and preventing intestinal worms (10 percent). When asking about community activists supported by the project, we asked separately about household visits, WhatsApp group meetings (used mainly in year one), and community meetings. If those three sources are summed together, they could be considered as the second-most cited source of information for all topics except food storage/preservation, where they would constitute an important source (13 percent) but in third place behind health facilities and social networks. Interestingly, television and radio were very rarely or never mentioned as the main source, depending on the topic. That does not mean that they were not *an* important source, just that they were very rarely mentioned as the main one.

Table 9.2.2: Main source of information on nutrition topics, endline N=1928

Topics	House hold visit from community worker, health worker	From social workers/ activists via WhatsApp or ZOOM	Community meeting /public event	Health facilities visited by you	Friends or neighbors	Relatives	Social networks	Messengers	Radio	Television
Breastfeeding (n=1,691)	10%	2%	2%	75%	1%	1%	6%	1%	0%	0%
Complementary feeding (n=1,639)	7%	2%	2%	75%	1%	2%	7%	1%	0%	0%
Having a diverse and nutrient-rich diet (n=1,336)	8%	3%	3%	64%	1%	1%	14%	2%	0%	1%
Ways to prevent/treat anemia (n=1,213)	6%	2%	1%	77%	0%	1%	8%	1%	0%	0%
Hygiene, including handwashing and sanitation measures (n=1,673)	7%	2%	2%	68%	0%	1%	9%	2%	0%	4%
Nutrition for pregnant women and mothers (n=1,653)	4%	2%	1%	81%	0%	1%	7%	1%	0%	0%
Food storage and preservation (n=1,138)	6%	4%	3%	49%	1%	6%	23%	1%	0%	2%
Preventing intestinal worms (n=1,046)	6%	3%	2%	72%	0%	1%	10%	1%	0%	1%

We next asked respondents about the format in which they received information (Figure 9.2.1). The large majority (81 percent) said they received it orally. This likely reflects the fact that their main source of information in most cases was visits to health facilities, as well as various fora for receiving information from activists. Respondents also cited formats such as handouts, images/pictures, or videos as valuable sources of information.

Figure 9.2.1: Format of information received, by survey, baseline N=1625, midterm N=2161, endline N=1868

$K1c In what format did you receive information on the topics you mentioned?

Picture: Baseline 40%, Midterm 45%, Final 46%
Video: Baseline 38%, Midterm 28%, Final 30%
Handouts / Booklets / Flyers: Baseline 44%, Midterm 45%, Final 50%
Posts or articles on social networks: Baseline 24%, Midterm 17%, Final 25%
Orally: Baseline 81%, Midterm 79%, Final 81%
Other (specify): Baseline 5%, Midterm 4%, Final 4%

■ Baseline research, n=1625   ■ Midterm research, n=2161   ■ Final research, n=1868

Looking at the issue in terms of areas (Figure 9.2.2), there was a higher prevalence of handouts in the full intervention area (53 percent) in the endline survey than in the light touch area (46 percent), which was significant at the 95 percent level. No other significant regional or age differences were found.

Figure 9.2.2: Format of information received, by type of intervention, baseline N=1625, midterm N=2161, endline N=1868

Picture: Light touch 44%, Full intervention 48%
Video: Light touch 30%, Full intervention 29%
Handouts / Booklets / Flyers: Light touch 46%, Full intervention 53%
Posts or articles on social networks: Light touch 26%, Full intervention 24%
Orally: Light touch 82%, Full intervention 81%
Other (specify): Light touch 4%, Full intervention 4%

■ Light touch area, n=919   ■ Full intervention area, n=949
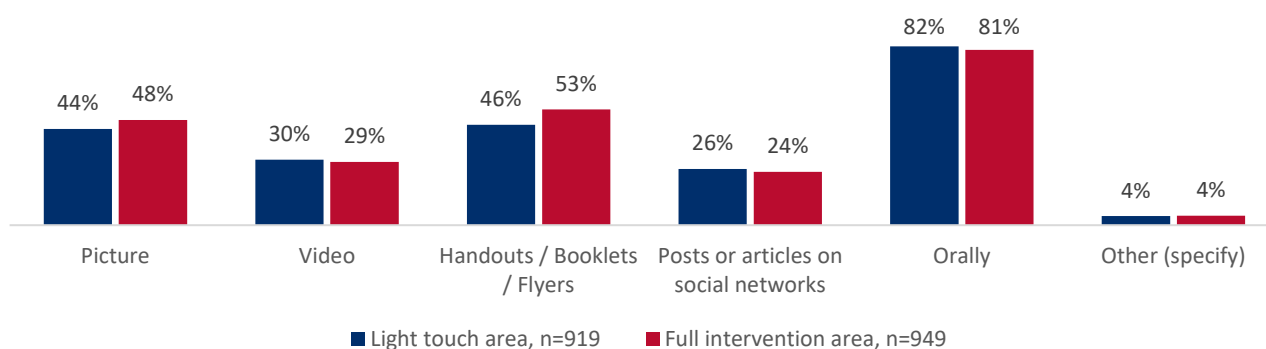
Women's knowledge about nutrition topics

The survey also asked questions to assess women's knowledge about various nutrition topics. All questions were asked in open format without providing possible choices for answers. The information was used to build the regression models for select outcome indicators described in previous chapters, and to help better understand context on how people learn about nutrition. This information may be useful in the future for planning effective nutrition programs in the Kyrgyz Republic.

The first question was about exclusive breastfeeding, specifically asking until what age a child should receive only breast milk. According to the WHO and the Ministry of Health of the Kyrgyz Republic, the optimal age for the introduction of complementary foods is 6 months (180 days), and accordingly, six months for an infant to receive breast milk exclusively.

The large majority of respondents (82 percent) correctly answered that during the first 6 months the child should be exclusively breastfed (Figure 9.2.2). This percentage was the same as in the baseline, but was 5 percent higher than in the midterm. The majority of those who answered something other than the correct level said it should be more than six months.

Figure 9.2.3. Age up to which a child should be exclusively breastfed, baseline N=1,625, midterm N=1,639, final N=1,399

K2_1 Until what age should a baby receive only breast milk (nothing other than breast milk / formula)?

	Less than 5 months (1,2,3 or 4 full months, or 5 not full months)	Until 6th months (5 full months)	More than 6 months (≥6 months)	Other (specify)	1 year / up to 1 year
Baseline research	2%	82%	6%	6%	3%
Midterm research	1%	77%	10%	8%	3%
Final research	1%	82%	10%	6%	0%
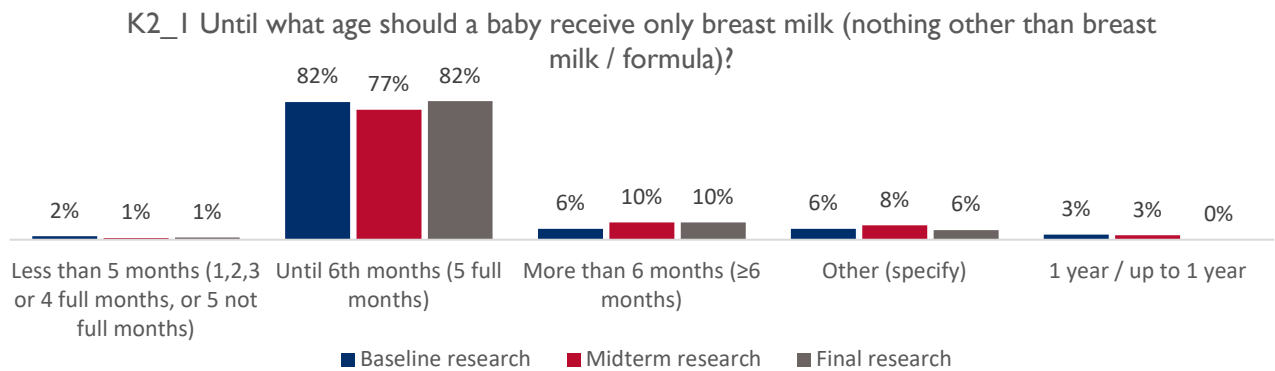
The next question asked women which essential vitamin comes from yellow, orange and red fruits and vegetables (vitamin A). Approximately one-fifth of respondents (19 percent) correctly answered, an increase of 3 percentage points since the midterm survey (not asked in baseline). The most common answer (41 percent) was vitamin C or C1, and 41 percent also responded that they did not know the answer. Older mothers (40-49 years old) were almost twice as likely (33 percent) to give the correct answer than younger mothers in the 18-24 years group (17 percent). No significant geographic differences were detected.

We then asked the women if they had ever heard of anemia. In the endline survey, 75 percent of mothers reported that they had heard of it. Similar to the case of vitamin a-rich vegetables, older women were more apt to know of anemia (Figure 9.2.4). As shown in the figure below, only 64 percent of young mothers aged 18-24 had heard of anemia, compared with 80 percent of mothers aged 30-39, and 93 percent of women aged 40-49.

Figure 9.2.4. Awareness on anemia by age group, N=1,399

K2d Have you ever heard of anemia?

	18-24, n=317	25-29, n=488	30-39, n=548	40-49, n=46
Yes	64%	73%	80%	93%
No	34%	25%	19%	7%
Do not know	2%	2%	1%	
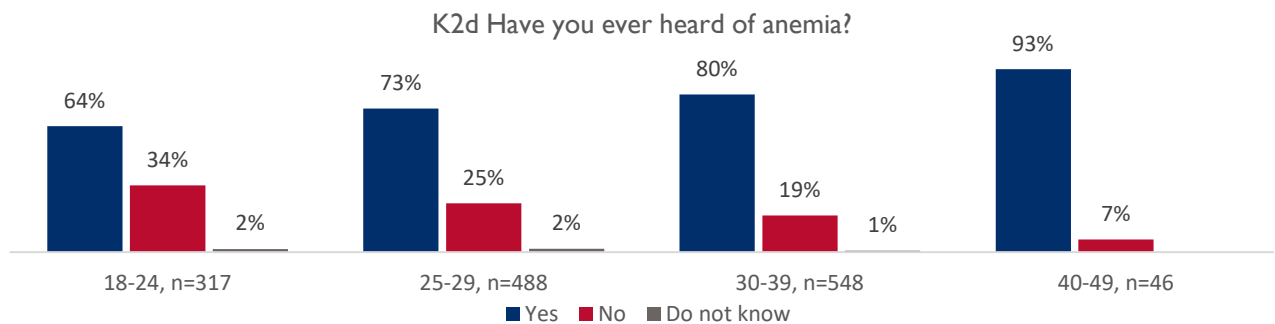
We also asked women if they knew what to do to prevent anemia (Figure 9.2.5). Most mentioned consuming iron-rich and iron-fortified foods as well as taking iron/multivitamin supplements. The figure below shows endline results compared to midterm. This question was not asked in the baseline.

Figure 9.2.5. Anemia prevention measures known to respondents, midterm N=1,200, endline N=1,046

$K2e What should be done to prevent anemia in women?

Measure	Midterm research	Final research
To eat iron-rich foods (liver, kidneys, heart, stomach and other internal organs: beef, horse meat, lamb, chicken,…)	40%	39%
To take other fortified foods that increase hemoglobin	43%	39%
To take iron/multi-supplements or other meditation that increase the hemoglobin	20%	23%
To take medications for the treatment and prevention of worms	3%	3%
To practice proper hygiene	4%	6%
Do not drink tea (black / green)	3%	3%
Other	9%	18%

■ Midterm research ■ Final research

In an earlier section of the questionnaire, we asked mothers when they normally wash their hands, but in this module we asked about their knowledge of critical moments for handwashing (Figure 9.2.6). The question was open-ended (answer options were not read out to the respondent). The results were very similar to the previous question about actual practice, but in most cases, knowledge was slightly higher than practice. "After using the toilet" was the most commonly mentioned time for handwashing (mentioned by 69 percent). It is interesting that the proportion of mothers with children aged 0 to 11 months (89 percent) considered it necessary to wash their hands before feeding their children significantly more than mothers of older children aged 12 to 23 months (68 percent). The figure below shows endline results compared to midterm. This question was not asked in the baseline.

Figure 9.2.6. Cases when handwashing is necessary according to respondents, midterm N=1,639, endline N=1,399

$K2f When is it necessary to wash hands?

