Impact evaluations in humanitarian settings: Evidence on food security outcomes from the MENA region

HG4RR Webinar Series
15 December 2020

Ghassan Baliki (ISDC / IGZ)
Hala Ghattas (AUB)

Motivation

Violent conflicts drive 80% of all humanitarian needs and are causally linked to food insecurity (Brück and d'Errico 2019; Martin-Shields and Stojetz, 2019).

By 2030 about half of the world's poorest people will live in fragile and conflict-affected settings (World Bank, 2019).

Policymakers and practitioners lack insights on how interventions can best support people's welfare and stability, and how the these interact with the context.

Furthermore, there is lack of knowledge and evidence on the impacts of programmes transitioning from humanitarian to development in these settings.

Literature and research gaps

Impact evaluations and systematic reviews of nutrition-sensitive agricultural interventions have burgeoned recently (Baliki, et al, 2019; Bird, et al, 2019; Masset et al, 2012).

However, few studies focus on conflict-affected or humanitarian settings (Ruel et al, 2018) most of which studied cash or food transfers (Tappis and Doocy, 2018; Aker, 2017) rather than home gardens and smallholder support.

Lack of rigorous evidence is based on lack of data due to security and ethical concerns (Idriss, 2019), but also due to practical challenges for both implementers and researchers (Puri, et al, 2017).

Impacts of a nutrition-sensitive agricultural intervention on food security in Syria

Objective of the paper is to examine the short-term impacts of vegetable seed distributions on food security.

Part of a larger CEDIL-funded project “SEEDS” to study complex interventions in challenging environments.

The overall project objective is to improve our understanding of the short-, medium-, and long-term impacts of nutrition-sensitive agricultural interventions in protracted humanitarian crises on household welfare, behaviour, and social stability.

Nutrition-sensitive agricultural intervention in Syria

Providing:

- ‘emergency’ support, including vegetable seeds, tools, and livestock, and
- ‘early recovery’ support including the rehabilitation of irrigation systems and support of alternative income generating activities (e.g, beekeeping).

Targeting smallholder farmers across Syria.

Prioritising female-headed households.

Theory of change

1. Direct asset transfers (e.g, seeds & tools) increase production in the short-term, impacting food availability at the household-level and reducing the use of harmful coping strategies.
2. Increased access to productive assets, income and food supply, through improved value chains and sustainable local systems will be realised at both community- and household-levels in the medium-term, strengthening resilience against recurrent shocks (e.g., conflict, drought, macroeconomic recessions, and COVID-19).
3. Both these pathways in the long-term will enhance food security, nutrition and health, as well as stability.

Research design

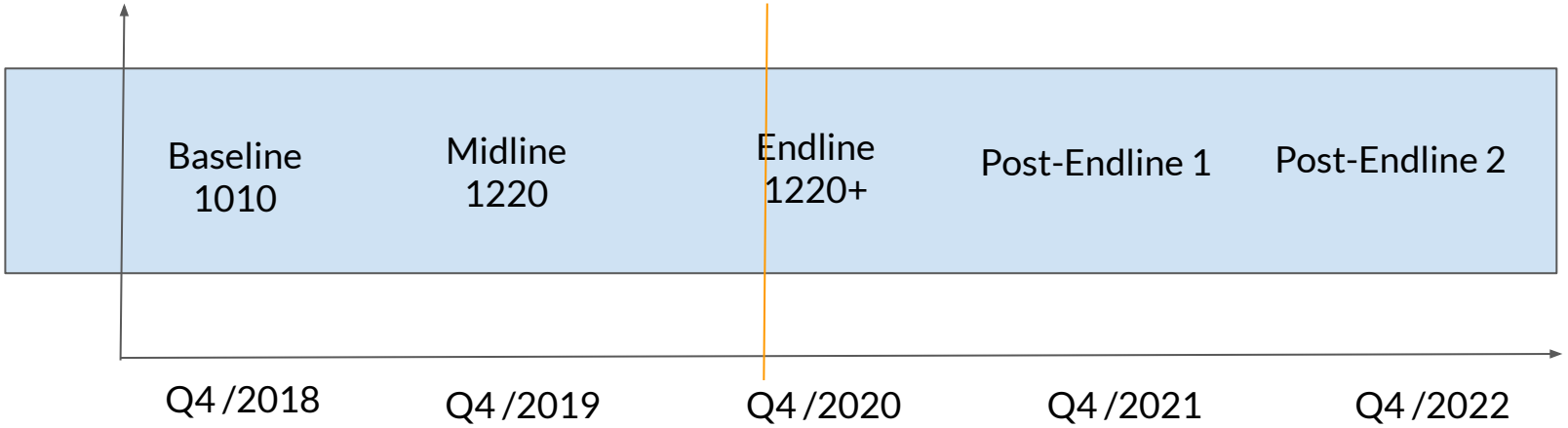
A quasi-experimental approach comparing villages and households that received support (“the treatment group”) with comparable villages and households that received none (“the control group”).

