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girls and boys protagonists of food habit improvement through a school garden

Liliana Ruiz Arregui, Monserrat Salas Valenzuela y Soledad Ochoa Cruz
INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN
MÉXICO

Abstract ID 1

INTRODUCTION

Overweight and obesity are one of the most important public health problems. Mexican children take the first place worldwide: 33.2% to 11-year-old girls and boys (2016). This problem is related to changes in food consumption patterns and a decrease in physical activity, with 17.2% of girls and boys complying with the WHO recommendations. Children frequently consume food rich in sugar, salt and fat, about 212 kg per capita per year. Only 22.6% of school children consume vegetables and 50% consume fruits daily.

Vegetable consumption is important because it provides a low amount of energy (associated with low BMI); vegetables have a high vitamin, mineral and phytochemical content and they contribute to satiety as well. A 400-500g vegetable daily consumption is associated with low risk of non-communicable diseases.

School age is a window of opportunity to promote children participation beyond interventions in a guardianship way. Girls and boys are constructing their own world, they are practicing the exercise of their opinion ability against life and environment hazards, they can act as social bridges between school, family and community. When recognizing their abilities, they are considered as protagonists of health and nutrition preventive actions, especially modifying food practices that could benefit their optimal growth and development.

METHODS

- 8-month community trial
- Two public schools located in Hidalgo, México were selected by convenience (proximity, socio-demographic similarity, authorities and teachers consent)
- 359 girls and boys between 10 to 12 years old, participated
- Nutrition evaluation was made using anthropometric variables (weight, height and waist circumference).
- School garden (HE) group (n=182) and control (CG) group (n=177)
- Variables were described using arithmetic mean or frequency and proportion where appropriate. According to the characteristic of each variable we used: chi square test for qualitative data or analysis of variance (ANOVA) for continuous data. Delta was estimated and difference between two groups. All statistical tests were evaluated using a 95% confidence interval (CI), and a P value < .05.
- Qualitative record of the experience in the HE was made through open group and individual interviews to girls and boys (n= 40).

RESULTS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Basal (n=182)</th>
<th>Final (n=182)</th>
<th>p</th>
<th>Basal (n=177)</th>
<th>Final (n=177)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>18.6 ± 3.5</td>
<td>18.3 ± 2.0</td>
<td>.003</td>
<td>18.6 ± 4.0</td>
<td>18.1 ± 2.8</td>
<td>.004</td>
</tr>
<tr>
<td>Height (m)</td>
<td>1.59 ± 0.04</td>
<td>1.59 ± 0.02</td>
<td>.91</td>
<td>1.60 ± 0.04</td>
<td>1.58 ± 0.03</td>
<td>.005</td>
</tr>
<tr>
<td>Waist/height ratio</td>
<td>0.47</td>
<td>0.47</td>
<td>.99</td>
<td>0.47</td>
<td>0.47</td>
<td>.99</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>19.1 ± 2.0</td>
<td>18.8 ± 0.8</td>
<td>.003</td>
<td>19.1 ± 2.0</td>
<td>18.9 ± 0.8</td>
<td>.003</td>
</tr>
<tr>
<td>BMI Z-score</td>
<td>0.58</td>
<td>0.48</td>
<td>.07</td>
<td>0.58</td>
<td>0.48</td>
<td>.07</td>
</tr>
<tr>
<td>Water/Cca-Height index</td>
<td>13.8</td>
<td>10.8 ± 5.0</td>
<td>.005</td>
<td>14.8</td>
<td>10.8 ± 5.0</td>
<td>.005</td>
</tr>
<tr>
<td>Overweight and obesity*</td>
<td>46.6</td>
<td>61.5 ± 2.0</td>
<td>.001</td>
<td>46.6</td>
<td>61.2 ± 2.0</td>
<td>.001</td>
</tr>
<tr>
<td>HWC (cm)</td>
<td>19.1</td>
<td>20.2 ± 1.15</td>
<td>.001</td>
<td>19.1</td>
<td>20.2 ± 1.15</td>
<td>.001</td>
</tr>
<tr>
<td>C group</td>
<td>8.8</td>
<td>18.6 ± 2.06</td>
<td>.001</td>
<td>18.8</td>
<td>18.6 ± 2.06</td>
<td>.001</td>
</tr>
<tr>
<td>HE group</td>
<td>34.5</td>
<td>47.2 ± 8.01</td>
<td>.001</td>
<td>34.5</td>
<td>47.2 ± 8.01</td>
<td>.001</td>
</tr>
<tr>
<td>WCI</td>
<td>39.3</td>
<td>47.2 ± 8.01</td>
<td>.001</td>
<td>39.3</td>
<td>47.2 ± 8.01</td>
<td>.001</td>
</tr>
</tbody>
</table>