Case	Midterm research	Final research
Before food preparation	30%	28%
Before feeding children	39%	41%
Before eating	42%	43%
After using the toilet	71%	69%
After cleaning defecation of a child	28%	26%
Other	62%	67%

■ Midterm research ■ Final research
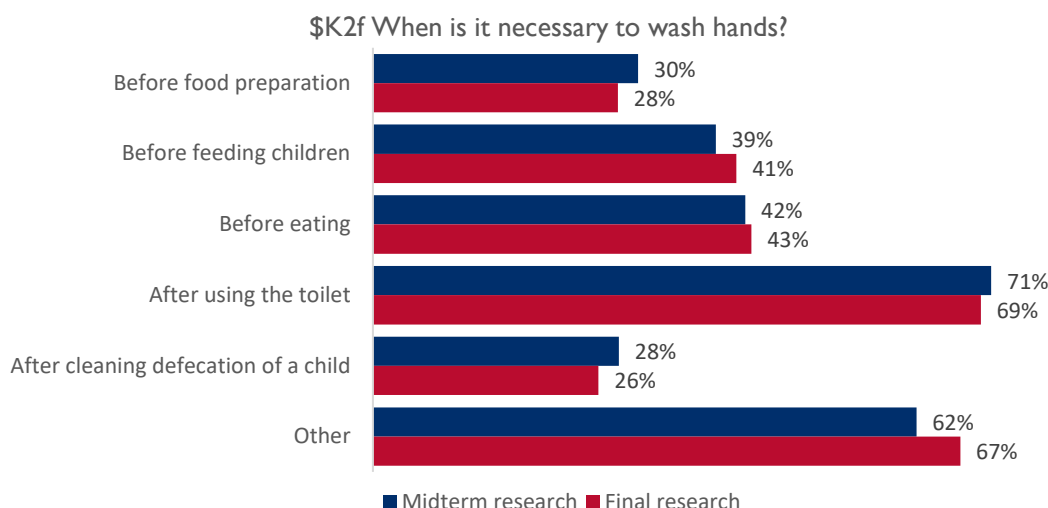
*The category «Other» included cases, such as: After caring for livestock / when touching animals, When I go into the house / When you come home from the street, after household chores / after some chores / when I finish some work, In the morning / after I wake up / when I wake up, After the street / when returning from a public place etc.

We also asked respondents how much a woman should eat during pregnancy - more, less, or the same amount as normal (Figure 9.2.7). More than half of the respondents (58 percent) correctly answered that pregnant women should eat more than usual, and a third (34 percent) of women reported that it is the same as usual. Women in Jalal-Abad were significantly (p<0.05) more likely to say they should eat more during pregnancy than women in Batken (62 percent compared to 54 percent).

Figure 9.2.7. Amount of food to be consumed during pregnancy according to respondents, N=1,399

K2g When pregnant, should women eat more, less or the same amount of food as her usual amount?

■ Less ■ The same ■ More ■ Do not know
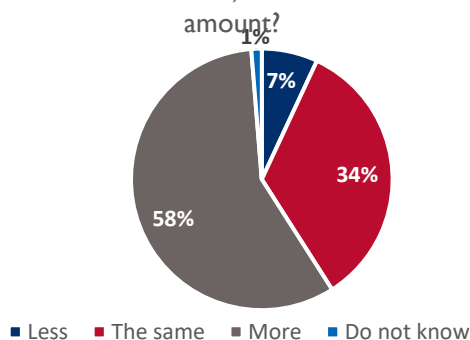
The table below shows detailed results by region and type of intervention group.

Table 9.2.3. Food amount to be consumed during pregnancy according to respondents, N=1,399

K2g When pregnant, should women eat more, less or the same amount of food as her usual amount?	Batken intervention-Light touch	Batken comparison-Full intervention	Jalal-Abad intervention-Light touch	Jalal-Abad comparison-Full intervention	Intervention-Light touch area	Comparison-Full intervention area	Total
Less	7%	6%	5%	5%	6%	6%	6%
The same	36%	37%	36%	41%	36%	39%	38%
More	56%	55%	56%	52%	56%	53%	55%
Do not know	1%	2%	2%	1%	1%	2%	2%

In the last question about knowledge, we asked women if they had heard of intestinal worms, and ways to prevent them. About two-thirds (67 percent) of mothers said they had heard of them. There was a direct proportional relationship between the mother's age and her knowledge of worms; older women were significantly more likely to have heard of them. As shown in Figure 9.2.8 below, only 56 percent of young mothers aged 18–24 had heard of helminths, while 80 percent of mothers aged 40–49 had heard of them.

Figure 9.2.8 Awareness of intestinal worms, endline N=1399

K2h Have you heard about intestinal worms?

■ Yes ■ No
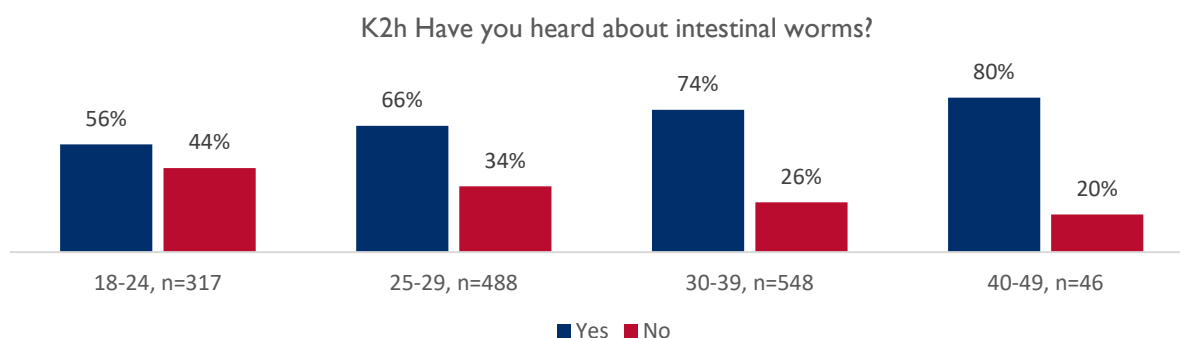
Figure 9.2.9 below shows the main ways that respondents mentioned as ways to prevent helminths, by survey. The most commonly mentioned preventive measures in the endline were: washing hands with soap (52 percent), thoroughly washing vegetables and fruits with boiled water before consumption (49 percent), and taking medications to prevent worms (12 percent), and boiling water for drinking (7 percent).

Figure 9.2.9. Measures to prevent intestinal worms according to respondents, midterm N=1,044, endline N=942

$K2j What can you do to prevent intestinal worms?

Measure	Midterm research, n=1044	Final research, n=942
Wash hands with soup	57%	52%
Wash vegetables and fruits well with boiled water before consuming/cooking	45%	49%
Cook meat and fish thoroughly	8%	5%
Use proper toilet	5%	4%
Take medications to prevent intestinal worms	6%	12%
Boil water for drinking	9%	7%
Give a deworming medicine to pet and livestock annually	2%	2%
Other	51%	51%

■ Midterm research, n=1044   ■ Final research, n=942

*The category «Other» included cases, such as: Hygiene / personal hygiene, keep clean, do not touch pets/do not play with cats, got pumpkin seeds, eat right/diet etc.

Finally, we asked respondents if they had heard about the USAID Advancing Nutrition project. a total of 43 percent of women in the endline survey said they had heard about it, compared with 38 percent at midterm and 27 percent at baseline. In both regions and overall, awareness of the project increased significantly more in the areas labeled "Intervention → Light Touch" in year one (the change between baseline to midterm, and more in the "Comparison → Full Intervention" groups in year two (the change between midterm to endline). For example, between baseline and midterm, awareness in the initial Intervention group ("Intervention → Light Touch") increased from 28 percent to 42 percent, while awareness in the initial Comparison group increased by a much smaller amount (27 percent to 33 percent). Similarly in the endline survey, the group receiving the Full Intervention from the project increased from 33 percent to 44 percent, while the group receiving streamline light touch interventions was unchanged at 42 percent between midterm and endline surveys. This is as would be expected, because the project would be more visibly active in areas with the most ongoing activities. Perhaps the most surprising finding was the relatively high levels of awareness expressed in the baseline survey. Since the baseline took place before project activities began in the initial intervention areas, one would expect awareness to be close to zero in that survey. The fact that 27 percent of respondents had heard of "USAID Advancing Nutrition" at the time of the baseline may have been mostly associated with "USAID" or other "nutrition" projects, such as SPRING perhaps. and not reflecting specific knowledge of the current project.

Figure 9.2.10: Awareness on the USAID Advancing Nutrition project by region and type of area, baseline N=1,625, midterm N=2,234, endline N=1,928

K3 Have you ever heard of the USAID Advancing Nutrition project?
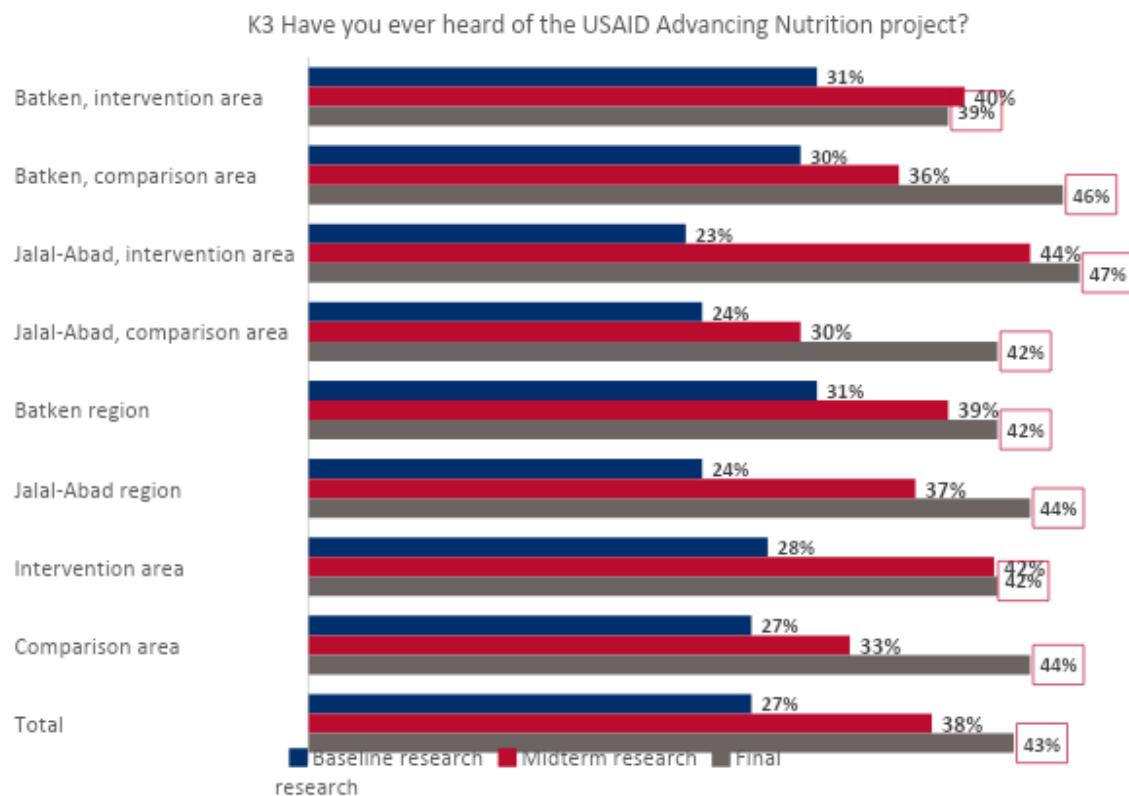
A number of conclusions can be drawn from this chapter. The large majority of endline survey participants reported receiving information about nutrition during the year before the survey. The topics most commonly cited on which they got information included breastfeeding (88 percent), hygiene (87 percent), nutrition of pregnant women and mothers (86 percent) and complementary foods for children (85 percent), food storage and preservation (59 percent) and prevention of intestinal worms (54 percent). Visits to health institutions were the main source of information for almost all nutrition topics, followed by social media and activists operating through home visits, WhatsApp groups, or community meetings.

In response to the knowledge questions in the questionnaire, 82 percent of mothers correctly answered that exclusive breastfeeding should last for the first 6 months of the child's life. Only 19 percent of mothers knew that the vitamin found in yellow, orange and red fruits and vegetables is vitamin A.

The large majority of respondents had heard of anemia, and older age groups were significantly more likely to have heard about it. 39 percent said that eating iron-rich foods was a way to prevent anemia, and the same percentage mentioned eating iron-fortified foods. 12 percent did not have an answer on how to prevent anemia. Just over two-thirds (67 percent) had heard of intestinal worms, and similar to anemia, the older age groups were more likely she has heard of intestinal worms

In terms of handwashing, "After going to the toilet" (69 percent) was the most commonly cited critical time handwashing.

Over the past year, awareness about the USAID Advancing Nutrition project increased by 5 percentage points, and since baseline awareness increased by 16 percentage points. At the time of the endline survey, 43 percent of respondents said they had heard about the project

10. Women's power in decision-making on nutrition

In this chapter, we examine the level and intensity of mothers' involvement in decision-making on 4 key nutrition issues: exclusive breastfeeding, complementary feeding, the need for soap and water in water installations, and the purchase of nutritious food. The outcome indicator definition is: "Percent of women reporting increased decision-making power with husband and/or family." It is measured by first determining whether decisions on each one of the topics were made, and when, then determining whether the women voiced her opinion, and whether she felt that her opinion was taken into consideration more in the current year than in previous years. The module on women's decision making was added in the midterm survey, so we cannot compare the results with the baseline.