Follow-up with the same households in a panel structure for a total of 5 waves (we use two waves).

We examine food security indicators (e.g. Food Security Score and the Reduced Coping Strategies Index), diet quality (e.g. household dietary diversity)

In future waves will measure anthropometry, as well as anemia as a biomarker of nutritional status from children aged 6-59 months and their mothers.

Household data collection



Sampling strategy and methods

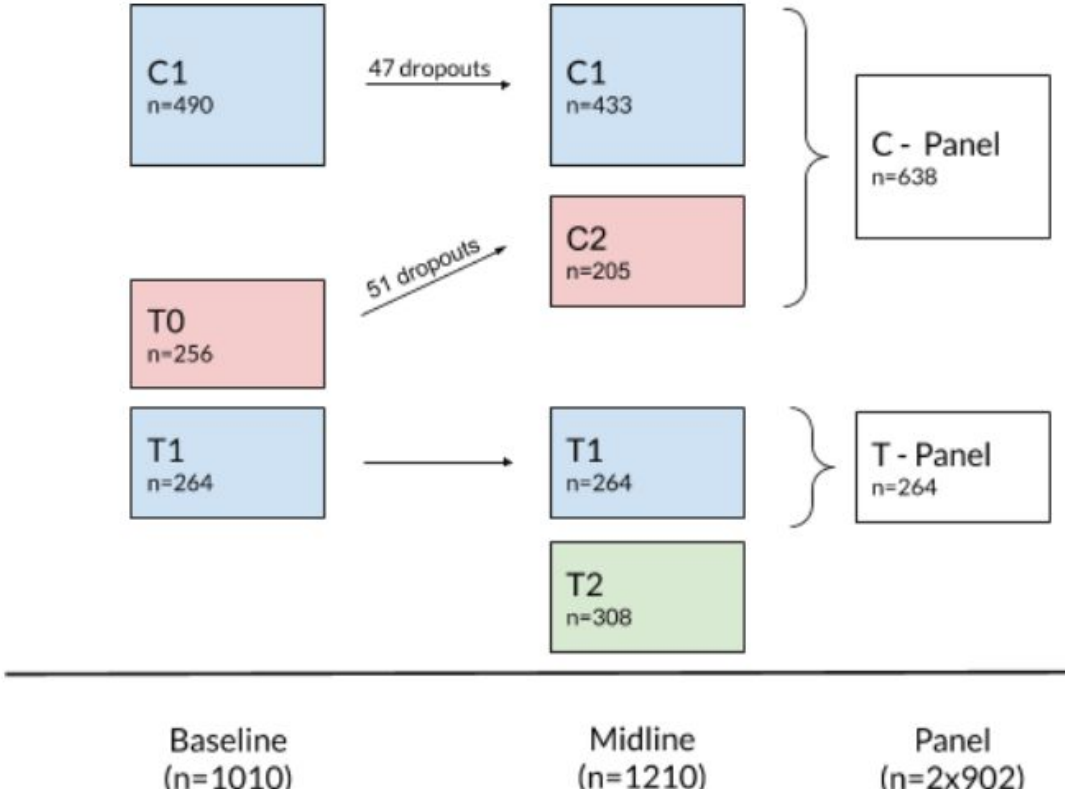
Randomly selected villages within each targeted sub-district and the enumeration team randomly selected beneficiary households from provided lists.

Selected the control households from nearby villages based on the same eligibility criteria used for the selection of beneficiaries in the intervention villages.