Difference between basal and final anthropometric indices per school

QUALITATIVE FINDINGS

- These children were the third or forth generation of originally peasant families
- Children were able to describe the step by step entire school garden construction and care process
- Children were aware of the school garden benefits, not only in their health but also in the environment and the economy
- Girls and boys were conscious about the positive and health aspect of these experience that provided them with responsibility, pride and joy
- Children really enjoyed working outdoors
- Girls and boys tasted either unknown or disliked vegetables such as beet, celery and cauliflower
- They even have learned how to wash, chop and mix raw vegetables; moreover the male ones who do not participate in these house chores
- They learned how to work in team
- They really liked the mixture of raw vegetables, they discovered new ways to prepare salads and even taught their own families how to do it

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OBJECTIVE:

To explore the school garden experience as a children key participation tool in relation to changes related to feed improvements

INTERVENTION

- Two school gardens were installed, one in each school, measuring approximately 100 m²
- Water provision in both schools
- 30 school garden visits were made, 5 per group, in two-hour sessions per week, divided among 40-45 minutes workshops described below:
  (a) School garden workshop: to weed and prepare the crop land, sow, water, control plagues with natural sources and harvest
  (b) Nutritional information and food cleaning while playing: healthy eating plate, food groups, home made disinfectant solutions
  (c) Salad preparation workshop and shared consumption: cleaning, disinfection, chopping, mixing, serving and collective consumption of a raw salad directly from the school garden.

CONCLUSIONS

- The school garden allowed girls and boys to experiment, learn and share knowledge and experience in a friendly atmosphere making them feel free and happy
- Children were able to know about nutrition, weed, and harvest taking care of the environment from a daily and real work
- In the end, children were able to made decisions concerning the harvest and food preparation
- The school community was keen on the school garden and felt free to give their opinions and keep working on the project
- The results show a trend to maintain a healthy nutritional status in the children that participated in the school garden.
- The school garden provides the opportunity to learn how to produce food, dare to taste different food and to take decisions about the environment working in teams.
BACKGROUND

- Food insecurity, chronic hunger and malnutrition continue to trouble millions of people throughout the developing world. Malnourished children lack essential micronutrients whose deficiency has serious consequences on health and learning ability. The millets, pulses and oilseeds provide excellent source of essential amino acids, numerous minerals and vitamins.
- The main objective of the present study is to evaluate the level of malnutrition and impact of Food and Nutrition, socioeconomic and demographic factor of households on the nutritional status of children 3-5 years of age.