As can be seen in the following table, more than half of respondents said that decisions were made in 2021 and/or 2022 on exclusive breastfeeding (60 percent) and complementary feeding (59 percent). For both of those topics, over 40 percent of women said decisions were made in the most recent year (2022). For handwashing facilities and purchase of nutritious food, the figures were 48 percent and 51 percent, respectively, but fewer women said that decisions were made on those topics in 2022.

Table 10.1. Decision-making acts on all 4 nutrition issues this and/or last year, midterm N=1,623, endline N=1,399

Have you or other members of your family made decisions on the following issues	Yes, decisions on this issue were made this year (2022)		Yes, decisions on this issue were made both this year (2022) and past year (2021)		No, decisions on this issue were not made in the past year		No, decisions on this issue were not made this or past year		Hard to answer	
	MT	EL	MT	EL	MT	EL	MT	EL	MT	EL
EBF	36%	43%	13%	17%	34%	20%	17%	20%	1%	1%
Complementary feeding	53%	49%	8%	10%	19%	12%	20%	29%	0%	0%
Need in soap and water in handwashing stations	13%	15%	24%	33%	42%	28%	19%	22%	1%	1%
Purchasing nutritious food	15%	16%	24%	35%	38%	25%	22%	22%	1%	1%

We next asked women if they expressed their personal opinion to their family when they made decisions on these 4 main nutritional issues. Figure 10.1 shows the percentage of women who gave, or did not give, their opinion on the four topics of interest, from among those who said their family made decisions on the topic in the most recent year (2022). Interestingly, mothers reported being least involved in decision-making on exclusive breastfeeding, in contrast to the other 3 issues. However, the percentage of mothers who generally speak their mind in all four situations still remains relatively high and ranges from 78 percent to 88 percent according to the endline survey. For three out of the four issues, women reported increased involvement of women, but changes were very slight in all cases.

Figure 10.1. Women's engagement in decision-making on 4 nutrition issues this year, midterm N=1623, endline N=1399

And did you express your personal opinion in your family when you made decisions on these issues this year?

■ Midterm research ■ Final research
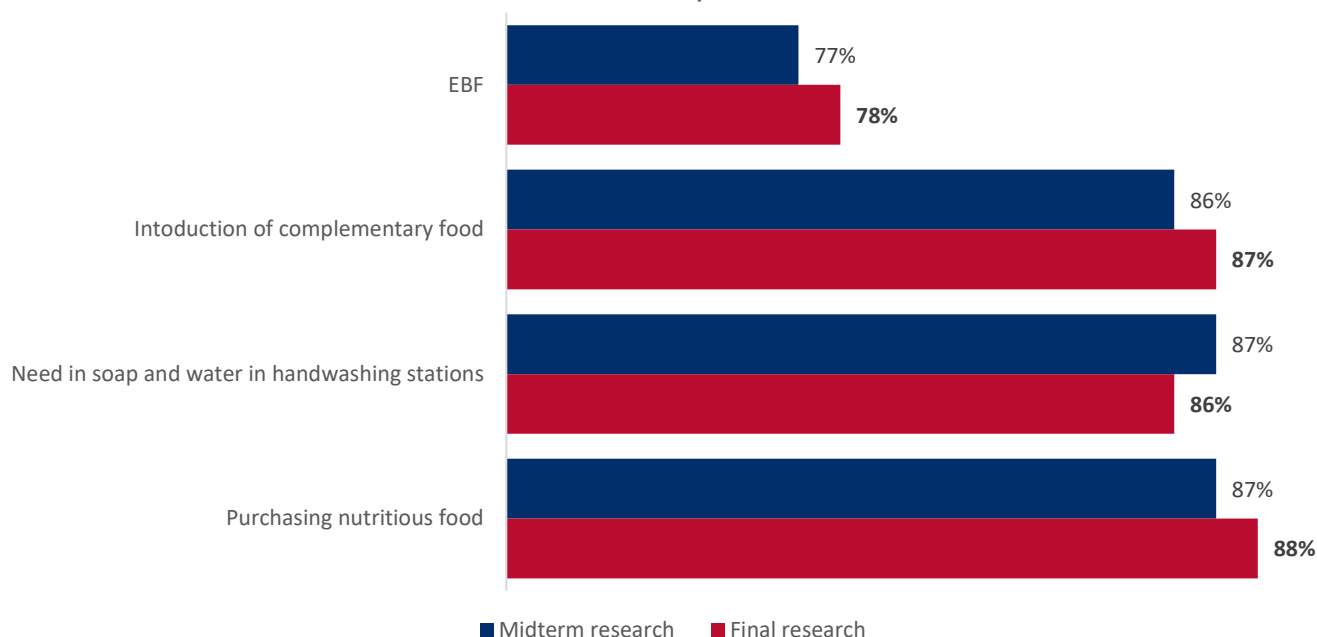
If the respondent said that she expressed her opinion on the topic under question (answered "yes" in Figure 10.1), she was asked the extent to which her opinions were taken into account. As shown in Table 10.2, almost all survey participants reported that at least some of their opinions were taken into account when making a decision on each particular issue. In almost all issues, women reported a fairly high level of involvement/power in the decision-making process, saying that their opinions were taken into account either mostly or completely. The largest weight of women's opinion in both the midterm and endline surveys was in relation to exclusive breastfeeding (73 percent said their opinions were fully taken into account), while purchasing of nutritious foods was the item where women expressed the least influence (60 percent said their opinions were fully taken into account). No significant differences were found by region, age, or gender.

Table 10.2. Weight of women's opinion in decision-making on nutrition issues in most recent year, midterm N=1,623, endline N=1,399

L1a. To what extent do you think your opinion and words were taken into account this year?	None of my opinions were taken into account		Only some of my opinions were taken into account		Most of my opinions were taken into account		My opinions were fully taken into account		Hard to answer/not sure	
	MT	FN	MT	FN	MT	FN	MT	FN	MT	FN
EBF	1%	0%	10%	11%	15%	15%	73%	73%	0%	0%
Complementary feeding	1%	0%	9%	11%	22%	20%	68%	69%	1%	0%
Need in soap and water in handwashing stations	0%	1%	12%	11%	22%	21%	65%	67%	0%	0%
Purchasing nutritious food	0%	0%	11%	11%	30%	28%	59%	60%	0%	0%

Tables 10.3 (midterm survey) and 10.4 (endline survey) show the same information, but disaggregated by type of intervention group. There were only slight differences and no clear patterns in results between the different groups.

Table 10.3 Weight of women's opinion in decision-making on all 4 nutrition issues this year by areas, midterm N=1,623

L1a. To what extent do you think your opinion and words were taken into account this year (2021)?	None of my opinions were taken into account		Only some of my opinions were taken into account		Most of my opinions were taken into account		My opinions were fully taken into account		Hard to answer/not sure	
	Light touch	Full intervention	Light touch	Full intervention	Light touch	Full intervention	Light touch	Full intervention	Light touch	Full intervention
EBF	2%	0%	10%	10%	16%	15%	72%	75%	1%	0%
Complementary feeding	1%	1%	8%	10%	18%	25%	72%	63%	1%	1%
Need in soap and water in handwashing stations	0%	0%	12%	12%	21%	24%	67%	64%	0%	0%
Purchasing nutritious food	0%	1%	12%	10%	31%	29%	57%	61%	0%	0%

Table 10.4. Weight of women's opinion in decision-making on all 4 nutrition issues this year by areas, endline N=1,399

L1a. To what extent do you think your opinion and words were taken into account this year (2022)?	None of my opinions were taken into account		Only some of my opinions were taken into account		Most of my opinions were taken into account		My opinions were fully taken into account		Hard to answer/not sure	
	Light touch	Full intervention	Light touch	Full intervention	Light touch	Full intervention	Light touch	Full intervention	Light touch	Full intervention
EBF	0%	1%	10%	11%	16%	15%	74%	73%	0%	1%
Complementary feeding	1%	0%	12%	10%	19%	21%	68%	69%	0%	0%
Need in soap and water in handwashing stations	0%	1%	11%	10%	20%	22%	69%	66%	0%	1%
Purchasing nutritious food	0%	1%	11%	12%	27%	30%	61%	58%	1%	0%

Finally, in order to determine whether women's involvement in decision-making was improving over time, we asked those who said they were involved in decision making on a given issue both this year (2022) and last

(2021): whether their opinions were taken into account more this year than last. The results (Figure 10.2). showed that almost all women (95–98 percent) said their opinions were taken into account more in the current year. This was the case in both the midterm and endline surveys. These very positive results are somewhat surprising, since it is often assumed that other family members such as mothers-in-law and husbands control many decisions in these areas. But since the two surveys sampled completely different sets of women, it is possible that the results accurately reflect an improving situation such that the large majority of women feel more empowered each year. As seen in Figure 10.2, there were only slight differences in the results between the midterm and endline surveys.

Figure 10.2. Weight of women's opinion in decision making compared to previous year, by survey. midterm N=533, endline N=624

And compared to the past year, this year has your opinion been taken into consideration more when making decisions on these issues?

- Midterm research ■ Final research
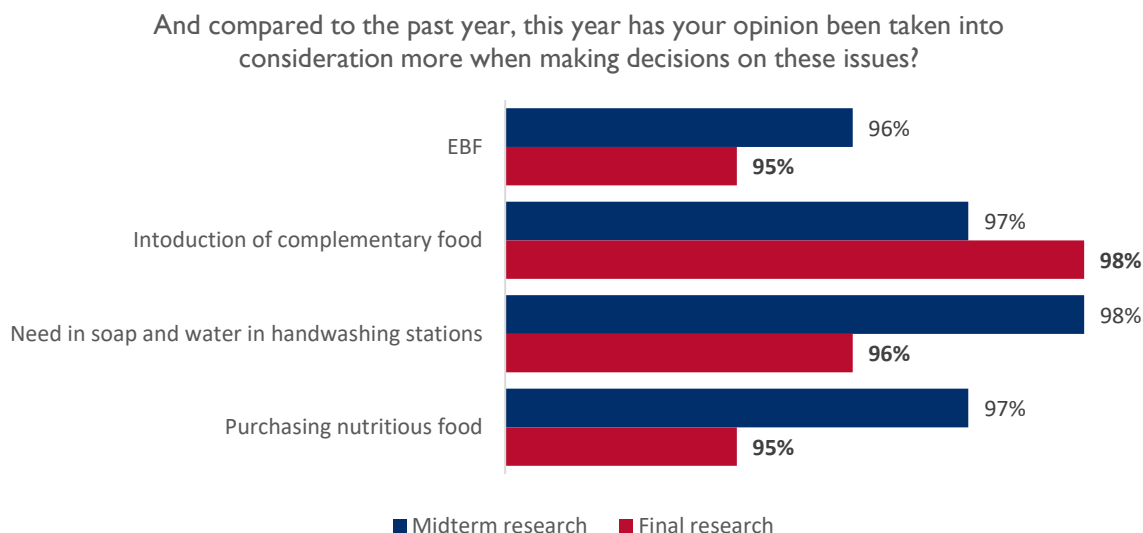
The very high levels of the above results are partly due to that fact that the denominator was women who participated in decision making in both 2021 and 2022. That leaves out all the women who said they did not participate, which could either mean that no discussions/no decisions were made, they were made by others without her involvement, or she just decided on her own without family discussions (the latter quite possible in the case of EBF). Strictly speaking, one could argue that those women should be included in the denominator, because they were surveyed and they did not report improved empowerment in their cases. If we include in the denominator all women in the survey, the results change a lot, as shown in Figure 10.3. Using this definition, the topics where women felt that their decision making inputs were more valued in the current year compared to previous were food purchasing (30 percent) and handwashing (28 percent). The two figures (10.2 and 10.3) show two different interpretations of the indicator, one very positive and one showing much room for improvement. Both may be considered informative in different ways. Figure 10.2 shows that *among women who participated in decisions in both the current and previous years*, almost all felt that their empowerment improved. But since most women in the overall sample did not participate in such decisions in both years, if we look at the entire sample as in Figure 10.3, it is only a minority of women who felt that their involvement and empowerment improved.

Figure 10.3. Weight of women's opinion compared to the last year in decision-making on all 4 nutrition issues this year, final N=1,399

And compared to the past year, this year has your opinion been taken into consideration more when making decisions on these issues?
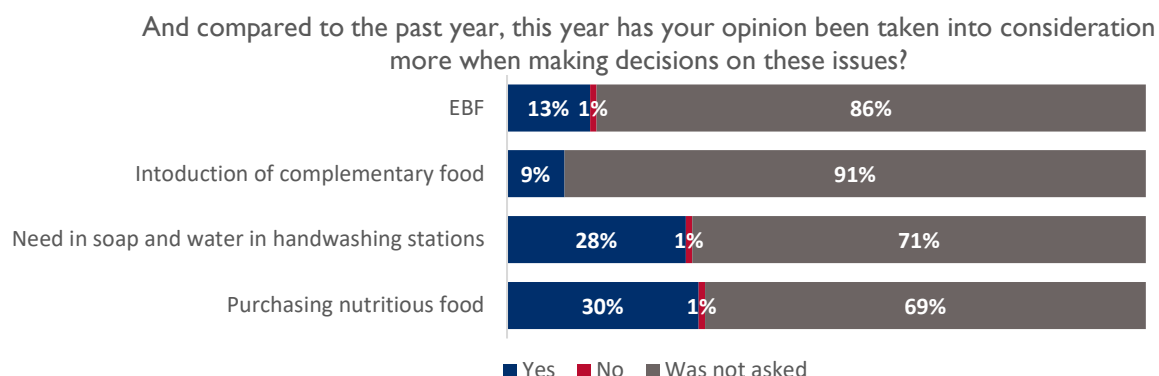
Among women who said they played a role in decision making in both 2022 and 2021, and among those who reported increased decision-making power, over 70 percent said their opinion has become "a lot more" taken into account this year compared to last year (Table 10.5). Results were similar in both surveys, with EBF and food purchasing slightly higher in the endline and complementary feeding and handwashing slightly higher in the midterm. The increase in EBF between the two surveys was significant at the 95 percent level.

