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USAID Nawiri Learning Brief: Trials of Improved Practices (TIPs) to Improve Complementary Feeding including through the Consumption of Preserved Foods, in Isiolo and Marsabit Counties

Background

This brief describes key findings and recommendations from the Nawiri study on using the Trials of Improved Practices (TIPs) methodology, a participatory formative research approach including in-depth interviews (IDIs), focus group discussions (FGDs) and key informant interviews (KIIs). The study explored strategies for improving children's complementary feeding practice in Isiolo and Marsabit Counties. The background desk review aimed to identify traditional food preservation practices in ASAL contexts to inform the TIPs study, which was conducted during both the dry season (February to March 2021) and rainy season (May 2021). Study sites were selected based on four key criteria: areas with high acute malnutrition rates, pastoral and agropastoral areas, areas with minimal conflict and inclusivity; through the intentional inclusion of predominant ethnic groups (i.e., the Borana, Rendille, Samburu, and Gabra). Consequently, a total of 60 mothers of children 6-23 months of age were interviewed, plus 26 fathers of similar aged children in FGDs, 12 elder women in IDIs and 8 government officials in KIIs. Daily and weekly food frequencies were calculated based on the foods typically consumed by young children.

Summary Findings and Lessons Learned

Most participants mentioned that during the dry season livestock are often emaciated and sold at lower prices. During the dry season, some participants also slaughtered livestock and sold the meat to butcheries. During the rainy season mothers, fathers and elder women described their animals as being healthier with higher quality meat, animals which are kept to reproduce.

■ **Food access – at home:** Large animals (i.e., cattle and camels) are rarely slaughtered except in cases of sickness, emaciation, or injury (which often occur during dry seasons). On the other hand, small animals such as goats and sheep are often slaughtered and immediately consumed including during religious ceremonies, in quantities deemed insufficient for food preservation. Study participants mentioned that while milk and meat are preserved during the rainy season, this is not of sufficient quantities to last through the dry season. Animals' migration to areas with greater access to pasture and water during the dry seasons means less milk and meat available for preservation, as experienced during the study period when rainfall was inadequate.

■ **Food access – markets:** Some families purchased meat and milk from local butcheries and shops. In addition, some mothers and fathers relayed not having enough money to purchase food, resulting either in borrowing money, and/ or getting food on credit from local shops. Most study participants found access and availability of fresh fruits and vegetables to be inadequate (i.e., only sold 1 day per week), even amongst agro-pastoral communities and especially during the dry season. In both counties poor road infrastructure, long distances to markets and limited market days have led to increased food prices and poor-quality fruits and vegetables. Key informant stakeholders noted that prices have further increased since the onset of the COVID-19 pandemic.

■ **Food preservation methods – Meat, milk and other foods:** Study communities practice various food and milk preservation techniques, including fermentation of milk and drying and frying meat. After slaughtering these animals, specific parts (primarily boneless animal meat) are preserved through air-drying for several hours/ days, or by frying meat in animal fat or oil. Goat or cow milk is commonly preserved through fermentation, but camel milk consistency perceived as “too watery” for fermentation. To preserve the milk, fresh unboiled milk is put inside traditional gourds or plastic containers that are smoked using tree branches or bark, which impart flavor and extend their shelf life. Most study participants believed that using unboiled fresh milk for fermentation is important to retain the sweetness, nutrient-rich qualities and/ or the taste of preserved milk.

Many study participants also mentioned preserving mandazi, maize and animal fat/ ghee. The preservation of fruits and vegetables was not mentioned and does not occur in these households, although most key informants say they have encouraged the preservation of fruits and vegetables among community women's groups.

■ **Food safety and hygiene:** Most participants relayed the importance of properly preparing and storing foods to ensure the safety of preserved foods. They also agreed that if meat is not “fried well” for preservation, mold will grow. The majority clean storage containers with soap and water and regularly smoke containers to increase the foods' shelf life, kill bacteria and prevent a foul smell. Challenges to storing preserved foods mentioned included inadequate fresh milk to add to the fermented milk daily and especially during dry seasons, and humidity during the rainy season, which cause rapid food spoilage. Food safety and hygiene challenges mentioned include the use of uninspected meat, especially during ceremonies, due to “a shortage of meat inspectors” across local slaughterhouses and communities; slaughtering of sick animals for food; not cleaning animal udders prior to milking, shortage of clean water and siphoning whey using the mouth.

■ **Food preservation roles and norms:** In both counties it was unanimous that the preservation of meat, milk, mandazi and ghee are a “woman's domain”, while men slaughter animals in preparation for preservation. Preserved meat is usually kept for consumption by male household members. Some participants explained that a woman risks “losing her respect” in the community if she eats food preserved specifically for men. Furthermore, women and children are forbidden to consume particular foods and animal parts like the tongue, given beliefs that children “will talk excessively”, sheep meat which “will delay the children's speech” and goat milk, which will “cause children to be restless”. Mothers typically eat last, after other family members.