MATERIALS AND METHODS

**SELECTION OF RESPONDENTS FOR THE STUDY**

- **Alahabad District (U.P., India):**
  - Brahmin (86 Children)
  - Jaera (n=101 Children)
  - Jat (n=91 Children)
  - Maharana (n=93 Children)
  - Marwada (n=94 Children)
- **Prevalent Children (3-5 Years) n=382**
  - Cloth Block (n=149 Children)
- **Jaera Children**
  - n=17 Children Experimental
  - n=57 Children Control

**PRE INTERVENTION DATA COLLECTION**

- Development of food products and assess their quality and quantity (Market, Ladies, Biscuits and Chilli)
- Organoleptic analysis or Sensory acceptability of prepared products
- Nutritional composition of the developed products (Proximate, vitamins and minerals)
- Cost of the prepared products
- Deenorming
- Nutrition Education given through developed Documentary and folder
- Dietary intervention and post intervention data collection
- Impact of supplementary food on malnourished children
- Impact of Nutrition Education
- Data analysis and application of statistical tools

During this intervention the protein energy rich standardized recipe was supplemented for a period of 4 months. The two laddu (each of 50g) was supplemented and fulfil the 1/4th of RDA and the total amount of laddu was 100g. The effects of feeding were determined after four months by analyzing the difference in malnutrition status before and after intervention in both the groups. Dietary intakes, clinical assessment and anthropometric measurements were also collected before and after the feeding experiment for both the groups at identical time period.

RESULTS AND DISCUSSION

**Distribution of respondents according to their Degree of Malnutrition on the basis of weight for height.**

**WEIGHT OF THE SELECTED SUBJECTS IN THE STUDY GROUPS (BEFORE AND AFTER SUPPLEMENTATION)**

<table>
<thead>
<tr>
<th>Age (5-7)</th>
<th>Experimental Group n=57</th>
<th>Control Group n=57</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>Final</td>
<td>Initial</td>
</tr>
<tr>
<td>5-7 Years</td>
<td>(n=57)</td>
<td>(n=57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>130.86</td>
<td>105.24</td>
</tr>
<tr>
<td>4</td>
<td>136.22</td>
<td>107.22</td>
</tr>
<tr>
<td>5</td>
<td>109.67</td>
<td>111.64</td>
</tr>
</tbody>
</table>

* Significant at 5% level; NS - Non significant

**CONCLUSION**

Due to supplementation, “Laddu” had significant effect on all the anthropometric measurements; height, weight, MUAC, chest and head circumference and grade of malnutrition slightly comes positively from moderate to mild and mild to normal. Control group was found slow and non significant change in all the anthropometric indices after experimental period. Nutrition education was found to exert significant positive influence on the gain in knowledge about nutrition. The consumption of cereals, pulses and oilseeds are playing a significant role in alleviating nutritional insecurity among low-income and vulnerable groups through optimization of nutrients in the formulation of supplementary foods improves dietary quality.

REFERENCES

**Kuwait Nutritional Surveillance System (KNSS): A tool for monitoring effectiveness of the double burden diseases intervention programmes.**

Mona A Alsumai*  
Department of Community Nutrition, Public Authority for Food and Nutrition

Abstract ID number: 56

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### Introduction

The State of Kuwait established the Nutrition Surveillance System (KNSS), which has been running for more than 20 years. It has been described by WHO as one of the well-progressing surveillance systems in the region. KNSS has been designated to collect, analyse, and disseminate data yearly from Kuwaiti population groups on various aspects of nutrition. Among children, it gathers data on infants feeding and breastfeeding practices, anthropometric measurements, and haemoglobin levels. It also collects data on anthropometric measurements of Kuwaiti adults in addition to the levels of cholesterol, blood glucose, and haemoglobin. It is run by the Food and Nutrition Administration (FNA) at the Ministry of Health (MOH), Kuwait.

### Methodology

- Kuwait Nutritional Surveillance System (KNSS) collects data from Kuwaiti nationality population using standardized data collection forms through personal interviews conducted by trained data collectors who are employed for this purpose.
- The KNSS is designed as a sentinel data collection operation with "convenience" or "purposive" sampling.
- The data are collected throughout the year on various settings which cover the six governorates of Kuwait from various age groups that include children <5 years, school children 6-<60 months, 6-<19 years and adults >19 years.
- Total sample is 20,000.