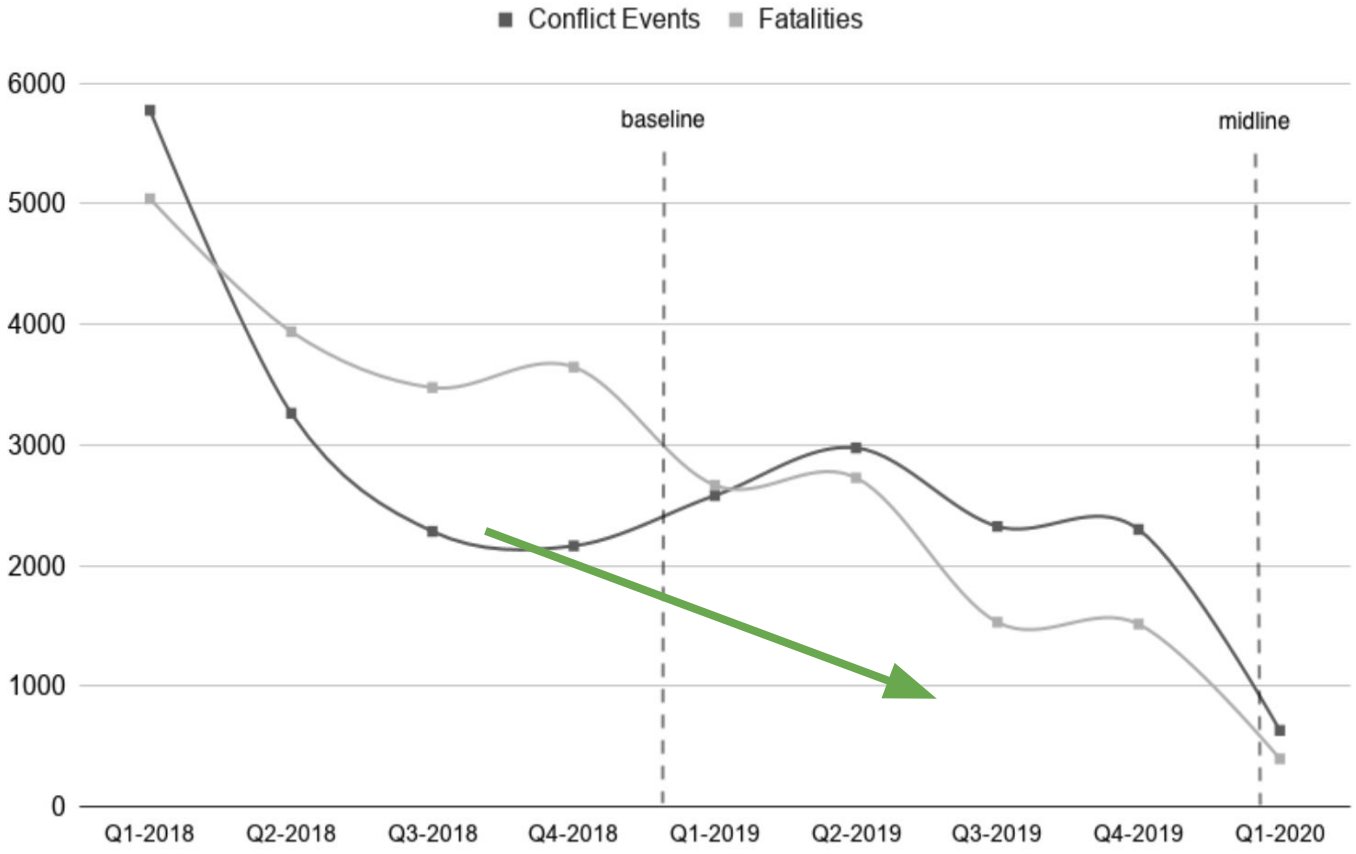
Applied propensity score matching to ensure balance across group at midline (due to attrition)

Used difference-in-difference to estimate the average treatment effect on food security.