Table 10.5. Consideration of women's opinion compared to the last year when making decisions on all 4 nutrition issues this year, midterm N=533, final N=624

Opinion was a little or a lot more taken into account?	A little more		A lot more		Hard to answer	
	MT	FN	MT	FN	MT	FN
Exclusive breastfeeding	26%	17%	73%	83%	1%	0%
Complementary feeding	21%	27%	77%	73%	2%	0%
Need in soap and water in handwashing stations	19%	22%	81%	78%	0%	0%
Purchasing nutritious food	22%	20%	78%	80%	0%	0%

In summary, there are some very positive results suggesting reasonably high levels of decision making, and a feeling among women that their empowerment is improving over time. Between 95 percent and 98 percent of women who participated in decision making in the year of the survey and in the previous year said their opinions were taken into account more in the current year. However, a majority of women still reported that they did not participate in decision making on the survey topics in the past two years, suggesting that there is still substantial room for improvement.

11. Conclusions

Table 11.1 summarizes the main results of the midterm and endline surveys in detail, showing results by region and type of intervention group for all indicators in the study, and difference in differences (DID) results for changes between the two surveys. We estimated project impact on outcomes by comparing changes in results in full intervention areas with changes in light touch' villages, and calculating DID. The Light Touch areas were not true comparison areas because there were project activities ongoing there in the year between the two surveys. The DID analysis therefore tests whether a full set of project activities had significantly greater effects on outcomes than the streamlined approach used in light touch areas.

Overall, the impact evaluation found many positive results, suggesting that women living in areas that received a full set of interventions had better nutrition outcomes than those living in the light touch areas. On the other hand, results in a few cases were flat or negative. One could hypothesize that DID results would have been better if we had compared the full intervention approach against a true comparison group with no project support, but that was not possible for programmatic reasons. The project had a strong interest in continuing support to areas that had received full interventions in year one (the original intervention areas), even at a reduced level, to try to maintain any gains achieved in those areas. Because of this, one could justifiably interpret the results as underestimating the true impact of the full set of interventions.

Table 11.1 is split into three parts. The top part shows the overall results for the full sample in both regions, and the next two parts show results for Batken and Jalal-Abad, respectively. In the full sample results for Light Touch areas, only 6 out of 23 data points[2] improved between the midterm and endline surveys. These discouraging results could indicate broader declining regional or national trends in the indicators we measured, and that the streamlined light touch approach was unable to counter. In the full intervention areas, on the other hand. 11 out of 23 data points improved. On a more encouraging note, 18 out of 24 DID values were in the desired direction, indicating that the change between surveys was better in full intervention areas than light touch. In seven cases, those DIDs were significant at the 95 percent or 99 percent levels, and in one additional case at the 90 percent level. This suggests that the project had a positive impact on those indicators at least, either by contributing to improvements in the full intervention areas that were significantly greater than in the light touch areas, or if the indicator worsened in both groups, by limiting the decline in the Full Intervention group. In cases where full intervention results were worse than or equal to light touch results, the differences were slight and none of the DIDs were statistically significant.

In general, the most positive results were related to IYCF and children's diets. The eight indicators with the most encouraging results are listed below. DIDs for all of them were in the desired direction and significant. These are the indicators where the project can be said to have had the greatest impact. Note that in the case of "junk food" consumption, the desired direction of the indicator is down, so negative changes between surveys were desired.

- Percent of children 6-8 months receiving a minimum acceptable diet ($p \leq 0.01$)

- Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status ($p < 0.05$)

- Percent of children 0–5 months who receive exclusive breastfeeding ($p < 0.01$)

- Percent of children 0–5 months who consumed sugary or processed food/liquids in the previous 24 hours ($p < 0.05$)

- Percent of children 6–23 months who consumed sugary or processed food/liquids in the previous 24 hours ($p < 0.01$)

- Percent of children 0–5 months who consumed tea in the previous 24 hours ($p < 0.05$)

- Percent of children 6–23 months who consumed tea in the previous 24 hours ($p < 0.05$)

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[2] The 23 data points include the 19 main indicators, plus disaggregated results as four of them had separate sub-indicators for younger (0–5 months) and older (6–23 months) children.

- Percent of women who usually wash hands at least three out five critical times (p<0.05)

There were some interesting regional differences, as seen in the bottom two sections of the table. Overall the two regions fared similarly, with full intervention area results increasing between the surveys for 11 out of 23 indicators in both regions. DIDs were in the desired direction in 17 out of 23 data points in Batken and 18 out of 23 data points in Jalal-Abad. However, in the eight indicators above where the project had the greatest impact, the results in each region varied substantially. For MMF, which had a significant DID overall (p<0.05), there were only slight changes in Batken between surveys, in both the full intervention and light touch groups. In Jalal-Abad, on the other hand, results were highly positive and significant, with a slight decline in light touch results coupled with very large increases in full intervention areas (21.0 percent to 32,4 percent between the two surveys. We found very similar results for MAD as well, which is not surprising because MMF is a component of MAD. Batken results for MAD were almost flat between surveys, but in Jalal-Abad there was substantial decline in Light Touch areas but a large and significant increase in the Full Intervention group (from 14 percent to 22.8 percent between surveys). Thus, almost all the contribution to project impact for both MMF and MAD came from increases in the full intervention group in Jalal-Abad. Also of note, between baseline and midterm, there were only slight improvements in these indicators in the original intervention or comparison groups, so most of the improvements came between midterm and endline surveys.

EBF was arguably the indicator where the project had its greatest impact. In both Batken and Jalal-Abad, the light touch areas experienced either flat results or declines, while the full intervention areas experienced large and significant increases. Encouragingly, this was also the case between baseline and midterm, though in year one, almost all of the improvement came from improvements in Batken.

For both "junk food" and tea consumption, results were very positive in both regions and in both the young and older age groups. Improvements in Batken were slightly larger than in Jalal-Abad. Encouragingly, the positive DIDs came about even though there were substantial improvements in the light touch areas for some of the sub-indicators. In other words, the favorable DIDs in most cases were because results improved in both light touch and full implementation areas, but improved significantly more in full intervention areas.

And finally, we have the interesting case of handwashing. In this case the positive overall DID came about despite the fact that the indicator declined substantially between midterm and endline in the light touch groups in both regions and fell slightly in the full intervention group in Batken (it increased very slightly in the full intervention group in Jalal-Abad). Thus, it appears from the DIDs that the project had a positive impact on handwashing, but in reality, that is only because results declined more in light touch areas than full intervention. Nevertheless, one could view these results positively, as perhaps there were broad regional or national declines in this indicator, and the full set of project interventions may have prevented the indicator from declining further than it did.

Table 11.1. Differences in difference (DID) results for 20 indicators, overall and by region

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
Total Sample									
ind_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	%	58,00%	59,24%	1,25%	56,76%	54,81%	-1,95%	-3,20	0,38
	N	838	714	-124	851	728	-123	NA	
ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took	Mean	133	132	-1	131	125	-5	-4	0,53
	N	725	615	-110	743	626	-117	NA	

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
any during their most recent pregnancy)									
ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	%	88,17%	85,83%	-2,34%	88,00%	85,56%	-2,44%	-0,11	0,97
	N	837	713	-124	850	727	-123	NA	
ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	%	64,74%	57,40%	-7,35%	63,17%	56,65%	-6,53%	0,82	0,82
	N	780	615	-165	782	632	-150	NA	
ind_5 Percent of children 6–23 months receiving a minimum acceptable diet	%	18,78%	16,38%	-2,41%	14,80%	19,76%	4,95%	7,36	0,01**
	N	724	574	-150	716	577	-139	NA	
ind_6 Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	%	66,15%	57,89%	-8,27%	62,92%	57,91%	-5,00%	3,26	0,38
	N	780	615	-165	782	632	-150	NA	
ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	%	61,79%	55,12%	-6,67%	57,29%	53,48%	-3,81%	2,86	0,45
	N	780	615	-165	782	632	-150	NA	
ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	%	25,83%	27,00%	1,17%	20,50%	28,94%	8,44%	7,27	0,03**
	N	724	574	-150	717	577	-140	NA	
ind_10 Percent of children 0–23 months who were put to breast within one hour of birth	%	70,77%	67,72%	-3,05%	69,06%	67,04%	-2,02%	1,03	0,72
	N	1129	951	-178	1099	971	-128	NA	
ind_11 Prevalence of exclusive breastfeeding of children under six months of age	%	55,40%	54,71%	-0,69%	39,69%	61,88%	22,19%	22,88	0,00***
	N	352	340	-12	320	341	21	NA	
ind_12 Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)	%	84,43%	82,04%	-2,40%	81,07%	81,55%	0,49%	2,88	0,62
	N	167	167	0	169	206	37	NA	
ind_13 Percent of children 6–23 months who are still breastfeeding	%	83,66%	85,43%	1,78%	82,56%	86,03%	3,47%	1,69	0,54
	N	777	611	-166	780	630	-150	NA	
ind_14_1 Percent of children 0–5 months who consumed sugary or	%	11,65%	11,47%	-0,18%	17,81%	9,38%	-8,43%	-8,25	0,02**
	N	352	340	-12	320	341	21	NA	

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
processed food/liquids in the previous 24 hours									
ind_14_2 Percent of children 6–23 months who consumed sugary or processed food/liquids in the previous 24 hours	%	78,33%	71,54%	-6,79%	79,41%	66,93%	-12,48%	-5,69	0,08*
	N	780	615	-165	782	632	-150	NA	
ind_15_1_1 Average number of times per day children 0–5 months consumed sugary or processed food or sweet liquids	Mean	5	5	0	5	4	-1	-1	0,54
	N	40	38	-2	55	31	-24	NA	
ind_15_1_2 Average number of times per day children 6–23 months consumed sugary or processed food or sweet liquids	Mean	5	5	0	5	5	0	0	0,50
	N	601	439	-162	615	421	-194	NA	
ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours	%	8,52%	9,41%	0,89%	13,75%	7,33%	-6,42%	-7,31	0,02**
	N	352	340	-12	320	341	21	NA	
ind_16_2 Percent of children 6–23 months who consumed tea in the previous 24 hours	%	64,36%	57,56%	-6,80%	68,03%	53,48%	-14,55%	-7,75	0,04**
	N	780	615	-165	782	632	-150	NA	
ind_17 Percent of women who received advice to take deworming medicine during pregnancy	%	19,60%	19,37%	-0,22%	14,74%	16,04%	1,30%	1,53	0,57
	N	842	733	-109	821	748	-73	NA	
ind_18 Percent of women who usually wash hands at least three out five critical times	%	39,72%	32,02%	-7,69%	31,47%	30,80%	-0,67%	7,02	0,04**
	N	846	737	-109	823	750	-73	NA	
ind_19 Percent of households with soap and water at a handwashing station on premises	%	99,76%	99,46%	-0,31%	99,27%	99,20%	-0,07%	0,24	0,66
	N	846	737	-109	823	750	-73	NA	
ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	%	94,16%	89,23%	-4,93%	94,10%	90,50%	-3,59%	1,34	0,48
	N	874	715	-159	830	737	-93	NA	
ind_32 Percent of people who had seen at least one TV spot	%	32,19%	31,55%	-0,65%	31,89%	31,06%	-0,83%	-0,18	0,96
	N	702	504	-198	646	528	-118	NA	
Indicator		**Batken Region**							