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### Results

#### Prevalence of breastfeeding % Kuwaiti mothers (1996 - 2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Exclusive BF</th>
<th>Ever Breastfed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>11.9%</td>
<td>89.7%</td>
</tr>
<tr>
<td>1999</td>
<td>11.9%</td>
<td>89.7%</td>
</tr>
<tr>
<td>2002</td>
<td>11.9%</td>
<td>89.7%</td>
</tr>
</tbody>
</table>

#### Prevalence of obesity and overweight among school children in Kuwait by age and gender (KNSS, 2016)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Normal/Underweight</th>
<th>Overweight Male</th>
<th>obesity Male</th>
<th>Overweight Female</th>
<th>obesity Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>17.7%</td>
<td>55.2%</td>
<td>10.2%</td>
<td>20.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>6-&lt;10</td>
<td>17.7%</td>
<td>55.2%</td>
<td>10.2%</td>
<td>20.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>11-15</td>
<td>17.7%</td>
<td>55.2%</td>
<td>10.2%</td>
<td>20.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>16-&lt;19</td>
<td>17.7%</td>
<td>55.2%</td>
<td>10.2%</td>
<td>20.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>20+</td>
<td>17.7%</td>
<td>55.2%</td>
<td>10.2%</td>
<td>20.3%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>

#### Prevalence of obesity and overweight among Kuwaiti adults (>19 years old) by age. (KNSS, 2016)

<table>
<thead>
<tr>
<th>Age group</th>
<th>Normal/Underweight</th>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-29</td>
<td>40.7%</td>
<td>25.0%</td>
<td>12.8%</td>
</tr>
<tr>
<td>30-39</td>
<td>39.3%</td>
<td>28.2%</td>
<td>21.0%</td>
</tr>
<tr>
<td>40-49</td>
<td>39.3%</td>
<td>28.2%</td>
<td>21.0%</td>
</tr>
<tr>
<td>50-59</td>
<td>38.1%</td>
<td>28.2%</td>
<td>21.0%</td>
</tr>
<tr>
<td>60+</td>
<td>38.1%</td>
<td>28.2%</td>
<td>21.0%</td>
</tr>
</tbody>
</table>

#### Anemia Trends with Flour Fortification Program

- Red lines represent the prevalence of children with anemia.
- Blue lines represent the prevalence of children with anemia.

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### Conclusion

- KNSS report data provide regular and updated information on the nutritional status of Kuwaiti population (children and adults) and the influencing factors.
- KNSS data is considered a valuable tool to identify prevalent nutrition-related problems, to identify high risk groups, and to monitor trends, to target resources for program planning and to evaluate the effectiveness of interventions and programs.
- A national nutrition policy cannot be institutionalized without a nutrition surveillance system.

---

### Acknowledgements

List of participants:
- Dr. Nawal Al-Qaoud: Director of the Food and Nutrition Administration
- Dr. Mona Al-Sumaiie: Head of the Community Nutrition Supervisory, KNSS management and reporting
- Fahima Al-Anazi: Head of Nutrition Research Department, KNSS staff management
- Nawai Al-Dalami: Assistant Dietician, KNSS data management
- Najeeba Alamir: Nutritionist, KNSS data management
- Monica Subhakaran: Nutritionist, KNSS data management
- Esaf Al-Ashraf: Dietician, KNSS data management
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- Dr. Abdullah Al-Taier: Technical advisor and consultant, Epidemiologist, Faculty of Medicine, Kuwait University.

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- Nada Al-Abdul: Assistant Dietician, KNSS data management  
- Rana Al-Mutairi: Director of the Food and Nutrition Administration  
- Amna Al-Azmi: Nutritionist, KNSS data management  
- Nour Al-Amir: Dietician, KNSS data management

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Impact Of Wheat Flour Fortification Program On Micronutrient Status In Jordan (2002-2010)

Rawieh Barham

Ministry Of Health, Amman, Jordan (63)

Objective
To decrease the prevalence of deficiency of various micronutrients among women and children, Jordan initiated a national wheat flour fortification program in 2002.