Research design - challenges

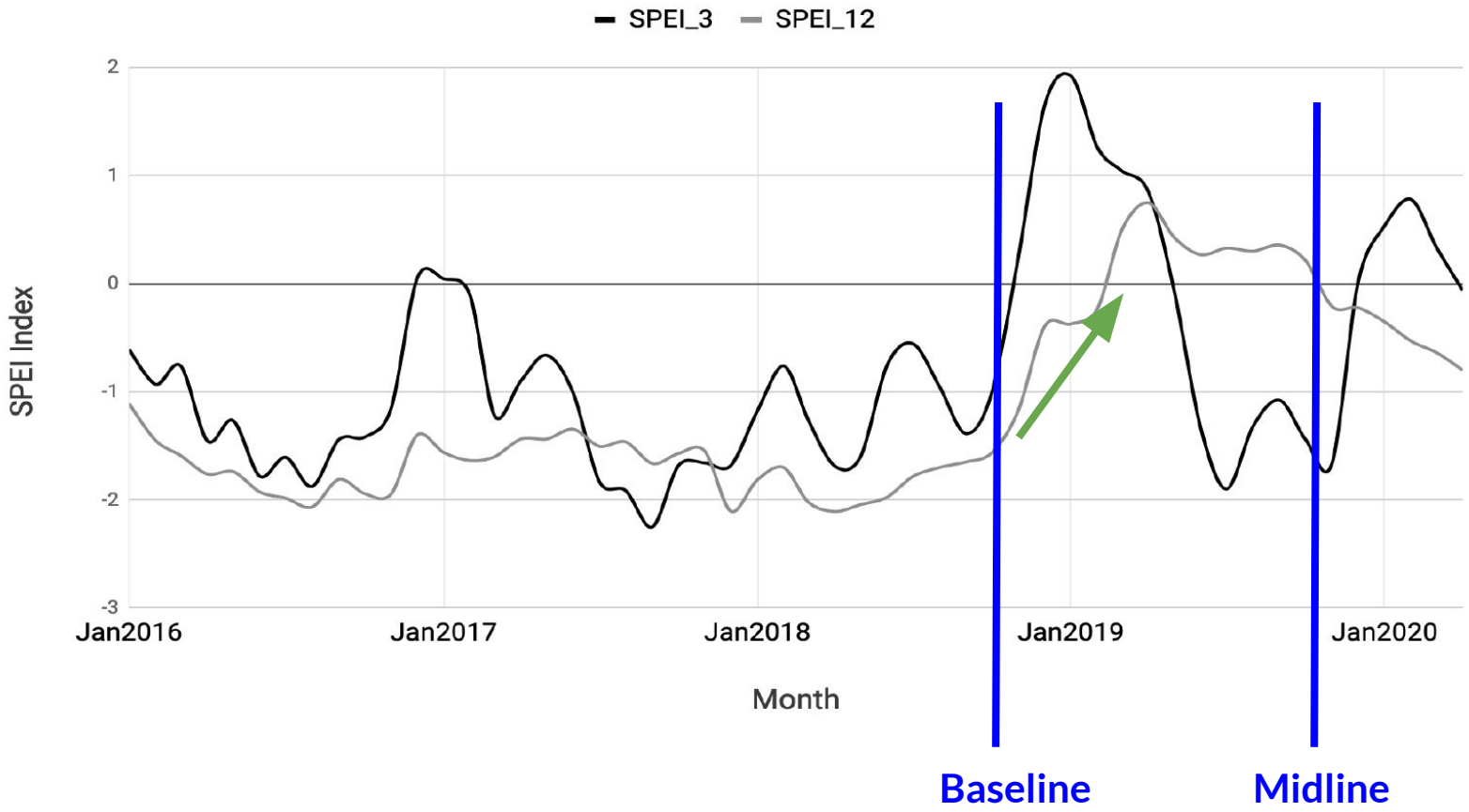


Notable reduction in violent events



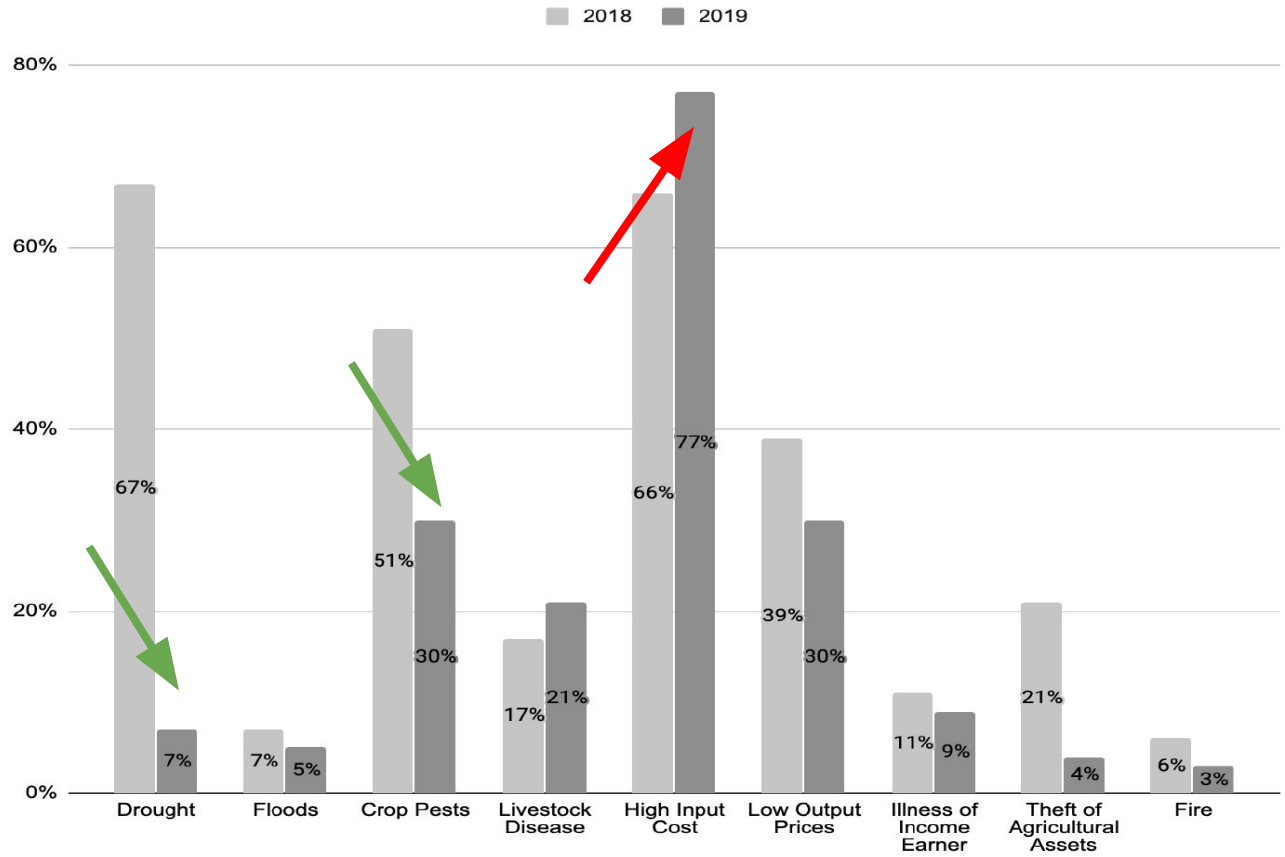
Source: ACLED

End of a long drought period in Syria



Source: SPEI

Lower climatic shocks but higher inflation



Source: own data

Group balance after matching

	Control Group	*Beneficiary Group*	*p-value*
n	271	542	
Governorate (%)			0.982
Al-Hasakah	16.2 %	14.6 %	
Aleppo	19.6 %	17.3 %	
As-Sweida	14.4 %	15.9 %	
Dar'a	6.6 %	5.5 %	
Deir-ez-Zor	17.5 %	17.9 %	
Hama	16.2 %	18.1 %	
Homs	1.8 %	2.0 %	
Quneitra	7.6 %	8.7 %	
HH Head Gender = % Male	57.6%	58.1%	0.905
HH Head Age	49.16 (12.15)	49.56 (12.91)	0.717
HH Head Crop Farmer	46.45 %	44.11 %	0.471
HH Head Herder	12.40 %	12.79 %	0.823
HH Head Labourer	25.12 %	25.67%	0.864
HH Head Completed Education (%)			0.146
No Schooling	27.4%	30.2%	
Primary	57.1%	51.8%	
Secondary	11.2%	8.9%	
Tertiary	4.3%	9.1%	

Source: own data

Food security indicators show improvement

	Baseline			*Midline*			*Impact*		
	control	*benef*	*p-value*	*control*	*benef*	*p-value*	*mean*	*se*	*p.value*
n	253	253		253	253				
FCS	53.84	51.35	0.109	57.23	61.56	0.016	6.82	2.36	0.004
	(17.81)	(17.02)		(20.07)	(19.81)				
HDDS	7.79	8.00	0.217	6.75	7.17	0.010	0.20	0.24	0.401
	(1.84)	(2.04)		(1.87)	(1.71)				
RCSI	10.21	10.08	0.854	9.19	7.77	0.010	-1.29	0.90	0.154
	(7.18)	(8.82)		(6.01)	(6.14)				

FCS = Food Consumption Score; HDDS: Household Dietary Diversity Score; RCSI: Reduced Coping Strategy Index.
Source: own data

