Using School-Based Programs to Improve Adolescent Girls’ Nutrition
RESULTS FROM IMPLEMENTATION RESEARCH IN ETHIOPIA
April 11, 2023 – 9-10:30 a.m. EDT / 4-5:30 p.m. EAT
Notes for Attendees

• The webinar is being recorded and the recording will be made available afterward.
• The slide-deck will also be shared after the webinar.
• Please introduce yourself in the “Chat” box. Make sure you choose “everyone” so all can see!

• Please pose questions using the Q&A window. We will answer them during Q&A at the end.
• Simultaneous interpretation to French is available – to access it, click on “Interpretation.”
Alive & Thrive is a leading global initiative for maternal, infant, young child, and adolescent nutrition (MIYCAN).
Introduction

Presentation Overview

• Introduction
• The Ethiopian Policy Context
• Importance of AN
• Intervention Overview
• Results and Key Conclusions
• Adaptation and Scale
• Q&A

Presenters

Sandra Remancus
Director, Alive & Thrive

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Lead Executive Officer for the National Nutrition Coordination Office, Ministry of Health of Ethiopia

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Senior MIYCN Technical Advisor, Alive & Thrive

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Nutrition Associate Director/Technical Ethiopia, Alive & Thrive

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Research Fellow, International Food Policy Research Institute

Abdulaziz Ali Oumer
Country Director, Ethiopia, Alive & Thrive
Ethiopian Context: Significant Progress

Hiwot Darsene
Lead Executive Officer for the National Nutrition Coordination Office, Ministry of Health of Ethiopia
Ethiopian Context: Significant Progress

- **Child Stunting**: 58% in 2000, 37% in 2019
- **Child Underweight**: 41% in 2000, 21% in 2019
- **Child Wasting**: 12% in 2000, 7% in 2019
Ethiopian Context: Demographics

% of girls who get married before they turn 18 years old: 58%

Malnutrition in Adolescent Girls:

- Thin: 29%
- Stunted: 15%
- Obese: 11%

Source: EDHS 2016
Reaching adolescents and young women with effective interventions for nutrition: Insights on platforms and data gaps

Building on the Lancet Series on Adolescent Nutrition, 2021
Nutrition supports the rapid growth, development, and maturation of every physiological system providing a foundation for adult life.
Adolescent diets and food choices are shaped by multiple forces

- Nutritious foods are insufficiently accessible
- Many unhealthy foods are inexpensive and appealing
- But how these impact adolescent food choice is highly variable by context
Where must actions be directed?

- Focus on all forms of malnutrition
- Improve the food and nutrition environment
- Increase individual nutrition agency
Improving adolescent nutrition is an opportunity

“At a time when a rapid nutrition transition is shifting diets for most young people globally, improving adolescent nutrition provides an opportunity to shape the health and wellbeing of this generation and the next.”
Context and engagement are key

Food and nutrition are set in a broader ecological & social context

Youth engagement is central to success
Nourishing our future: the Lancet series on adolescent nutrition

www.thelancet.com/series/adolescent-nutrition
Intervention and Delivery Overview
Program Timeline

- **Situational analyses 2017-2018**
- **Co-design workshops, piloting, field-testing 2019**
- **Training and dissemination of materials Nov 2019**
- **Baseline Survey Oct-Nov 2019**
- **Activities paused due to COVID-19 (state of emergency and school closures) Mar-Oct 2020**
- **Refresher training, activities re-started Nov 2020**
- **Monitoring, data reviews Jan-Apr 2021**
- **Scale up of training support and materials**
- **Endline Survey Mar-Apr 2021**
A&T Approach to AN Research

• Goals:
  – Identify and address implementation knowledge gaps in adolescent nutrition
  – Develop and test the feasibility of interventions in school, health, and community platforms.

• Focus on younger age group (10-14y)
Gaps and Opportunities

Baseline Findings

- 27% achieved minimum dietary diversity*
- 3.6 food groups (out of 10) were available at home*
- On school days, adolescent girls only consumed 2.3 meals or snacks, on average*
- 61% reported consuming unhealthy foods in the previous 24 hours*

Opportunities

- Adolescent girls' diets did not meet dietary recommendations
- There was evidence of nutrition and health benefits if their diets improved, and risks if not improved
- Their practices were modifiable in the existing context

*Data taken from Alive and Thrive baseline survey
Rationale for Contents of Interventions

Addressing facilitators and barriers

Multivariable analysis
- Variety of foods available at home
- HH food security
- Nutrition knowledge