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
ind_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	%	62,78%	61,78%	-1,00%	63,45%	61,43%	-2,02%	-1,02	0,97
	N	454	416	-38	383	280	-103	NA	
ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)	Mean	137	136	-2	136	131	-5	-3	0,39
	N	404	370	-34	370	251	-119	NA	
ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	%	88,74%	85,82%	-2,92%	88,51%	86,74%	-1,77%	1,15	0,74
	N	453	416	-37	383	279	-104	NA	
ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	%	65,30%	56,76%	-8,53%	68,27%	58,15%	-10,13%	-1,59	0,76
	N	389	377	-12	394	270	-124	NA	
ind_5 Percent of children 6–23 months receiving a minimum acceptable diet	%	17,66%	17,38%	-0,28%	14,84%	15,81%	0,98%	1,26	0,76
	N	368	351	-17	364	253	-111	NA	
ind_6 Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	%	65,55%	55,17%	-10,38%	65,74%	58,89%	-6,85%	3,53	0,50
	N	389	377	-12	394	270	-124	NA	
ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	%	64,27%	55,70%	-8,56%	62,69%	59,26%	-3,43%	5,13	0,33
	N	389	377	-12	394	270	-124	NA	
ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	%	25,82%	27,92%	2,11%	20,05%	24,51%	4,45%	2,35	0,62
	N	368	351	-17	364	253	-111	NA	
ind_10 Percent of children 0-23 months who were put to breast within one hour of birth	%	73,39%	68,48%	-4,90%	75,35%	72,37%	-2,98%	1,92	0,63
	N	605	587	-18	499	380	-119	NA	
ind_11 Prevalence of exclusive breastfeeding of children under six months of age	%	59,45%	56,13%	-3,31%	41,67%	60,36%	18,69%	22,01	0,01
	N	217	212	-5	108	111	3	NA	
ind_12 Percent of children 6-8 months who received	%	86,81%	81,31%	-5,50%	77,78%	82,35%	4,58%	10,08	0,24

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
semi-solid or solid food during the previous 24 hours	N	91	107	16	63	68	5	NA	
ind_13 Percent of children 6–23 months who are still breastfeeding	%	85,31%	86,13%	0,82%	83,93%	85,13%	1,20%	0,38	0,92
	N	388	375	-13	392	269	-123	NA	
ind_14_1 Percent of children 0–5 months who consumed sugary or processed food/liquids in the previous 24 hours	%	11,98%	13,68%	1,70%	25,00%	9,91%	-15,09%	-16,79	0,00
	N	217	212	-5	108	111	3	NA	
ind_14_2 Percent of children 6–23 months who consumed sugary or processed food/liquids in the previous 24 hours	%	77,12%	72,41%	-4,71%	85,03%	71,48%	-13,54%	-8,84	0,05
	N	389	377	-12	394	270	-124	NA	
ind_15_1_1 Average number of times per day children 0–5 months consumed sugary or processed food or sweet liquids	Mean	4	5	1	5	2	-3	-4	0,08
	N	25	29	4	29	11	-18	NA	
ind_15_1_2 Average number of times per day children 6–23 months consumed sugary or processed food or sweet liquids	Mean	6	5	-1	5	5	0	0	0,93
	N	295	272	-23	272	192	-80	NA	
ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours	%	9,68%	9,43%	-0,24%	17,59%	9,91%	-7,68%	-7,44	0,15
	N	217	212	-5	108	111	3	NA	
ind_16_2 Percent of children 6-236–23 months who consumed tea in the previous 24 hours	%	60,15%	55,97%	-4,19%	72,84%	60,37%	-12,47%	-8,29	0,12
	N	389	377	-12	394	270	-124	NA	
ind_17 Percent of women who received advice to take deworming medicine during pregnancy	%	17,33%	17,82%	0,48%	12,33%	12,12%	-0,21%	-0,69	0,85
	N	450	449	-1	365	297	-68	NA	
ind_18 Percent of women who usually wash hands at least three out five critical times	%	43,81%	32,74%	-11,06%	36,07%	34,01%	-2,06%	9,00	0,07
	N	452	452	0	366	297	-69	NA	
ind_19 Percent of households with soap and water at a handwashing station on premises	%	100,00%	99,34%	-0,66%	98,91%	98,99%	0,08%	0,75	0,36
	N	452	452	0	366	297	-69	NA	

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	%	94,43%	88,79%	-5,64%	96,37%	91,41%	-4,96%	0,68	0,80
	N	467	455	-12	386	291	-95	NA	
ind_32 Percent of people who had seen at least one TV spot	%	34,13%	32,80%	-1,33%	33,44%	29,33%	-4,12%	-2,79	0,62
	N	375	314	-61	299	208	-91	NA	
Indicator		**Jalal-Abad Region**							
ind_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	%	52,34%	55,70%	3,36%	51,28%	50,67%	-0,61%	-3,97%	0,36
	N	384	298	-86	468	448	-20	NA	
ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)	Mean	128	127	-1	122	122	0	1	0,92
	N	321	245	-76	392	375	-17	NA	
ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	%	87,50%	85,86%	-1,64%	87,58%	84,82%	-2,76%	-1,12	0,75
	N	384	297	-87	467	448	-19	NA	
ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food groups in the previous 24 hours	%	64,19%	58,40%	-5,79%	57,99%	55,52%	-2,46%	3,33	0,54
	N	391	238	-153	388	362	-26	NA	
ind_5 Percent of children 6–23 months receiving a minimum acceptable diet	%	19,94%	14,80%	-5,15%	14,77%	22,84%	8,07%	13,21	0,00
	N	356	223	-133	352	324	-28	NA	
ind_6 Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	%	66,75%	62,18%	-4,57%	60,05%	57,18%	-2,87%	1,70	0,75
	N	391	238	-153	388	362	-26	NA	
ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	%	59,34%	54,20%	-5,13%	51,80%	49,17%	-2,63%	2,50	0,65
	N	391	238	-153	388	362	-26	NA	
ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	%	25,84%	25,56%	-0,28%	20,96%	32,41%	11,44%	11,73	0,02
	N	356	223	-133	353	324	-29	NA	
ind_10 Percent of children 0–23 months who were	%	67,75%	66,48%	-1,26%	63,83%	63,62%	-0,21%	1,05	0,81

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
put to breast within one hour of birth	N	524	364	-160	600	591	-9	NA	
ind_11 Prevalence of exclusive breastfeeding of children under six months of age	%	48,89%	52,34%	3,45%	38,68%	62,61%	23,93%	20,47	0,01
	N	135	128	-7	212	230	18	NA	
ind_12 Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours	%	81,58%	83,33%	1,75%	83,02%	81,16%	-1,86%	-3,61	0,66
	N	76	60	-16	106	138	32	NA	
ind_13 Percent of children 6–23 months who are still breastfeeding	%	82,01%	84,32%	2,32%	81,19%	86,70%	5,52%	3,20	0,44
	N	389	236	-153	388	361	-27	NA	
ind_14_1 Percent of children 0–5 months who consumed sugary or processed food/liquids in the previous 24 hours	%	11,11%	7,81%	-3,30%	14,15%	9,13%	-5,02%	-1,72	0,72
	N	135	128	-7	212	230	18	NA	
ind_14_2 Percent of children 6–23 months who consumed sugary or processed food/liquids in the previous 24 hours	%	79,54%	70,17%	-9,37%	73,71%	63,54%	-10,18%	-0,80	0,87
	N	391	238	-153	388	362	-26	NA	
ind_15_1_1 Average number of times per day children 0–5 months consumed sugary or processed food or sweet liquids	Mean	5	4	-1	3	4	1	3	0,22
	N	15	9	-6	28	20	-8	NA	
ind_15_1_2 Average number of times per day children 6–23 months consumed sugary or processed food or sweet liquids	Mean	5	5	0	5	5	0	0	0,45
	N	306	167	-139	282	229	-53	NA	
ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours	%	6,67%	9,38%	2,71%	11,79%	6,09%	-5,71%	-8,41	0,06
	N	135	128	-7	212	230	18	NA	
ind_16_2 Percent of children 6–23 months who consumed tea in the previous 24 hours	%	68,54%	60,08%	-8,46%	63,14%	48,34%	-14,80%	-6,34	0,22
	N	391	238	-153	388	362	-26	NA	
ind_17 Percent of women who received advice to take deworming medicine during pregnancy	%	22,19%	21,83%	-0,36%	16,67%	18,63%	1,96%	2,32	0,57
	N	392	284	-108	456	451	-5	NA	

Indicator		Light Touch			Full intervention			DID (% points)	Level of significance (p-value)
		Midterm	Endline	Difference MT to EL	Midterm	Endline	Difference MT to EL		
ind_18 Percent of women who usually wash hands at least three out five critical times	%	35,03%	30,88%	-4,15%	27,79%	28,70%	0,91%	5,06	0,28
	N	394	285	-109	457	453	-4	NA	
ind_19 Percent of households with soap and water at a handwashing station on premises	%	99,49%	99,65%	0,16%	99,56%	99,34%	-0,22%	-0,38	0,60
	N	394	285	-109	457	453	-4	NA	
ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	%	93,86%	90,00%	-3,86%	92,12%	89,91%	-2,21%	1,65	0,57
	N	407	260	-147	444	446	2	NA	
ind_32 Percent of people who had seen at least one TV spot	%	29,97%	29,47%	-0,50%	30,55%	32,19%	1,64%	2,14	0,70
	N	327	190	-137	347	320	-27	NA	

* significant at 90 percent level
** significant at 95 percent level
*** significant at 99 percent level

Brief interpretation of each indicator

Indicator 1. Over the past year between midterm and endline surveys, the percentage of mothers who reported taking iron-containing medications for 90 days or more during their last pregnancy remained almost unchanged. However, the rate has increased by 10 percent since the baseline survey. There were no significant differences between regions or type of intervention.

Indicator 2. Similar results to indicator 1. The average number of days for which women reported taking iron supplements was 129 days, which was 3 days less than the year ago but 12 days more than in the baseline survey. There were no significant differences between regions or type of intervention.

Indicator 3. The MDD-W indicator was high (over 85 percent) in all three surveys, indicating generally good dietary diversity for women. A correlation was observed between the age of the child and the nutritional status of the mother in all three phases of the survey: women with children aged 6–23 months were more likely to have more varied diets than mothers of infants aged 0–5 months. There were no significant differences between regions or type of intervention.

Indicator 4. 57 percent of children aged 6–23 months consumed at least 5 food groups out of the 8 recommended food groups, which represented a decline from the baseline and midterm surveys. The indicator fell in both regions and both types of intervention group, but the declines were substantially less in Jalal-Abad than in Batken.

Indicator 5. The proportion of children (6 to 23 months) receiving a minimum acceptable diet (MAD) was low throughout the survey period, but showed significant improvements in the year between the midterm and endline surveys. Results in Batken were flat, so the overall improvements came about almost entirely due to improvements in the Full Intervention areas of Jalal-Abad. This was a strong result for the project, indicating that the project had a positive impact on MMF, though levels are still low, so there is ample room for improvement.

Indicator 6. 58 percent of children aged 6–23 months consumed iron-rich foods in the last 24 hours, which was a significant decrease since the baseline and midterm surveys. There were no significant differences between regions, or between the intervention types.

Indicator 7. 54 percent of children aged 6–23 months have consumed vitamin A-rich foods in the last 24 hours, which was 6 percent less than in the baseline and midterm survey phases. There were no significant differences between regions, or between the intervention types.

Indicator 8. Was dropped from the project's AMELP

Indicator 9. The change between midterm and endline surveys was significantly higher in the full intervention areas (21 percent to 29 percent) than in the light touch areas (26 percent to 27 percent), which was not found in either the baseline or the midterm survey. This was a strong result for the project, indicating that the project had a positive impact on MMF, though levels are still low, so there is ample room for improvement. Similar to MAD, results in Batken were not very positive; almost all of the improvement in MMF came from improvements in the Full Intervention group in Jalal-Abad.

Indicator 10. 67 percent of women put a baby to their breasts in the first hour, which was a statistically significant improvement from the baseline (63 percent). There were no significant differences between regions, or between the intervention types.

Indicator 11. EBF results were among the most positive in the evaluation, with the indicator increasing by 22 percentage points between midterm and endline in the Full Intervention groups, while remaining essentially flat in the Light Touch areas. Similar improvements occurred in both regions. There were also similar improvements observed in the midterm survey between the intervention versus comparison areas after year one. Overall, EBF increased from 48 percent to 58 percent between the baseline and endline surveys. This is an area where the project appears to have had a significant positive impact on nutrition outcomes.

Indicator 12. The difference in results in complementary feeding between the full intervention and light touch areas was not significant. Results in Batken were somewhat stronger than in Jalal-Abad, but not significantly so. For this indicator, it is important to note that the sample size was very small due to the small age range.

Indicator 13. Mothers of 86 percent of children aged 6–23 months reported that they were still breastfeeding. Differences between regions and type of intervention group were not significant. Despite the lack of significant project impact on this indicator, it is noteworthy that levels have been high in all three surveys, and that the indicator improved in both the Full Intervention and Light Touch areas, in the endline survey, but the changes were not statistically significant.

Indicator 14. This was another indicator where project interventions appear to have had a very positive impact. 69 percent of respondents gave their child (6–23 months) sugary/processed food or sugared beverages during the previous 24 hours. While still too high, that percentage has decreased by 17 percentage points since the baseline survey (86 percent vs. 69 percent). Declines were significantly greater in the Full Intervention areas compared to light touch, showing that junk food consumption declined significantly more in areas where the project was operating with a full set of activities. This was a very positive result for the project.

Indicator 15. On average, children aged 0–5 months consumed sweet, processed food or sweet drinks almost 4.40 times a day, and 5.05 times a day at the age of 6–23 months. There were no significant differences by region or type of intervention.