Female-headed households benefit more strongly

		Baseline			Midline			Impact		
Gender of HH Head?		*control*	*benef*	*p-value*	*control*	*benef*	*p-value*	*mean*	*se*	*p.value*
FCS	Female	57.05	52.04	0.023	56.35	62.11	0.009	10.76	3.14	0.001
		(19.37)	(18.72)		(23.37)	(21.76)				
	Male	53.01	52.41	0.735	57.08	61.70	0.022	5.22	2.67	0.051
		(17.28)	(16.14)		(18.83)	(18.90)				
HDDS	Female	8.19	7.54	0.053	6.68	7.12	0.170	1.09	0.46	0.019
		(1.91)	(2.00)		(2.08)	(1.87)				
	Male	7.63	8.22	0.004	6.78	7.19	0.028	-0.18	0.27	0.501
		(1.79)	(2.03)		(1.79)	(1.64)				
RCSI	Female	12.92	12.87	0.972	8.41	7.82	0.502	-0.53	1.73	0.759
		(6.96)	(10.32)		(5.49)	(5.03)				
	Male	9.31	8.83	0.541	9.49	7.75	0.012	-1.26	1.04	0.227
		(7.06)	(7.78)		(6.18)	(6.62)				

FCS = Food Consumption Score; HDDS: Household Dietary Diversity Score; RCSI: Reduced Coping Strategy Index.
Source: own data

Households with access to water benefit more

		Baseline			Midline			Impact		
	Land Water Access?	*control*	*benef*	*p-value*	*control*	*benef*	*p-value*	*mean*	*se*	*p.value*
FCS	Yes	57.05 (19.24)	52.04 (18.52)	0.023	56.35 (21.52)	62.11 (20.42)	0.009	10.76	3.14	0.001
	No	51.19 (19.03)	54.08 (15.94)	0.399	58.93 (15.68)	60.78 (18.26)	0.577	-1.04	4.75	0.827
HDDS	Yes	8.33 (1.92)	8.39 (2.17)	0.805	6.65 (2.03)	7.30 (1.71)	0.001	0.59	0.30	0.053
	No	7.45 (1.73)	7.48 (1.88)	0.927	7.09 (1.26)	6.89 (1.34)	0.413	-0.24	0.43	0.579
RCSI	Yes	11.00 (6.65)	9.85 (8.03)	0.183	9.17 (5.98)	7.58 (6.22)	0.013	-0.44	1.05	0.673
	No	12.42 (8.38)	14.67 (11.56)	0.246	9.61 (6.03)	8.66 (5.49)	0.402	-3.19	2.24	0.156

FCS = Food Consumption Score; HDDS: Household Dietary Diversity Score; RCSI: Reduced Coping Strategy Index.
Source: own data

Summary and lessons learned

Key impacts

- Stronger food security.
- Female-headed hhs benefit most from the programme.
- Access to irrigation helps make use of programme.

Lessons learned

- Continue targeting female-headed households.
- Importance of bundling different types of support to achieve stronger impact.
- Impact evaluations are feasible in challenging settings, however, design and methods need to be flexible.

THANK YOU FOR YOUR ATTENTION!

baliki@isdc.org

Healthy Kitchens, Healthy Children

A community-based intervention linking community kitchens (*healthy kitchens*) to a school food program (*healthy children*) in Palestinian refugee camps in Lebanon

Study team: Zeina Jamaluddine, Jowel Choufani, Amelia Reese Masterson, Nadine R Sahyoun, Hala Ghattas

American University of Beirut, and University of Maryland

Background

- Decades of social, political and economic marginalization have led Palestinian refugees living in Lebanon to experience multi-generational poverty, food insecurity and chronic disease
- Gender disparity in the labour market:
  - Female labour force participation rate of 17% vs 69% for males
- Low quality diets start with children at schools *Ghattas et al, PLOS One 2015; Chaaban et al, UNRWA 2016.*
- Community kitchens:
  - Community-based cooking programs
  - Aim to enhance cooking skills, □self-efficacy, □ food insecurity and break social isolation. Mainly applied in developed country contexts (Canada, Scotland…)
  - Mainly qualitative studies showing □self-reliance, social support and mental health. Less evidence of impact on food security
  - Few studies in LMICs

Iacovou et al, PHNutr, 2013; Fano et al Can J Diet Pract Res, 2004; Racine et al Can J of Comm Mental Health, 2000; Engler-Stringler etl al *Can J Diet Pract Res 2005*

Aims

- To investigate the effect of women's participation in a community-based cooking program on economic & food security status, empowerment, social support and mental health outcomes
- To assess the impact of this community-based school nutrition intervention on nutritional (dietary diversity and nutritional status) and educational (school attendance and school achievement) outcomes of schoolchildren

Healthy Kitchens (Sahyoun et al, BMC Public Health, 2019)