Desk review – multiple socio-ecological influences

Applying drivers of behavior change

- **Knowledge**: Clarity on what and why
- **Beliefs**: Benefits are relevant and convincing
- **Social norms**: Messages from multiple credible sources; group activities with peers
- **Self-efficacy**: Confidence in ability to access diverse foods and extra meals; hands-on activities
Identifying Influencers

Teachers & Principals
Knowledge, beliefs, social norms, school environment

Parents
Home food environment, self-efficacy and food access, social norms

Health Workers
Knowledge, belief in benefits

Peers
Social norms, knowledge reminders

Community Leaders
Social norms, reinforce and motivate parents and teachers
Location of the Program

SNNPR (agrarian region)

Somali (pastoralist region)

SNNPR = Southern Nations, Nationalities, and Peoples’ Region
Three Critical Behaviors

THE ADOLESCENT NUTRITION PACKAGE

Nutrition education & counseling on:
- Dietary diversity
- Meal frequency
- Reducing the consumption of unhealthy foods
Program Messages

**DIETARY DIVERSITY**
Consume food from five food groups (fish/meat/eggs, milk, legumes, dark green vegetables, fruits) each day.

**HEALTHY FOOD CHOICES**
Avoid junk foods such as sweets/candy, fried and salty foods and sugary drinks.

**MEAL FREQUENCY**
Eat three meals and snacks a day, including breakfast.

**BODY WEIGHT**
Maintain a healthy body weight for your height and age (body mass index).
Program Design

- Operational details were developed through a participatory co-design process involving school, health officials, key community actors, parents, and adolescent girls.

- The aim of the program design was to achieve repeated exposures to key messages for all school-going adolescents.
Program Delivery

DELIVERY OF THE INTERVENTION
Six core school-based contacts

Class discussions
(Science classes)

Flag ceremonies

Peer mentorship groups

Student Clubs

BMI measurement & counseling sessions

Parent meetings

REINFORCING CONTACTS

Parent follow-up
Take-home materials/messages delivered to parents by adolescents

Health extension contacts
Integrated service delivery during facility and home visits

Community-based contacts
Community meetings used to motivate parents and teachers and reinforce key messages

Other school-based contacts
Posters displayed at schools to reinforce key messages
Communication Materials

- Poster for parents and community members
- ‘Passport’ and poster for adolescent girls
- Manual for teachers and principals
- School health club activity guide and BMI chart
System Strengthening

• AN protocols for each key actor
• Ongoing trainings
• On-the-job coaching for frontline workers
• Strengthening data use capacity:
  – Supportive supervision
  – Routine monitoring of interventions
  – Midterm assessment
System Strengthening

Ongoing monitoring and adaptation:

• Identified and addressed recurring gaps and modified programming in response to changing environments in schools

• Identified appropriate adjustments in response to COVID-related disruptions to schools
Programmatic Lessons Learned

- Schools will require ongoing capacity strengthening
- SBC materials should be brief and specific
- Teachers are effective implementers and welcomed the new material
- Programming will require ongoing modifications and adaptation
Feasibility and impacts of school-based education interventions on adolescent girls’ diets in Ethiopia: results of a cluster-randomized evaluation

Sunny S. Kim
Nutrition, Diet, and Health Unit
International Food Policy Research Institute

A&T webinar | Washington, D.C. | April 11, 2023
Research questions:

Is it feasible to integrate adolescent nutrition (AN) interventions into school-based platforms?

What are the impacts of the interventions on the diets of adolescent girls?
Were the AN interventions **effectively integrated** into school-based platforms?

• **Integration:**
  1. Training and materials  
  2. Supervision  
  3. School staff’s nutrition knowledge  
  4. Exposure to interventions

• **Effectiveness:**
  ✓ Impacts on dietary diversity, meal frequency, and consumption of unhealthy foods

Photo credit: A&T
A&T AN interventions

- **School-based platforms:** Nutrition messages during flag ceremonies, classroom lessons on nutrition, student clubs on nutrition for girls, peer mentoring on nutrition, body mass index (BMI) measurement with counseling, and parents’ meetings.

**Dietary diversity:** Consume food from five food groups (fish/meat/eggs, milk, legumes, dark green vegetables, fruits) every day.