Indicator 16. Tea consumption was another area where the project appears to have had a significant and positive impact. Improvements were significantly greater in the full intervention areas than Light Touch, so the DID was significant. Improvements were also seen in both regions. Overall, tea consumption dropped by 18 percentage points since the baseline survey, but remains relatively high at 55 percent so there is still room for improvement. Nevertheless, this was another positive result for the project.

Indicator 17. 18 percent of pregnant women in the endline survey received recommendation/advice on preventing intestinal worms. There were only slight changes between surveys, and no significant differences between regions or intervention types.

Indicator 18. 31 percent of women reported that they usually wash their hands in at least 3 out of 5 critical cases, which was 5 percentage points less than a year ago. The DID for this indicator was positive and significant (p<0.05), so we can state with 95 percent confidence that the project had a positive impact on the indicator. However, there were declines between surveys in both regions and both intervention types. The reason the DID was positive was because declines in the Light Touch group were significant, while they were very slight in the Full Intervention areas. Thus, the project may have had a favorable impact simply by maintaining handwashing at midterm levels in areas where a full set of activities were in place. The result is favorable in the sense that DID was significant, but the indicator levels were low and declining between surveys, so there is still ample room for improvement.

Indicator 19. 99-100 percent of respondents reported that they have soap and water in handwashing facilities, so there were no differences of note between regions or type of intervention

Indicator 20. The percentage of respondents who stored or harvested food decreased from 95 percent to 90 percent between baseline and endline. Differences between regions or intervention types were not significant, but levels everywhere were high, so there is not as much room for improvement as with most other indicators.

Indicator 32. 31 percent of women surveyed saw at least one TV spot about nutrition and hygiene in the last three months. Changes between surveys were not significant; nor were there significant differences by region.

Indicator 21. The survey found that involvement of women in decision-making was quite high on the four topics we asked about. About 78-88 percent of women said they expressed their opinion when deciding whether to introduce complementary foods, breastfeed exclusively, purchase nutrient-rich foods, or provide soap and water in handwashing stations of the household. Among women who said they participated in decision making in both of the previous two years, 98 percent said their opinion was more taken into account in the current year than the previous year. If we use the full sample as the denominator, between 9 percent and 30 percent of women, depending on the topic, said their opinion was taken into consideration more in 2022 than in 2021. There were no notable differences by region or intervention type.

Limitations
Restrictions and difficulties identified during survey

1. The lack of visual contact led to an increase in the number of rejections received during the telephone interview. This type of survey usually implies shorter responses, which is due to the difficulty of listening to the

respondent, as only listening perception is involved. In addition, the respondent may get tired, forget the main question when listing a long list of products and hesitate to ask again, so some might give inaccurate answers.

2. Because of some of the issues mentioned in point 1, it is generally recommended to keep phone surveys relatively short. with 30 minutes considered a maximum amount of time to expect people to stay engaged in a phone interview. Our questionnaire took just over 30 minutes to apply. This limited our ability to ask as many questions as we would have liked. In a longer face-to-face survey, we could have gained more sociodemographic data for regression analysis and better understanding of results, and more in-depth questions on nutrition practices, program exposure, knowledge of nutrition topics, and special topics such as the border conflict, effect of COVID-19, and others.

3. Also, due to remote interviewing, it is impossible to accurately determine the availability and condition of a handwashing facility, soap and water.

4. It was not possible to show cards with the names of drugs and the shape of packaging to clarify, so interviewers could only subjectively describe their form.

5. At all three stages of the survey, there were difficulties in understanding the issue of iron supplementation during pregnancy. Yodomarin and calcium were often referred to as iron-containing drugs by respondents. In such cases, operators returned to the previous question and noted the option of «did not take i/s drugs».

6. Sometimes it was difficult to ask the place of residence at all stages of survey: some villages were not on the list; respondents mentioned old names or mentioned other villages.

7. Respondents did not always understand the question about the age of the child. Some data were initially given, but additional explanations later revealed that the child belonged to a different age group or did not fit the selection criteria at all.

Summary

Overall, the impact evaluation found many positive results that suggest positive impact from project activities. Partners in Kyrgyz Republic can take note of the areas where project interventions were associated with significant improvements to continue supporting similar activities. It is recommended that partners also take note of areas that did not improve much or at all, and focus future efforts on addressing those areas. It is also important to prioritize areas that may have improved substantially in this study, but whose levels remain low. MF, MAD, and handwashing are all good examples of that - where the evaluation revealed statistically significant improvements, but where the desired behavior was only reported by fewer than one-third of respondents. We hope these findings will contribute to improved nutrition programming in the Kyrgyz Republic in the future.

Annex 1. Disaggregated endline information for all outcome indicators

Table A1.1. Detailed final indicators disaggregated by areas and regions

Indicator	Answer	Batken region				Jalal-Abad region				Total				Total	
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention		%, Mean	N
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N		
(Practice 1) Consumption of iron-folic acid (IFA) supplements by pregnant women															
ind_1 Percent of mothers of children <2 who took iron supplements for 90 days or more during their last pregnancy	Total	100%	416	100%	280	100%	298	100%	448	100%	714	100%	728	100%	1442
	Yes	62%	257	61%	172	56%	166	51%	227	59%	423	55%	399	57%	822
	No	34%	143	35%	97	41%	122	46%	207	37%	265	42%	304	39%	569
	Did not asked	4%	16	4%	11	3%	10	3%	14	4%	26	3%	25	4%	51
ind_2 Mean number of days on which iron tablets/syrup was taken by women (among those who took any during their most recent pregnancy)	Mean	136	370	131	251	127	245	122	375	132	615	125	626	129	1241
(Practice 2) Dietary diversity for women, with an emphasis on consumption of food sources of iron and foods that enhance iron absorption															
ind_3 Percent of mothers of children <2 who ate foods from 5 or more of 10 food groups in the previous 24 hours	Total	100%	416	100%	279	100%	297	100%	448	100%	713	100%	727	100%	1440
	Yes	86%	357	87%	242	86%	255	85%	380	86%	612	86%	622	86%	1234
	No	14%	59	13%	37	14%	42	15%	68	14%	101	14%	105	14%	206
(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															
ind_4 Percent of children 6–23 months who ate foods from 5 or more of 8 food	Total	100%	377	100%	270	100%	238	100%	362	100%	615	100%	632	100%	1247
	Yes	57%	214	58%	157	58%	139	56%	201	57%	353	57%	358	57%	711

Indicator	Answer	Batken region Light touch %, Mean	N	Full intervention %, Mean	N	Jalal-Abad region Light touch %, Mean	N	Full intervention %, Mean	N	Light touch %, Mean	N	Full intervention %, Mean	N	Total %, Mean	N
groups in the previous 24 hours	No	43%	163	42%	113	42%	99	44%	161	43%	262	43%	274	43%	536
ind_5_1 Percent of children 6–8 months receiving a minimum acceptable diet_with BF	Total	100%	88	100%	55	100%	46	100%	101	100%	134	100%	156	100%	290
	Yes	23%	20	29%	16	15%	7	29%	29	20%	27	29%	45	25%	72
	No	77%	68	71%	39	85%	39	71%	72	80%	107	71%	111	75%	218
ind_5_2 Percent of children 9–23 months receiving a minimum acceptable diet_with BF	Total	100%	209	100%	158	100%	139	100%	174	100%	348	100%	332	100%	680
	Yes	17%	35	14%	22	18%	25	24%	41	17%	60	19%	63	18%	123
	No	83%	174	86%	136	82%	114	76%	133	83%	288	81%	269	82%	557
ind_5_3 Percent of children 6–23 months receiving a minimum acceptable diet_without BF	Total	100%	54	100%	40	100%	38	100%	49	100%	92	100%	89	100%	181
	Yes	11%	6	5%	2	3%	1	8%	4	8%	7	7%	6	7%	13
	No	89%	48	95%	38	97%	37	92%	45	92%	85	93%	83	93%	168
ind_5 Percent of children 6-236–23 months receiving a minimum acceptable diet	Total	100%	351	100%	253	100%	223	100%	324	100%	574	100%	577	100%	1151
	Yes	17%	61	16%	40	15%	33	23%	74	16%	94	20%	114	18%	208
	No	83%	290	84%	213	85%	190	77%	250	84%	480	80%	463	82%	943
ind_6 Percent of children 6–23 months who ate iron-rich foods in the previous 24 hours	Total	100%	377	100%	270	100%	238	100%	362	100%	615	100%	632	100%	1247
	Yes	55%	208	59%	159	62%	148	57%	207	58%	356	58%	366	58%	722
	No	45%	169	41%	111	38%	90	43%	155	42%	259	42%	266	42%	525
ind_7 Percent of children 6–23 months who ate vitamin A rich foods in the previous 24 hours	Total	100%	377	100%	270	100%	238	100%	362	100%	615	100%	632	100%	1247
	Yes	56%	210	59%	160	54%	129	49%	178	55%	339	53%	338	54%	677
	No	44%	167	41%	110	46%	109	51%	184	45%	276	47%	294	46%	570
(Practice 4) Optimal meal frequency for children 6–23 months of age															
ind_9_1 Percent of children 6–8 months who received food the minimum acceptable number of times for their age	Total	100%	88	100%	55	100%	46	100%	101	100%	134	100%	156	100%	290
	Yes	49%	43	53%	29	52%	24	50%	51	50%	67	51%	80	51%	147
	No	51%	45	47%	26	48%	22	50%	50	50%	67	49%	76	49%	143

Indicator	Answer	Batken region Light touch %, Mean	N	Batken region Full intervention %, Mean	N	Jalal-Abad region Light touch %, Mean	N	Jalal-Abad region Full intervention %, Mean	N	Light touch %, Mean	N	Full intervention %, Mean	N	Total %, Mean	N
and breastfeeding status_with BF															
ind_9_2 Percent of children 9–23 months who received food the minimum acceptable number of times for their age and breastfeeding status_with BF	Total	100%	209	100%	158	100%	139	100%	174	100%	348	100%	332	100%	680
	Yes	23%	49	20%	31	21%	29	28%	49	22%	78	24%	80	23%	158
	No	77%	160	80%	127	79%	110	72%	125	78%	270	76%	252	77%	522
ind_9_3 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status_without BF	Total	100%	54	100%	40	100%	38	100%	49	100%	92	100%	89	100%	181
	Yes	11%	6	5%	2	11%	4	10%	5	11%	10	8%	7	9%	17
	No	89%	48	95%	38	89%	34	90%	44	89%	82	92%	82	91%	164
ind_9 Percent of children 6–23 months who received food the minimum acceptable number of times for their age and breastfeeding status	Total	100%	351	100%	253	100%	223	100%	324	100%	574	100%	577	100%	1151
	Yes	28%	98	25%	62	26%	57	32%	105	27%	155	29%	167	28%	322
	No	72%	253	75%	191	74%	166	68%	219	73%	419	71%	410	72%	829
(Practice 5) Early initiation of breastfeeding															
ind_10 Percent of children 0–23 months who were put to breast within one hour of birth	Total	100%	587	100%	380	100%	364	100%	591	100%	951	100%	971	100%	1922
	Yes	68%	402	72%	275	66%	242	64%	376	68%	644	67%	651	67%	1295
	No	32%	185	28%	105	34%	122	36%	215	32%	307	33%	320	33%	627
(Practice 6) Exclusive breastfeeding from birth through the first 6 months															
ind_11 Prevalence of exclusive breastfeeding of children under six months of age	Total	100%	212	100%	111	100%	128	100%	230	100%	340	100%	341	100%	681
	Yes	56%	119	60%	67	52%	67	63%	144	55%	186	62%	211	58%	397
	No	44%	93	40%	44	48%	61	37%	86	45%	154	38%	130	42%	284
(Practice 7) Timely introduction of appropriate complementary foods and Continued Breastfeeding															