- **Transfer of food preservation knowledge and advice through elders:** Most study participants said related knowledge is passed down through generations. Yet certain communities relayed being “modernized”, meaning that traditional methods of preservation are no longer practiced due to the availability of other foods in local shops and lack of time to preserve foods. Families often turn to readily available packaged food in shops such as boxed milk, meat, rice, beans, pasta and flour. Moreover, traditional storage containers are no longer being made, with mothers using plastic and metallic containers for meat and milk preservation. The common use of plastic containers (known as ‘liters’), is more conducive to food spoilage according to some mothers, fathers and elder women.
- **Complementary feeding (including preserved foods):** Most mothers had limited knowledge on complementary feeding, with continued reliance on animal milk which featured prominently in children’s diets, alongside soft carbohydrate-rich foods and milky tea. Children had inadequate intake of food both in terms of quantity and quality, including meats, vitamin A-rich fruits and vegetables, pulses, legumes and eggs. Nutrient-dense preserved foods like meat and milk were not always fed to young children 6-23 months old, with beliefs prohibiting feeding young children chicken or eggs. Participants also expressed beliefs around feeding young children preserved foods, e.g., that meat causes constipation or stomach aches, fermented milk causes diarrhea, and that preserved animal meat should be reserved for adults and older children but not given to young children who “cannot chew” or “have no teeth”. Fermented milk, a common preserved food in these communities, was considered “too sour” for young children, leading to adding sugar to sweeten fermented milk, or diluting it with fresh milk or water to make it “lighter” for digestion. Sometimes, small pieces of preserved meat and sheep tail fat are given to young children to suck (but generally not swallow) as a treat.
- **Breastfeeding practice & the introduction of foods prior to 6 months of age:** Most mothers stated that they exclusively breastfeed their children for 6 months, with all mothers reportedly continuing to breastfeed through two years of age. Based on health worker advice many mothers practice exclusive breastfeeding, although some mothers introduced animal milk for infants only two months old. Notably, the early introduction of fresh goat, camel or cow milk fed alongside breastmilk is a common practice which disrupts exclusive breastfeeding.
- **Weak Daily & weekly food frequencies:** According to the daily food frequency data, animal milk (i.e., cow/goat/camel) was a prominent feature of young children’s diets, alongside cereals and carbohydrate-rich foods like potatoes, anjera and porridge. In Isiolo County, legumes and pulses (i.e., beans and green grams) were the foods most frequently consumed weekly, making up nearly one-third (TIPS visit 1) and one-fifth (TIPS visit 3) of the foods consumed by children 12-23 months old. The weekly consumption of Vitamin A-rich fruits and vegetables (carrots, mangoes, and kale) showed a decrease of 17% amongst children 6 - 11 months old, between the TIPS 1st and 3rd visits. In Marsabit County, legumes and pulses made up 17% of foods consumed by older children (12 -23 months old) and only 6% of those consumed by younger children (6-11 months old), during TIPS visit 1.

Applying the Findings and Lessons Learned

Overall, mothers had greater success implementing TIPs recommendations during the dry season than the rainy season as livestock remained in the herding areas due to lack of adequate rains. Most mothers relayed challenges with the unavailability of foods for preservation. The most successful TIPs recommendations implemented were increased frequency and amounts of food for young children, increased fruits and vegetables, and stopping feeding unhealthy snacks like commercial fruit juices, soda, biscuits and sweets. Not all TIPs recommended practices were carried out (e.g., preserving foods, delaying feeding of animal milk during the first six months, stopping giving young children tea with or without milk), due to factors including the lack of foods to preserve, inadequate money to purchase food, contradictory advice from family members and inadequate time to practice some recommendations.

Key Lessons Learned	Adaptation or implication	Link to the DIP or TOC
<p>Food Access – Markets: Access and the availability of fresh fruits and vegetables remains inadequate, with poor road infrastructure, long distances to markets and limited market days leading to increased food prices and poor-quality fruits and vegetables.</p>	<p>Strengthen food supply chain to ensure local availability of safe and fresh nutritious foods throughout the week, including fruits and vegetables.</p> <p>Strengthen the purchasing power of households to ensure food affordability, especially vegetables and fruits.</p>	<p>SP 1.2: Household access to adequate, nutritious, and safe food year-round improved</p>
<p>Study communities practice various food and milk preservation techniques, including milk fermentation and the drying and frying meat. Decreasing use of traditional preservation methods due both to the availability of other foods in local shops and lack of time to prepare preserved foods.</p>	<p>Build health and nutrition promotion strategies using the culturally resonant, community-tested TIPS Counseling Guide, alongside other county IYCF resources, to improve children's nutritional outcomes including dietary diversity.</p> <p>Train community health volunteers (CHVs) to counsel mothers to diversify young children's diets and adopt optimal meal frequency and quantities per age group, including through local food preservation and use of preserved foods, as well as on food safety.</p>	<p>IO 1.2.1 Market availability of high quality, affordable, nutritious foods increased</p>
<p>At the county level, there is neither a policy nor legislation that guides food preservation practice. Limited funding allocation and prioritization by government, with greater focus on curative versus preventive interventions, has hindered the</p>	<p>Enhance multi-sectoral collaboration between different line departments in the counties and sub-counties, to help improve household food and nutrition security, safe and hygienic food preservation practices and community education using the TIPS Counseling Guide.</p>	

<p>implementation of optimal maternal infant and child nutrition (MIYCN) interventions. The extent of multisectoral collaboration and engagement also remains inadequate to improve food preservation and associated complementary feeding practices.</p>	<p>Train personnel from Ministries of Health, Agriculture and others that target households at community level, especially on the preservation of local fruits and vegetables and those available in local markets, like mangoes and kale.</p> <p>Encourage communities with adequate water access (including during the rainy season and riverine) to engage in small-scale gardens (vegetables like spinach, kale and wild/ local fruits), with Ministry of Agriculture collaboration.</p> <p>Advocate for multi-sectoral resource allocation at county level for activities that enhance food security and safety, including training mothers/ others on complementary feeding, food safety and hygiene and establishing home gardens where feasible.</p>	
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[See the full Nawiri report on Trials of Improved Practices \(TIPs\) to Improve Complementary Feeding, Including the Consumption of Preserved Foods, in Isiolo and Marsabit Counties, Kenya.](#)



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