**Meal frequency:** Eat three meals and snacks a day, including breakfast.

**Healthy food choices:** Avoid junk foods such as fried and salty foods and sugary drinks.

**Body weight:** Maintain a healthy body weight for your height and age.
Study timeline

Situational analyses 2017-2018

Co-design workshops, piloting, field-testing 2019

Training and dissemination of materials Nov 2019

Baseline Survey Oct-Nov 2019

Mar-Oct 2020

Activities paused due to COVID-19 (state of emergency and school closures)

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Monitoring, data reviews Jan-Apr 2021

Endline Survey Mar-Apr 2021

Scale up of training support and materials
Evaluation design and sample size

31 primary schools in SNNPR
23 primary schools in Somali

Randomization

27 intervention schools
Adolescent nutrition activities integrated in primary schools

27 comparison schools
Standard classroom lessons on health and nutrition in primary schools

2019 Baseline: Household and school-level surveys
(38% subsample of adolescent girls and parents)

2021 Endline: Household and school-level surveys

Comparison between program groups at endline

<table>
<thead>
<tr>
<th>Respondent type</th>
<th>Endline 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intervention</td>
</tr>
<tr>
<td><strong>Household survey:</strong></td>
<td></td>
</tr>
<tr>
<td>Adolescent girls aged 10-14y</td>
<td>270</td>
</tr>
<tr>
<td>Parents of adolescent girls</td>
<td>270</td>
</tr>
<tr>
<td><strong>School/health system:</strong></td>
<td></td>
</tr>
<tr>
<td>School principals</td>
<td>27</td>
</tr>
<tr>
<td>Science teachers</td>
<td>27</td>
</tr>
</tbody>
</table>
Data analysis

- **Intent-to-treat specification**
- Impact estimates on adolescent girls’ diets at endline using linear regression models controlling for school clustering and adjusted for age, household food insecurity, wealth, and region.
  - Robustness check using difference-in-difference method on outcome indicators available at both baseline and endline (i.e., dietary diversity)
- Plausibility analysis by examining outcomes among program impact pathways (service delivery to exposure and behavioral determinants)
Q1. Is it feasible to integrate AN interventions into school-based platforms?
Most principals and teachers in intervention schools received AN training, mostly within the past 3 months of the survey.

Differences between study arms, accounting for clustering: *p < 0.05, **p < 0.01, ***p < 0.001.
High availability of materials and records related to nutrition observed in intervention schools

Differences between study arms, accounting for clustering: *p < 0.05, **p < 0.01, ***p < 0.001.

- Poster on eating breakfast
- Poster on eating healthy snacks
- Poster on food groups/dietary diversity
- Nutrition education activities
- Parents’ meetings
- School Management Committee meetings
- Other community events conducted at school

Nutrition-related materials

Records
No difference in supervision frequency, but more school staff in intervention schools were supervised on nutrition activities.

Differences between study arms, accounting for clustering: *p < 0.05, **p < 0.01, ***p < 0.001.
Overall higher nutrition knowledge among staff at intervention schools at endline, particularly about dietary diversity

Differences between study arms, accounting for clustering: *p < 0.05, **p < 0.01, ***p < 0.001.
High exposure to interventions reported by adolescent girls/parents in the past 3 months

Differences between study arms, accounting for clustering: *p < 0.05, **p < 0.01, ***p < 0.001.
Q2. What are the impacts of the interventions on the diets of adolescent girls?
## Results: Sample characteristics

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2019 Baseline</th>
<th>2021 Endline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intervention</td>
<td>Control</td>
</tr>
<tr>
<td>N=81</td>
<td>N=81</td>
<td>N=270</td>
</tr>
<tr>
<td><strong>Adolescent dietary diversity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietary diversity score (0-10 food groups)</td>
<td>3.8 ± 1.6</td>
<td>3.6 ± 1.5</td>
</tr>
<tr>
<td>Minimum dietary diversity (5+ food groups), %</td>
<td>29.6</td>
<td>23.5</td>
</tr>
<tr>
<td>Meal frequency</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Junk food consumption</td>
<td>61.7</td>
<td>59.3</td>
</tr>
<tr>
<td><strong>Adolescent age, y</strong></td>
<td>12.7±1.1</td>
<td>12.8±1.2</td>
</tr>
<tr>
<td>Attended same school previously</td>
<td>100.0</td>
<td>97.5</td>
</tr>
<tr>
<td><strong>Grade level, %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9.9</td>
<td>14.8</td>
</tr>
<tr>
<td>5</td>
<td>18.5</td>
<td>24.7</td>
</tr>
<tr>
<td>6</td>
<td>23.5</td>
<td>22.2</td>
</tr>
<tr>
<td>7</td>
<td>22.2</td>
<td>27.2</td>
</tr>
<tr>
<td>8</td>
<td>25.9</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Language(s) spoken, %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amharic</td>
<td>58.0</td>
<td>46.9</td>
</tr>
<tr>
<td>Gurage</td>
<td>30.9</td>
<td>27.2</td>
</tr>
<tr>
<td>Somali</td>
<td>39.5</td>
<td>44.4</td>
</tr>
<tr>
<td>Other</td>
<td>27.2</td>
<td>27.2</td>
</tr>
<tr>
<td><strong>Residence of parents, %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father currently resides with adolescent</td>
<td>77.8</td>
<td>82.7</td>
</tr>
<tr>
<td>Mother currently resides with adolescent</td>
<td>96.3</td>
<td>97.5</td>
</tr>
<tr>
<td><strong>Household Food Insecurity Access Scale (HFIAS), %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food secure</td>
<td>43.2</td>
<td>44.4</td>
</tr>
<tr>
<td>Mildly insecure</td>
<td>8.6</td>
<td>9.9</td>
</tr>
<tr>
<td>Moderately insecure</td>
<td>33.3</td>
<td>35.8</td>
</tr>
<tr>
<td>Severely insecure</td>
<td>14.8</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>Wealth tercile, %</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>35.8</td>
<td>30.9</td>
</tr>
<tr>
<td>Middle</td>
<td>30.9</td>
<td>35.8</td>
</tr>
<tr>
<td>High</td>
<td>33.3</td>
<td>33.3</td>
</tr>
</tbody>
</table>