Indicator	Answer	Batken region				Jalal-Abad region				Total					
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention		%, Mean	N
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N		
ind_12_1 Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (without sweet, processed products)	Total	100%	107	100%	68	100%	60	100%	138	100%	167	100%	206	100%	373
	Yes	81%	87	82%	56	83%	50	81%	112	82%	137	82%	168	82%	305
	No	19%	20	18%	12	17%	10	19%	26	18%	30	18%	38	18%	68
ind_12_2 Percent of children 6–8 months who received semi-solid or solid food during the previous 24 hours (with sweet, processed products)	Total	100%	107	100%	68	100%	60	100%	138	100%	167	100%	206	100%	373
	Yes	88%	94	85%	58	85%	51	82%	113	87%	145	83%	171	85%	316
	No	12%	13	15%	10	15%	9	18%	25	13%	22	17%	35	15%	57
ind_13 Percent of children 6–23 months who are still breastfeeding	Total	100%	375	100%	269	100%	236	100%	361	100%	611	100%	630	100%	1241
	Yes	86%	323	85%	229	84%	199	87%	313	85%	522	86%	542	86%	1064
	No	14%	52	15%	40	16%	37	13%	48	15%	89	14%	88	14%	177
(Practice 8) Reduced consumption of high-calorie, low-nutrient-density (junk) food															
ind_14_1 Percent of children 0–5 months who consumed sugary or processed food/liquids in the previous 24 hours	Total	100%	212	100%	111	100%	128	100%	230	100%	340	100%	341	100%	681
	Yes	14%	29	10%	11	8%	10	9%	21	11%	39	9%	32	10%	71
	No	86%	183	90%	100	92%	118	91%	209	89%	301	91%	309	90%	610
ind_14_2 Percent of children 6–23 months who consumed sugary or processed food/liquids in the previous 24 hours	Total	100%	377	100%	270	100%	238	100%	362	100%	615	100%	632	100%	1247
	Yes	72%	273	71%	193	70%	167	64%	230	72%	440	67%	423	69%	863
	No	28%	104	29%	77	30%	71	36%	132	28%	175	33%	209	31%	384
ind_15_1 Average number of times per day children 0–5 months consumed sugary food	Mean	1,5	20	1,33	9	1,4	5	1,46	13	1,48	25	1,41	22	1,45	47
ind_15_2 Average number of times per day children 0–5 months consumed processed food	Mean	2	2	1	1	1	1	1	1	1,67	3	1	1	1,5	4

Indicator	Answer	Batken region				Jalal-Abad region								Total	
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention			
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N
ind_15_3 Average number of times per day children 6–23 months consumed sugary food	Mean	1,88	226	1,83	169	1,78	142	1,86	193	1,84	368	1,85	362	1,84	730
ind_15_4 Average number of times per day children 6–23 months consumed processed food	Mean	1,25	44	1,24	33	1,2	20	1,34	32	1,23	64	1,29	65	1,26	129
ind_15_5 Average number of times per day children 0–5 months consumed sweet liquids	Mean	1,69	13	1	4	1,67	3	1,27	11	1,69	16	1,2	15	1,45	31
ind_15_6 Average number of times per day children 6–23 months consumed sweet liquids	Mean	1,88	130	1,85	97	2,12	84	1,97	126	1,97	214	1,91	223	1,94	437
ind_15_1_1 Average number of times per day children 0–5 months consumed sugary or processed food or sweet liquids	Mean	5,19	29	2,33	11	4,07	9	3,73	20	4,83	38	3,61	31	4,40	69
ind_15_1_2 Average number of times per day children 6–23 months consumed sugary or processed food or sweet liquids	Mean	5,01	272	4,92	192	5,10	167	5,17	229	5,05	439	5,05	421	5,05	860
ind_16_1 Percent of children 0–5 months who consumed tea in the previous 24 hours	Total	100%	212	100%	111	100%	128	100%	230	100%	340	100%	341	100%	681
	Yes	9%	20	10%	11	9%	12	6%	14	9%	32	7%	25	8%	57
	No	91%	192	90%	100	91%	116	94%	216	91%	308	93%	316	92%	624
ind_16_2 Percent of children 6–23 months who consumed tea in the previous 24 hours	Total	100%	377	100%	270	100%	238	100%	362	100%	615	100%	632	100%	1247
	Yes	56%	211	60%	163	60%	143	48%	175	58%	354	53%	338	55%	692
	No	44%	166	39%	106	39%	94	52%	187	42%	260	46%	293	44%	553

Indicator	Answer	Batken region				Jalal-Abad region				Total					
		Light touch		Full intervention		Light touch		Full intervention		Light touch		Full intervention		%, Mean	N
		%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N	%, Mean	N		
	Difficult to answer	0%	0	0%	1	0%	1	0%	0	0%	1	0%	1	0%	2
(Practice 9) Presumptive treatment of helminth infections for pregnant women and children															
ind_17 Percent of women who received advice to take deworming medicine during pregnancy	Total	100%	449	100%	297	100%	284	100%	451	100%	733	100%	748	100%	1481
	Yes	18%	80	12%	36	22%	62	19%	84	19%	142	16%	120	18%	262
	No	82%	369	88%	261	78%	222	81%	367	81%	591	84%	628	82%	1219
(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															
ind_18 Percent of women who usually wash hands at least three out five critical times	Total	100%	452	100%	297	100%	285	100%	453	100%	737	100%	750	100%	1487
	Yes	33%	148	34%	101	31%	88	29%	130	32%	236	31%	231	31%	467
	No	67%	304	66%	196	69%	197	71%	323	68%	501	69%	519	69%	1020
ind_19 Percent of households with soap and water at a handwashing station on premises	Total	100%	452	100%	297	100%	285	100%	453	100%	737	100%	750	100%	1487
	Yes	99%	449	99%	294	100%	284	99%	450	99%	733	99%	744	99%	1477
	No	1%	3	1%	3	0%	1	1%	3	1%	4	1%	6	1%	10
(Practice 11) Adoption of methods for safe and prolonged storage of nutrient-dense produce for the winter															
ind_20 Percent of women who stored or preserved nutrient-dense products for consumption during the last winter	Total	100%	455	100%	291	100%	260	100%	446	100%	715	100%	737	100%	1452
	Yes	89%	404	91%	266	90%	234	90%	401	89%	638	91%	667	90%	1305
	No	11%	51	9%	25	10%	26	10%	45	11%	77	9%	70	10%	147
ind_32 Percent of people who had seen at least one TV spot	Total	100%	314	100%	208	100%	190	100%	320	100%	504	100%	528	100%	1032
	Yes	33%	103	29%	61	29%	56	32%	103	32%	159	31%	164	31%	323
	No	67%	211	71%	147	71%	134	68%	217	68%	345	69%	364	69%	709
ind_21 Percent of women reporting increased decision-making power with husband and/or family	Total	100%	443	100%	273	100%	255	100%	428	100%	698	100%	701	100%	1399
	Yes	46%	202	44%	121	40%	103	43%	186	44%	305	44%	307	44%	612
	No	1%	4	1%	3	0%	1	1%	4	1%	5	1%	7	1%	12

*MDF rates among children aged 6–23 months, which are measured by indicators 4, 5 and 9, differ from the age category of the child and the breastfeeding status:
1) 2 times - solid, semi-solid or soft food for breastfed babies aged 6 to 8 months;
2) 3 times - solid, semi-solid or soft food for breastfed babies aged 9 to 23 months;
3) 4 times - solid, semi-solid or soft food for children who are not breastfeeding at the age of 6 to 23 months;

** Indicator number 15 was calculated separately for sweet, processed foods and sugar-sweetened beverages, as the questions were asked separately from each other.

Annex 2. Tables with more detailed information on sample characteristics and nutrition information received

Table A2.1. Distribution of respondents within municipalities and districts, endline

Batken region				Jalal-Abad region			
Total		50%	970	**Total**		50%	958
Batken district	**Total**	14%	278	**Aksy rayon**	**Total**	10%	190
	Kara-Bak	5%	90		Nazaraliev	1%	14
	Kara-Bulak	3%	67		Maylyan	1%	23
	Dara	2%	34		Avletim	1%	20
	Kyshtut	2%	30		Kashka-Suu	2%	38
	Cake-Ghoul	2%	40		Zhany-Zhol	1%	22
	Ak-Sai	0%	4		Kara-Jygach	1%	18
	Samarkandek	0%	4		Kar-Suu	0%	7
	Ak-Tatyr	0%	1		Kerben city	0%	3
	Suu-Bashy	0%	8		Kyzyl-Tuu, Aksy rayon	1%	10
Leilek district	**Total**	4%	86		Zherge-Tal	1%	15
	Jean-Ger	1%	12		Ak-Suu	0%	9
	Sumbul	1%	10		Ak-Zhol	1%	11
	Kulundu	1%	24	**Bazar-Korgon district**	**Total**	9%	183
	Leilek	2%	31		Kenesh	3%	62
	Isfana city	0%	1		Arstanbap	1%	21
	Ak-Suu	0%	4		Mogul	1%	25
	Margun	0%	4		Akman	1%	18
Kadamjay district	**Total**	27%	516		Beshik-Jon	2%	42
	Kadamjay city	5%	97		Talduu-Bulak	0%	2
	Uch-Korgon	1%	23		Kyzyl-Unkur	1%	13
	Ak-Turpak	1%	26	**Nooken district**	**Total**	6%	112
	Maidan	4%	74		Mombekov	2%	40
	Halmion	5%	90		Shaidan	1%	26
	Markaz	2%	47		Aral	1%	18
	Aydarken city	1%	13		Massy	1%	28
	Absamat Masaliev	2%	42	**Suzakii district**	**Total**	25%	473
	Kotormo	4%	68		Yrys	2%	35
	Orozbekov	1%	20		Barps	6%	107
	Chowai	1%	10		Tash-Bulak	1%	28

			%	
	Council		0%	6
Kyzyl-Kiya town	Total		3%	56
	Kyzyl-Kiya city		3%	56
Sulukta town	Total		1%	26
	UTS. Vostochnyi		1%	26
Batken town	Total		0%	8
	Batken city		0%	8

	%	
Bagysh	3%	61
Kyzyl-Tuu, Suzak rayon	2%	44
Kyzyl-Kol	3%	64
Kara-Darya	1%	16
Saypidin-Atabekov	1%	24
Kurmanbek	1%	27
Lenin	1%	19
Kok-art	1%	10
Suzak	1%	14
Kara-Alma	1%	24

Table A2.2. Distribution of respondents within municipalities, type of area and districts, endline

Batken region		Total	Light touch	Full intervention	Jalal-Abad region		Total	Light touch	Full intervention
Total		**970**	**589**	**381**	**Total**		**958**	**366**	**592**
Batken district	**Total**	**278**	**167**	**111**	**Aksy rayon**	**Total**	**190**	**55**	**135**
	Kara-Bak	90	90	0		Nazaraliev	14	14	0
	Kara-Bulak	67	0	67		Maylyan	23	23	0
	Dara	34	34	0		Avletim	20	0	20
	Kyshtut	30	30	0		Kashka-Suu	38	0	38
	Cake-Ghoul	40	0	40		Zhany-Zhol	22	0	22
	Ak-Sai	4	4	0		Kara-Jygach	18	0	18
	Samarkandek	4	0	4		Kar-Suu	7	7	0
	Ak-Tatyr	1	1	0		Kerben city	3	0	3
	Suu-Bashy	8	8	0		Kyzyl-Tuu, Aksy rayon	10	0	10
Leilek district	**Total**	**86**	**71**	**15**		Zherge-Tal	15	0	15
	Jean-Ger	12	12	0		Ak-Suu	9	0	9
	Sumbul	10	0	10		Ak-Zhol	11	11	0
	Kulundu	24	24	0	**Bazar-Korgon district**	**Total**	**183**	**78**	**105**
	Leilek	31	31	0		Kenesh	62	0	62
	Isfana city	1	0	1		Arstanbap	21	21	0
	Ak-Suu	4	0	4		Mogul	25	0	25
	Margun	4	4	0		Akman	18	0	18
Kadamjay district	**Total**	**516**	**261**	**255**		Beshik-Jon	42	42	0
	Kadamjay city	97	97	0		Talduu-Bulak	2	2	0
	Uch-Korgon	23	0	23		Kyzyl-Unkur	13	13	0
	Ak-Turpak	26	26	0	**Nooken district**	**Total**	**112**	**84**	**28**
	Maidan	74	0	74		Mombekov	40	40	0
	Halmion	90	0	90		Shaidan	26	26	0
	Markaz	47	47	0		Aral	18	18	0
	Aydarken city	13	13	0		Massy	28	0	28
	Absamat Masaliev	42	0	42	**Suzak ii**	**Total**	**473**	**149**	**324**
	Kotormo	68	68	0		Yrys	35	35	0

	Orozbekov	20	0	20	**district**	Barps	107	0	107
	Chowai	10	10	0		Tash-Bulak	28	28	0
	Council	6	0	6		Bagysh	61	0	61
Kyzyl-Kiya town	**Total**	**56**	**56**	**0**		Kyzyl-Tuu, Suzak rayon	44	0	44
	Kyzyl-Kiya city	56	56	0		Kyzyl-Kol	64	0	64
Sulukta town	**Total**	**26**	**26**	**0**		Kara-Darya	16	16	0
	UTS. Vostochnyi	26	26	0		Saypidin-Atabekov	24	0	24
Batken town	**Total**	**8**	**8**	**0**		Kurmanbek	27	27	0
	Batken city	8	8	0		Lenin	19	19	0
						Kok-art	10	10	0
						Suzak	14	14	0
						Kara-Alma	24	0	24