- Two Healthy Kitchens as small business enterprises within community based organizations (CBOs) in Palestinian camps
- Women were recruited by the CBOs to produce a daily healthy school snack for schoolchildren
- Training on entrepreneurship, food safety, hygiene, child nutrition
- Participatory approach - developed standardized traditional recipes for school snacks
- Women employed on a rotating basis 7.00 am – 12.00pm; income = 110 USD/month

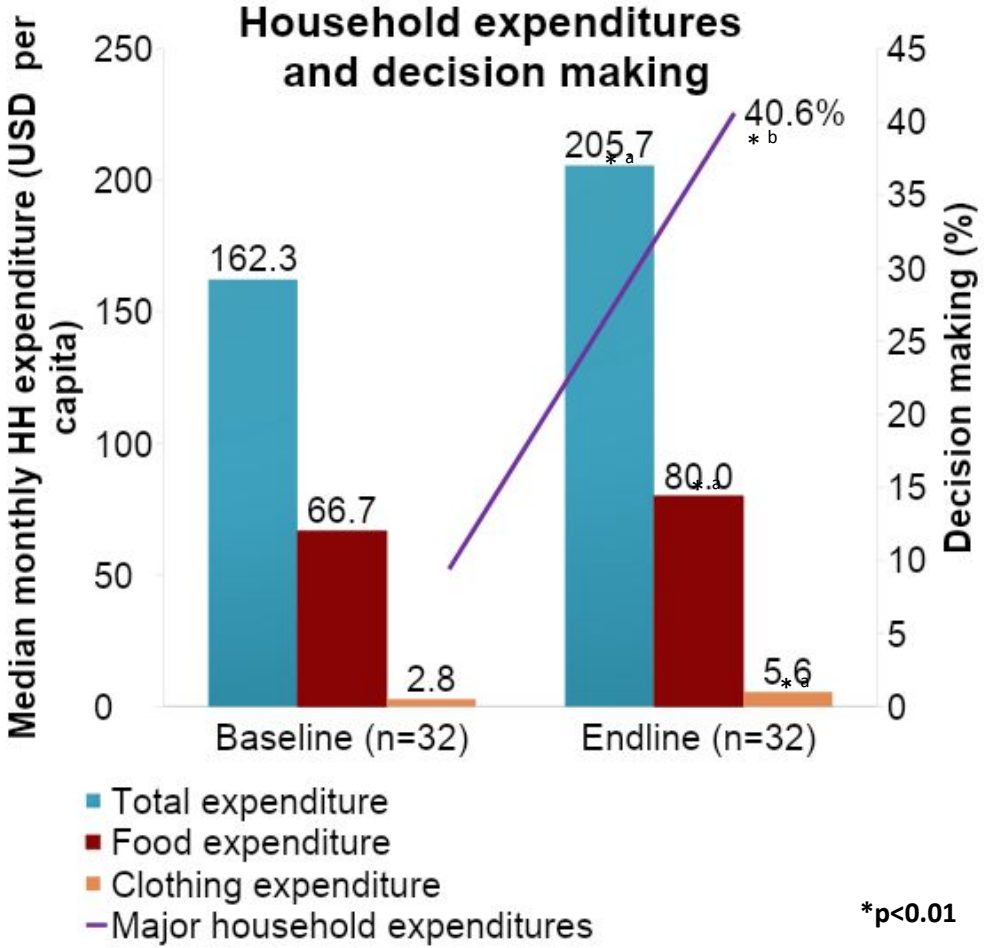
جمعيّة البراعم للرعاية

soufra · صوفرة

Healthy Kitchens
Methods

- Mixed-methods study
- Data collection at baseline and at the end the school year
  - Sociodemographic and economic modules
  - Food insecurity experience (Arab Family Food Security Scale) and Coping strategies module
  - Empowerment module (adapted from IFPRI's Women Empowerment in Agriculture Module)
  - Self-reported health and Mental Health Inventory (MHI-5)
  - Social support (Duke Social Support Index)
  - Semi-structured interviews
- Data analysis
  - Non-parametric statistics for quantitative data (Stata 13)
  - Thematic analysis of qualitative data (NVivo)

Healthy Kitchens
Higher expenditures, decision making, and empowerment



*p<0.01

Theme: Economic independence

"I started feeling that I am doing something, something from my own effort, something that has a value" W7

Theme: Empowered – feeling of self worth

"my personality got stronger, before I used to say I'm living, and my kids are what are important. Now, I want to live and to prove [show] that I exist [and] […]. Just like a man can work and be productive, a woman as well can work and be productive and the rights should be equal between a man and a woman. Now […] I feel that I am a productive woman" W7