Background
The flour fortification program was officially launched in 2002. Flour was initially fortified with iron (dried ferrous sulfate) and folic acid. In 2006, the program was expanded to include zinc, niacin, and vitamins A, B₁₂, B₂, B₆, and B₁₂. In 2010, the ministry of health formally added vitamin D. Since the inception of the flour fortification program, the Government of Jordan allocated an annual budget to provide premix at no cost to all wheat flour mills in Jordan in support of the government’s mandate that all wheat flour mills fortify flour.

Result

Women
Among women, mean serum ferritin concentrations were significantly higher in 2010 compared with 2002 (21.3 vs. 18.3 ng/mL), there was no statistically significant difference in mean hemoglobin concentrations or prevalence of anemia (%29.2 vs. %29.3), iron deficiency (%35.1 vs. 38.7) or iron deficiency anemia (%19.1 vs. 20.0).

Among the subsample of women (n=393) for whom RBC folate were measured in 2010, 13.6% of women were deficient. Vitamin B12 deficiency was prevalent in 11.1%.

Children
Among children, mean serum ferritin concentration was significantly higher in 2010 compared with 2002 (24.4 vs. 18.1ng/mL), but there was no statistically significant difference in mean hemoglobin. In 2010 and 2002, the prevalence of anemia was 16.6% vs. 20.2%; prevalence of iron deficiency, %13.7 vs. 26.2; and prevalence of iron deficiency anemia, %4.8 vs. 10.1, respectively.

Conclusion
Between 2002 and 2010, significant improvement was observed in the prevalence of iron deficiency in children, but not in women. The mill monitoring data show that program was only partially implemented in the beginning. Ministry of Health established an effective monitoring system for all flour mills to measure the extent of compliance to the fortification program. Fully implemented program could be expected to improve the micronutrient status of the population. 2018 micronutrient deficiency survey, will be conducted to assess micronutrient status and the effectiveness of the flour fortification program.

References
Major Policy and Programme Gaps and Improving Agri-Nutrition Outcomes in Fiji

Lako, J1; Francis, J2; Tubuna, S3 and Kama, A4
1School of Applied Sciences, Fiji National University; 2Technical Centre for Agricultural and Rural Cooperation, The Netherlands; 3International Fund for Agricultural Development, Pacific Office, Fiji; 4National Food and Nutrition Centre, Ministry of Health, Fiji.

Background
There is high prevalence of non-communicable diseases (NCD) in Fiji where agriculture is an important economic activity. Over 95% of the population is at high (36%) to moderate (62%) risk of developing NCD. The incidence of hypertension and diabetes, is high; 31% and 29.6% respectively and 67% of women are either overweight or obese. Physical activity in adults (21%) is low. The transition from diets based primarily on minimally processed local nutrient-dense crops and fish to high dependence on imported processed calorie-dense, high salt foods is an underlying factor. The aim of this study was to analyse the policy and institutional context governing food and nutrition security in Fiji to formulate guidelines for strengthening the links between agriculture and nutrition for improving nutrition outcomes.

Methods
This research follows the CTA/IFAD/PIPSO InnovAgPacific ‘Analyse-Act-Advocate’ approach to better understand the local context, identify solutions and validate findings with multiple stakeholders and jointly advocate for policy and institutional change. A dual process was used for data collection, collation and review of literature. Multiple sectoral policy documents (33) were analysed and 32 stakeholder face-to-face interviews were held, to build the evidence base on policies and institutions pertaining to agriculture, nutrition and health. Synthesised results were validated through multi-sectoral, multi-stakeholder national workshops and public-private-producer partnerships and strategies were developed for influencing policy and institutional change.