Values are mean ± SD or %. Differences between arms, accounting for clustering: *p < 0.05, **p < 0.01, ***p < 0.001.

For categorical variables, the asterisk is placed in the row of the last category.
Dietary diversity among adolescent girls increased by 1.3 food groups and 5.4 times higher odds of MDD

Data labels are odds ratios from logistic regressions, controlled for adolescent age, region, household food security and wealth, clustered by school. *p < 0.05, **p < 0.01, ***p < 0.001.
Meal frequency increased by 0.8 meal/snack time (out of 6 times) among adolescent girls

Data labels are odds ratios from logistic regressions, controlled for adolescent age, region, household food security and wealth, clustered by school

*p < 0.05, **p < 0.01, ***p < 0.001.
No impact on overall consumption of unhealthy foods among adolescent girls, but 0.5 times lower odds of consuming other sweets

Data labels are odds ratios from logistic regressions, controlled for adolescent age, region, household food security and wealth, clustered by school

*p < 0.05, **p < 0.01, ***p < 0.001.
Conclusions

• Our study demonstrated the feasibility of implementing nutrition education interventions through school-based platforms.

• Reinforcing messages about eating diverse foods and eating more often resulted in behavior changes related to dietary diversity and meal frequency.

• However, informing adolescents to avoid junk foods, without addressing their environments, was not effective in reducing consumption of unhealthy foods.

• **Next step**: Examine factors associated with adolescent girls’ dietary behaviors.
  - Influence of external food environments, parental control and interaction, and behavioral determinants.
Acknowledgements

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• A&T HQ: Tina Sanghvi, Elana Landes Dhuse, Sujata Bose

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Adapting and Scaling the Interventions
Adapting and Scaling the Interventions

Phase I: 2019 - 2021
• Implementation research

Phase II: 2021 - 2022
• Initial adaptation & scaling

Phase III: 2022 - 2023
• Government-led expansion
Phase I: Implementation Research

- Implementation led by local partners with TA from A&T
- A&T activities:
  - Collected, monitored, analyzed data
  - Conducted baseline, mid-term, and endline evaluations
  - Disseminated results nationally and regionally
  - Developed materials on lessons learned
A&T-supported scale-up:

- Led strategy development and consensus-building workshops to encourage healthy food choices
- Streamlined and contextualized SBC materials
- Supported trainings and supportive supervision structures
- Advocacy

Initial Scale Up: 71 new schools - 3 new regions (2022)
Phase II: Adapting & Scaling in Additional Regions

- Demand generation led by regional government officials
- Official communications/circulars from the regional bureaus of education to woredas
- Intervention scaled in three new regions and the control woredas (districts) of existing regions
Phase III: Government-led Expansion

- Ongoing expansion led by regional administration
- A&T focused on ensuring intervention sustainability:
  - Working with the government to simplify data monitoring & reporting tools and SBC approaches
  - Government cost-sharing
  - Learning incorporated into national AN resources
Scaling-Related Cost Savings

Major Program Costs:

- Budget for Local Implementing Partners
- Developing SBC materials
- Conducting trainings
- Implementing supportive supervision
- Holding review meetings
A&T Next Steps & Way Forward

• Conduct a situational assessment to:
  – Synthesize evidence on improving AN across different contexts
  – Assess factors influencing success of AN interventions
• Support including AN in the high school curriculum
Publications & Resources

Endline
Launching today

Toolkit
Launching today

Baseline (2021)
Contact US

• For more information regarding the information presented in this webinar contact Emma Feutl Kent, Associate Director, Projects and Programs EFKent@FHISolutions.org

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