[a] Wilcoxon signrank
[b] McNemar's test

Healthy Kitchens
Improved food security and mental health

Food security

- Reduction in food insecurity score from 4 [2;5] at baseline to 2 [0;3] at endline ($p<0.01$)[a]

- □in food-related coping strategies, with a decrease in borrowing food ($p=0.06$)[b] and accepting gifts ($p<0.01$)[b]

[a] Wilcoxon signrank
[b] McNemar's test

Mental health

- Overall increase in MHI-5 score from 40.9 [22.72-72.72] at baseline to 57.14 [28.57-83.33] at endline ($p=0.06$)[a]

Theme: A change is social setting that allows them a break from hardships of home

"I changed scenery, I would leave the house and come to a place where I feel even more comfortable." W68

"I would go home and not be tired emotionally" W4

Healthy Children (Jamaluddine et al, Current developments in Nutrition, 2020)
Methods

Schools	Intervention	Groups	n
Two schools	3 Nutrition education sessions	Control	648
Two schools	3 Nutrition education sessions Healthy snacks sold at a subsidized price (5$ per month), 5 days a week during recess (25% of RDA), for 8 months	Low participation (<3 months)	260
		High participation (>4 months)	454

Data collection at baseline and at the end the school year:

- Household (HH) Socio demographic status : HH expenditure, maternal education level, HH food security status (AFFSS)
- Nutritional status of children: weight, height, diet diversity, hemoglobin
- School performance: absenteeism, academic performance

Healthy Children- Baseline characteristics

	Total Sample (n=1362)
Children's characteristics	
Mean Age (years)	8.9
Gender (%)	
Males	32.6%
Females	67.4%
Children's household characteristics	
Maternal education (%)	
Up to primary level	54.1%
Up to Intermediate level	30.6%
Baccalaureate and above	15.3%
Mean Expenditures (USD/month/capita)	191.3
Crowded (>=3 HH members /sleeping room) (%)	60.3%
Household food insecurity (moderate and severe)	49.0%
Children not having breakfast	38.1%
Nutritional status of children	
Stunted(≤2SD height-for-age) (%)	5.5%
Overweight (≥1SD &<2SD BMI for age) (%)	17.2%
Obese (≥+2SD BMI for age) (%)	12.4%
Anemic (%)	11.0%

Healthy Children
Improved diets

- There was a significantly greater increase in overall diet diversity score in the high-participation group than in controls (p=0.009)[a], but not in the low-participation group

	Low participation vs control [b]		High participation vs control [b]	
	AOR	95% CI	AOR	95% CI
Chicken and meat intake (yes/no)	1.72	[1.34,2.21]	1.88	[1.17,3.00]
Desserts intake (yes/no)	0.55	[0.41,0.76]	0.59	[0.38,0.92]
Sweetened beverage intake (yes/no)	-	-	0.76	[0.59,0.99]
Dairy intake (yes/no)	-	-	1.22	[1.14 - 1.31]

Adjusted for child age and gender, maternal education, total household expenditure and school cluster, p<0.05

[a] Difference in difference

[b] Logistic regression

Healthy Children
Improved hemoglobin but not anthropometry

- Significant changes in hemoglobin (Δ=+1.6mg/dl) as compared to the control group (Δ = -1.0mg/dl) (p=0.05)[a]
- No significant impact on:
  - Anthropometric outcomes of children
  - Food insecurity in children

[a] Difference in difference

Healthy Children
Reduced school absenteeism

	Adjusted		
Absenteeism	IRR	95% CI	p-value
Control	Ref		
Low participation	0.77	[0.66-0.90]	0.001*[a]
High participation	0.78	[0.68-0.88]	0.006*[a]

Adjusting for child gender, maternal education, total household expenditure, child anthropometric status, child anemia status and class cluster effect.

[a] Negative binomial regression

Lessons (Ghattas et al, Public Health Nutrition, 2019)

- CBOs have established themselves as catering businesses sourcing from local markets (+expanded to rooftop gardens)
- Availability of schools as a constant market for the social enterprises offer an opportunity for sustainable livelihood generation

- Challenges
  - Sustainability due to competition from school canteens
  - Pricing of the meal

Conclusions

Evidence of the model's potential to contribute to the advancement of human capital of two generations of protracted refugees

Healthy Kitchens

Improved economic, food security, and social outcomes of marginalized women

Healthy Children

Improved diet diversity, hemoglobin and school attendance of children

Equipping both generations with means to improve their future livelihoods