Results
There is little alignment between the major agriculture, economic, education, health/nutrition and gender policies and plans exist in Fiji. There is limited coordination among the 23 governmental and non-governmental organizations that implement related programs; resulting in duplication. Nutrition awareness campaigns aimed at reducing the consumption of salt, sugar, fat and encouraging more fruits and vegetables in the diets to address the NCD crisis and other nutrition challenge deliver conflicting messaging with limited impact. Women’s empowerment and knowledge of the nutrition value and health benefits of local food crops and seafood is limited. Stakeholders agree on the need for good governance, policy and programme coherence, national ownership, women’s empowerment.

Recommendations
Policy and governance: Improve policy coherence and coordination among government agencies and implementing partners including NGOs and the private sector; Promote and support bottom up approaches with active community participation and ownership; Mainstream nutrition sensitive agriculture into national development policies and plans (e.g. Fiji National Development Plan 2017-2021); Improve monitoring and evaluation systems to track impact of policies and programmes on food and nutrition outcomes; Provide incentives/ dedicated budget to improve agricultural performance & local food crops and fisheries value chain development;

Research and product development: Analyse bioactive components in local food crops and fisheries and validate their role in improved health (NCDs) outcomes; improve and enforce food safety standards to enhance consumer confidence and market access for traditional food products; Develop new / improved affordable convenience nutritious food products;

Education and Outreach: Design communication campaigns and marketing strategy to aggressively promote that NCDs are preventable and reversible; Use local champions; Promote a seamless link between primary, secondary and tertiary agriculture, food and nutrition curriculum; Develop food technology /science and engineering capacity; Target women in community food & health projects. Promote success stories.

Partnerships: Strengthen multi-sectoral collaboration, public-private-producer-community partnerships, inclusiveness (Gov/NGO/Private Sector/communities/religious groups/women/youth), data sharing/ and joint action.
A cluster randomized controlled trial to assess the double burden of malnutrition among pregnant women and impact of nutrient-based interventions on nutritional status in infants at 6 months in Thatta and Sujawal districts of Sindh, Pakistan

Sajid Soofi1, Gul Nawaz Khan1, Muhammad Sajid1, Cecilia Garzon2, Ali Ahmad Khan2, Shabina Ariff1

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2. World Food Programme, Islamabad, Pakistan

ABSTRACT
Introduction: Similar to many developing countries, Pakistan is facing the double burden of malnutrition, defined as the coexistence of stunted, wasted, underweight children and overweight mothers within the same household. The objective of this study was to assess the double burden of malnutrition and impact of nutrient-based interventions on nutritional status in infants at 6 months of age in community settings by the government primary health care system in Thatta and Sujawal districts in Pakistan.

Methods: A cluster randomised controlled trial was conducted in Thatta and Sujawal districts in Pakistan during 2014-2017. A total of 2030 pregnant women were enrolled during pregnancy and infants were followed until 6 months of age. Pregnant women received a monthly ration of 5 kg (i.e. 165 gram/day) of wheat soya blend (WSB) during pregnancy and first six months of lactation period.

Results: The prevalence of underweight (BMI <18.5) among pregnant women was significantly higher in control than intervention group (23.9% & 20.0%, p=0.03), but overweight or obesity was similar in both groups (9.2% vs 9.2%, p=0.96) at baseline. A significant risk reduction in stunting (RR=0.85, 95% CI; 0.73-0.99, p=0.04), wasting (RR=0.77, 95% CI; 0.66-0.91, p=0.00) and underweight (RR=0.77, 95% CI; 0.69-0.87, p=0.00) was noted in infants at 6 months of age in intervention compared to control group. The compliance of WSB during pregnancy was 70%. Sixty-eight percent of pregnant women reported sharing of WSB with family members. Early initiation of breast feeding (RR=0.85, 95% CI; 0.73-0.99, p=0.03), maternal height (RR=0.86, 95% CI; 0.76-0.97, p=0.01), diarrhoea (RR=0.85, 95% CI; 0.74-0.99, p=0.03) and acute respiratory infection (RR=0.86, 95% CI; 0.74-0.98, p=0.02) was associated with reduction in stunting in infants at 6 months of age.