Table A2.3. The main sources of information, endline

Source	Batken, Light Touch	Batken, Full intervention	Jalal-Abad, Light Touch	Jalal-Abad, Full intervention	Light Touch area	Full intervention area	Batken region	Jalal-Abad region	Total	
Breastfeeding										
Household visit from community worker/ health worker	10%	12%	8%	11%	9%	11%	11%	10%	10%	10%
From social workers / activists via WhatsApp or ZOOM	1%	1%	7%	1%	4%	1%	1%	3%	2%	1%
Community meeting/community or city event	1%	2%	1%	4%	1%	3%	2%	3%	2%	1%
Visit to health facility	77%	75%	73%	73%	76%	74%	76%	73%	75%	77%
Friend or neighbor	0%	0%	0%	1%	0%	1%	0%	1%	1%	0%
Relatives	1%	1%	0%	1%	0%	1%	1%	1%	1%	1%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	7%	5%	8%	5%	7%	5%	6%	6%	6%	7%
Messengers (e.g. WhatsApp, Telegram, etc.)	0%	1%	1%	1%	1%	1%	0%	1%	1%	0%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Other	1%	2%	2%	2%	1%	2%	2%	2%	2%	1%
Complementary feeding										
Household visit from community worker/ health worker	6%	10%	7%	6%	7%	8%	8%	7%	7%	6%
From social workers / activists via WhatsApp or ZOOM	1%	0%	6%	1%	3%	1%	1%	3%	2%	1%
Community meeting/community or city event	1%	2%	1%	3%	1%	3%	1%	2%	2%	1%

Source	Batken, Light Touch	Batken, Full intervention	Jalal-Abad, Light Touch	Jalal-Abad, Full intervention	Light Touch area	Full intervention area	Batken region	Jalal-Abad region	Total	
Visit to health facility	76%	75%	70%	77%	74%	76%	76%	74%	75%	76%
Friend or neighbor	1%	0%	1%	1%	1%	0%	0%	1%	1%	1%
Relatives	2%	1%	1%	2%	2%	1%	2%	1%	2%	2%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	11%	7%	7%	5%	9%	6%	9%	6%	7%	11%
Messengers (e.g. WhatsApp, Telegram, etc.)	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Other	1%	2%	4%	4%	2%	4%	2%	4%	3%	1%
Having a nutrient-rich and diverse diet										
Household visit from community worker/ health worker	7%	8%	7%	9%	7%	9%	8%	8%	8%	7%
From social workers / activists via WhatsApp or ZOOM	1%	3%	10%	2%	5%	2%	2%	5%	3%	1%
Community meeting/community or city event	2%	4%	1%	4%	2%	4%	3%	3%	3%	2%
Visit to health facility	70%	63%	61%	62%	66%	62%	67%	62%	64%	70%
Friend or neighbor	0%	1%	1%	1%	1%	1%	1%	1%	1%	0%
Relatives	2%	1%	2%	1%	2%	1%	1%	1%	1%	2%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	15%	13%	11%	14%	14%	13%	14%	13%	14%	15%
Messengers (e.g. WhatsApp, Telegram, etc.)	0%	2%	3%	2%	2%	2%	1%	3%	2%	0%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	1%	0%	1%	0%	1%	0%	1%	1%	1%	1%
Other	1%	6%	4%	5%	2%	5%	3%	4%	4%	1%
Ways to prevent/treat anemia										
Household visit from community worker/ health worker	6%	9%	6%	5%	6%	7%	7%	6%	6%	6%
From social workers / activists via WhatsApp or ZOOM	1%	1%	7%	1%	3%	1%	1%	3%	2%	1%
Community meeting/community or city event	1%	2%	1%	1%	1%	2%	2%	1%	1%	1%
Visit to health facility	79%	72%	72%	81%	76%	77%	76%	77%	77%	79%
Friend or neighbor	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Relatives	2%	2%	0%	1%	1%	1%	2%	0%	1%	2%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	9%	10%	10%	7%	9%	8%	9%	8%	8%	9%

Source	Batken, Light Touch	Batken, Full intervention	Jalal-Abad, Light Touch	Jalal-Abad, Full intervention	Light Touch area	Full intervention area	Batken region	Jalal-Abad region	Total	
Messengers (e.g. WhatsApp, Telegram, etc.)	1%	1%	2%	1%	1%	1%	1%	1%	1%	1%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other	1%	4%	2%	3%	2%	3%	2%	3%	2%	1%
Hygiene, including handwashing and other sanitation measures										
Household visit from community worker/ health worker	7%	8%	6%	6%	6%	7%	7%	6%	7%	7%
From social workers / activists via WhatsApp or ZOOM	1%	1%	8%	1%	4%	1%	1%	3%	2%	1%
Community meeting/community or city event	1%	2%	2%	2%	2%	2%	2%	2%	2%	1%
Visit to health facility	71%	67%	61%	70%	67%	69%	69%	67%	68%	71%
Friend or neighbor	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Relatives	2%	1%	1%	1%	2%	1%	1%	1%	1%	2%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	9%	10%	11%	8%	10%	9%	10%	9%	9%	9%
Messengers (e.g. WhatsApp, Telegram, etc.)	2%	1%	3%	2%	2%	2%	2%	2%	2%	2%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	4%	2%	3%	4%	4%	3%	3%	4%	4%	4%
Other	3%	7%	5%	5%	4%	6%	4%	5%	5%	3%
Nutrition of pregnant women and mothers										
Household visit from community worker/ health worker	3%	6%	6%	4%	4%	5%	4%	4%	4%	3%
From social workers / activists via WhatsApp or ZOOM	1%	1%	6%	1%	3%	1%	1%	3%	2%	1%
Community meeting/community or city event	1%	1%	1%	2%	1%	2%	1%	2%	1%	1%
Visit to health facility	83%	81%	77%	81%	81%	81%	82%	80%	81%	83%
Friend or neighbor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Relatives	2%	1%	0%	1%	1%	1%	1%	1%	1%	2%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	8%	6%	5%	6%	7%	6%	7%	6%	7%	8%
Messengers (e.g. WhatsApp, Telegram, etc.)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Other	1%	3%	3%	4%	2%	3%	2%	3%	3%	1%
Food storage and preservation										

Source	Batken, Light Touch	Batken, Full intervention	Jalal-Abad, Light Touch	Jalal-Abad, Full intervention	Light Touch area	Full intervention area	Batken region	Jalal-Abad region	Total	
Household visit from community worker/ health worker	4%	9%	4%	5%	4%	7%	6%	5%	6%	4%
From social workers / activists via WhatsApp or ZOOM	2%	2%	10%	2%	5%	2%	2%	5%	4%	2%
Community meeting/community or city event	2%	5%	3%	3%	2%	4%	3%	3%	3%	2%
Visit to health facility	49%	48%	49%	51%	49%	50%	49%	50%	49%	49%
Friend or neighbor	1%	1%	0%	2%	1%	2%	1%	1%	1%	1%
Relatives	8%	7%	4%	6%	6%	6%	7%	5%	6%	8%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	26%	18%	23%	24%	25%	22%	23%	24%	23%	26%
Messengers (e.g. WhatsApp, Telegram, etc.)	1%	0%	2%	2%	1%	1%	1%	2%	1%	1%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	3%	2%	2%	1%	2%	1%	2%	1%	2%	3%
Other	3%	8%	4%	3%	4%	5%	5%	4%	4%	3%
Preventing intestinal worms										
Household visit from community worker/ health worker	6%	10%	4%	4%	5%	6%	7%	4%	6%	6%
From social workers / activists via WhatsApp or ZOOM	2%	0%	8%	2%	5%	1%	2%	4%	3%	2%
Community meeting/community or city event	2%	2%	2%	1%	2%	2%	2%	2%	2%	2%
Visit to health facility	74%	67%	69%	76%	72%	73%	71%	73%	72%	74%
Friend or neighbor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Relatives	1%	2%	0%	1%	1%	1%	1%	1%	1%	1%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	9%	12%	10%	9%	10%	10%	11%	9%	10%	9%
Messengers (e.g. WhatsApp, Telegram, etc.)	2%	0%	2%	1%	2%	1%	1%	1%	1%	2%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	1%	0%	0%	1%	1%	1%	1%	1%	1%	1%
Other	3%	6%	3%	4%	3%	5%	4%	4%	4%	3%
Other information about nutrition										
Household visit from community worker/ health worker	0%	25%	0%	0%	0%	7%	10%	0%	4%	0%
From social workers / activists via WhatsApp or ZOOM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source	Batken, Light Touch	Batken, Full intervention	Jalal-Abad, Light Touch	Jalal-Abad, Full intervention	Light Touch area	Full intervention area	Batken region	Jalal-Abad region	Total	
Community meeting/community or city event	0%	0%	6%	5%	3%	4%	0%	6%	4%	0%
Visit to health facility	54%	25%	31%	55%	41%	46%	43%	44%	44%	54%
Friend or neighbor	0%	0%	6%	0%	3%	0%	0%	3%	2%	0%
Relatives	8%	0%	6%	0%	7%	0%	5%	3%	4%	8%
Social networks (e.g. Facebook, Zoom, internet websites, etc.)	23%	38%	44%	20%	34%	25%	29%	31%	30%	23%
Messengers (e.g. WhatsApp, Telegram, etc.)	0%	0%	6%	5%	3%	4%	0%	6%	4%	0%
Radio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Television	8%	0%	0%	5%	3%	4%	5%	3%	4%	8%
Other	8%	13%	0%	10%	3%	11%	10%	6%	7%	8%

References

Food and Agriculture Organization of the United Nations. 2021. "Minimum Dietary Diversity for Women: An Updated Guide for Measurement, from Collection to Action." Rome. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.fao.org/3/cb3434en/cb3434en.pdf.

Food and Agriculture Organization of the United Nations, and FHI 360. 2016. "Minimum Dietary Diversity for Women: A Guide to Measurement." Rome. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.fao.org/3/i5486e/i5486e.pdf.

Jones, Gareth, Richard W Steketee, Robert E Black, Zulfiqar A Bhutta, and Saul S Morris. 2003. "How Many Child Deaths Can We Prevent This Year?" The Lancet 362 (9377): 65–71. https://doi.org/10.1016/s0140-6736(03)13811-1.

Martin, Richard M., George Davey Smith, Stephen Frankel, and David Gunnell. 2004. "Parents' Growth in Childhood and the Birth Weight of Their Offspring." Epidemiology 15 (3): 308–16. https://doi.org/10.1097/01.ede.0000120042.16363.e3.

Michaelsen, Kim Fleischer, Lawrence Weaver, Francesco Branca, and Aileen Robertson. 2000. "Feeding and Nutrition of Infants and Young Children: Guidelines for the WHO European Region, with Emphasis on the Former Soviet Countries. WHO Regional Publications, European Series, No. 87." ERIC. 2000. https://eric.ed.gov/?id=ED446848.

Ministry of Health of the Kyrgyz Republic, UNICEF, FAO, WFP, WHO, USAID, USAID Advancing Nutrition, and MercyCorps. 2022. "National Integrated Micronutrient and Anthropometric Survey of the Kyrgyz Republic 2021 (NIMAS)." chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.unicef.org/kyrgyzstan/media/7741/file/National%20Integrated%20Micronutrient%20and%20Anthropometric%20Survey%20in%20the%20Kyrgyz%20Republic.pdf.

National Statistical Committee (Kyrgyz Republic), and ICF International. 2013. "2012 Kyrgyz Demographic and Health Survey: Key Findings." Bishkek, Kyrgyz Republic, and Calverton, Maryland, USA.

National Statistical Committee of the Kyrgyz Republic. 2019. "Informational Bulletin of the Kyrgyz Republic on Food Security and Poverty, 2015-2019 ."

National Statistical Committee of the Kyrgyz Republic, and UNICEF. 2019. "2018 Kyrgyzstan Multiple Indicator Cluster Survey, Snapshots of Key Findings." Kyrgyzstan . chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.unicef.org/kyrgyzstan/media/6066/file/MICS.

United Nations. 2023. "The 17 Sustainable Development Goals." United Nations. sdgs.un.org. 2023. https://sdgs.un.org/goals.

USAID. 2018. "SPRING in the Kyrgyz Republic: Evidences of Significant Improvement in Nutrition Practices." chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.spring-nutrition.org/sites/default/files/publications/briefs/spring_kr_nut_survey_brief_rus.pdf.

World Health Organization. 2011. "Guideline: Vitamin a Supplementation in Infants and Children 6–59 Months of Age." https://www.who.int/publications/i/item/9789241501767.
———. 2016. "Stunted Growth and Development: Context, Causes, and Consequences." chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdn.who.int/media/docs/default-source/nutritionlibrary/healthy-growth-project/childhood_stunting_framework_leaflet_en.pdf?sfvrsn=ee830a03_4&download=true.
———. 2023a. " E-Library of Evidence for Nutrition Actions (ELENA)." Www.who.int. 2023. https://www.who.int/tools/elena/overview.
———. 2023b. "Daily Iron Supplementation in Children 6-23 Months of Age." Www.who.int. 2023. https://www.who.int/tools/elena/interventions/iron-children-6to23#:~:text=WHO%20Recommendations.

World Health Organization, AED, FANTA 2, UC Davis, International Food Policy Research Institute, UNICEF, and USAID. 2010. "Indicators for Assessing Infant and Young Child Feeding Practices: Part 2 Measurement." Malta. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://iris.who.int/bitstream/handle/10665/44306/9789241599290_eng.pdf?ua=1.