Conclusion: The findings of our study reveal coexistence of underweight and overweight/obesity among pregnant women as well as stunting, wasting and underweight in children at 6 months of age within the same household in the study area. Interventions that reduce the risk of not only stunting but also wasting and underweight in children at 6 months of age may be a potential factor that can guide the Government and funding agencies in nutrition investments.

Keywords: Wheat Soya Blend, Double Burden, Malnutrition, Stunting, Wasting

Impact on nutritional status of infants at 6 months of age born to pregnant and lactating women receiving WSB

<table>
<thead>
<tr>
<th>Nutritional status of infant at 6 months</th>
<th>Model based adjusted means</th>
<th>RR (95 % CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunting</td>
<td>Control: (N=617)</td>
<td>Intervention: (N=702)</td>
<td>0.85 (0.73 - 0.99)</td>
</tr>
<tr>
<td></td>
<td>28.4</td>
<td>24.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>95 % CI: (25.1 - 31.6)</td>
<td>(21.6 - 26.6)</td>
<td></td>
</tr>
<tr>
<td>Wasting</td>
<td>Control: (N=625)</td>
<td>Intervention: (N=705)</td>
<td>0.77 (0.65 - 0.91)</td>
</tr>
<tr>
<td></td>
<td>29.3</td>
<td>22.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>95 % CI: (27.0 - 31.6)</td>
<td>(19.2 - 26.0)</td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>Control: (N=601)</td>
<td>Intervention: (N=694)</td>
<td>0.77 (0.69 - 0.87)</td>
</tr>
<tr>
<td></td>
<td>45.5</td>
<td>35.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>95 % CI: (43.3 - 47.6)</td>
<td>(31.4 - 39.0)</td>
<td></td>
</tr>
<tr>
<td>Anemic (&lt;11 gm/dL)</td>
<td>Control: (N=628)</td>
<td>Intervention: (N=701)</td>
<td>0.95 (0.91 - 0.99)</td>
</tr>
<tr>
<td></td>
<td>86.0</td>
<td>81.7</td>
<td></td>
</tr>
</tbody>
</table>

*Risk ratios were estimated using multilevel mixed-effects generalized linear model with log (link) to account for cluster randomization
Nutritional evaluation of a food assistance program during the economic crisis. The case of Greece

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INDICO/ABSTRACT ID 182

Introduction

• Since the beginning of austerity in 2009, there has been a 40% increase in the prevalence of food insecurity across Europe.¹
• 36% of the Greek population was at risk of poverty or social exclusion in 2015.²
• The Fund for the European Aid to the Most Deprived (FEAD) has been running across the European Union (EU) and since 2016 in Greece with an aim to provide material (e.g. food) and non-material aid to the most vulnerable populations.

Objective

To investigate the way FEAD is implemented in Greece and evaluate its efficiency in helping meet the beneficiaries’ daily nutritional needs using a simulation approach.

Methods

In Greece, FEAD delivers food aid through in two ways: the Centralized and the Decentralized Supplies.

• For the period January 2016 to December 2017, data from both supplies were retrieved and analyzed to calculate the individual entitlement per participant in grams separately for each regional social partnership.
• Food provisions were categorized in seven food groups: fruits, vegetables, grains, meat and substitutes, dairy, oils and free sugars.
• Based on the WHO nutritional recommendations³ food provisions were transformed from grams to portions and then the percentage of the recommended intake for each food group separately was calculated.

Only the foods provided by FEAD were analyzed and no data on background/existing dietary intakes were analyzed.

→ The analysis used a simulation approach.

Results

Conclusions

FEAD contributes, in general, less than 16% to the daily nutritional needs of the participants. There is great potential for inequalities, which are skewed towards large households and have an inconsistent geographical pattern (potentially linked to the program's execution per social partnership).

Similar disparities are augmented with the increasing volume of food provisions. There is potential for a review of the existing guide to improve the program nutritional impact.

References