



First-Round Students' Testmony

Ethiopia MSc Research Grant Scheme

Food Systems for Healthier Diets

Prepared by Mestawet Gebru
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Shewit Engdashed Berhe

Pregnant Women's Perception of the Food Environment and Factors Associated with Their Diet Diversity in Kiltawlaelo District, Tigray, Northern Ethiopia

Principal investigator: Shewit Engdashed (MphN)

Advisors: Dr. Selamawit Asfaw (Asst. professor), Freweini Gebrearegay (MphN)

Mentor: Dr. Gina Kennedy (PhD)



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Key Thesis Findings

Women become undernourished when the dietary diversity is suboptimal to satisfy the high demand of micronutrients during pregnancy. A mixed sequential cross-sectional study design was employed on 423 pregnant women to explore their perception of the food environment and identify factors associated with diet diversity. Of the total pregnant women studied, only 48.2 percent achieved the minimum women's diet diversity score with mean women's diet diversity score of 4.65 ± 1.88 95 percent CI (43.00, 52.70). Occupation, food availability, food affordability, number of market days in a week and appetite of the mother were found to be significantly associated with diet diversity. Pregnant women reported in their group discussions that foods were not sufficiently available at home, not affordable in the market, and the market was difficult to access due to distance and lack of reliable transportation.

Progress Made So Far

My thesis work was successfully defended as a partial fulfillment of my master's degree in public health nutrition and the evaluation result was excellent. It has already been accepted for a poster presentation for the 2019 DOHaD congress to be held in Melbourne, Australia from 20-23 October 2019. It is also on a waiting list for an acceptance for a poster presentation for the qualitative evidence symposium to be held in Brazil, October 9-11, 2019. I am also preparing a manuscript for publication in a peer reviewed journal.

Testimony About the MSc Grant

The MSc grant award has helped me in many ways. Thanks to A4NH's funding, my research capabilities were not limited because of financial constraints. The food system training workshops before and after the research time were very helpful in deepening my knowledge about food environment research. My mentor and the program coordinator were also very responsive and unreservedly helpful throughout the research work and even after.



Misgan Legesse

Factors Influencing Household Dietary Consumption Patterns in Toke Kutaye District, West Shoa Zone, Oromia Regional State, Ethiopia

Principal investigator: Misgana Legesse Lamessa

Advisors: Mr. Gemechu Shale Ogato (Asst Prof), Dr. Warkaw Legesse Abate (PhD)

Mentor: Dr. Namukolo Covic (PhD)



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Key Thesis Findings

The study assessed household dietary consumption patterns and related socio-cultural and production factors in 421 rural farm households. The majority (69.1 percent) of households in the study area had medium dietary diversity. Income, home gardening, ownership of smaller livestock, and access to irrigation were positively associated with high dietary diversity of households. Access to cultivated land and nutrition training were positively associated with high dietary and negatively correlated to low dietary diversity. The use of farm inputs was negatively associated with low dietary diversity.

Progress Made So Far

I graduated from Ambo University with Master of Arts in Development Studies (Rural livelihood and development) with Very Great Distinction. I am now advising undergraduate and graduate students, conducting applied research that further develops my experience of data analysis using statistical software like SPSS and Stata.

Testimony About the MSc Grant

The grant improved my understanding of food systems research and encouraged me to focus on food systems research in order to solve existing societal problems related to nutrition. It also helped me to collect data effectively and get more experience of data analysis and write-up. Overall, it enabled me to conduct a quality applied research.



Bikila Amenu

Minimum Dietary Diversity and Associated Factors Among Children Age 6 to 23 Months in Ambo District, Oromia, Ethiopia

Principal investigator: Bikila Amenu

Advisors: Teka Girma, Habtamu Oljira

Mentor: Prof. Inge Brouwer



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Key Thesis Findings

A community-based cross-sectional study design with mixed methods of data collection was employed to assess dietary diversity in relation to food environment among 6-23months children. The result showed that 21.5 percent of children met minimum dietary diversity (MDD). Maternal education, information about diversified child feeding, wealth status, and physical distance from market were found to be independently associated with MDD. FGD factors that influence practicing of MDD were: price of food, geographic access, seasonal variation in availability of food, and that some food types, like fish, are not available in their area.

Progress Made So Far

I defended my thesis with “very good” result and took my certificate of Master of General Public Health from Ambo University with the CGPA of 3.90. Together with my advisor, we have sent the thesis manuscript to BMC journal of Maternal and Child Health for publication and it is in process.

Testimony About the MSc Grant

The grant helped in the process of conducting my thesis without budget problem. It gave me motivation to enroll myself in project work, and through the process I have got an understanding of what food systems research means.



Gudisa Merga Gadeffa

Dietary Diversity and Associated Factors Among Reproductive Age Women in Jeldu District, West Shoa, Central Ethiopia, 2018

Principal investigator: Gudisa Merga Gadeffa

Advisors: Dr. Samoson Mideksa (PhD), Nagasa Dida (MPH-HEP)

Mentor: Dr. Gina Kennedy (PhD)



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Key Thesis Findings

In this study, the proportion of women who achieved adequate dietary diversity were 81.9 percent (95 percent CI; 78.9-84.9 percent). Agro ecological zone, having large livestock, radio, mobile phone, and women making household food purchasing decisions were significantly associated with dietary diversity.

Progress Made So Far

I finalized my Msc program with a very good GPA of 3.52, and research project with very good result, from Ambo University. Because of my grade point and good experience on food systems, I was hired as a research supervisor at Ambo University to supervise graduate students. I am preparing a manuscript to publish my thesis in peer-review journals.

Testimony About the MSc Grant

This small research grant helped me get enough experience to conduct food systems research. Also, I got good experience on data analyzing using statistical software's like SPSS and Endnote. Finally, the small grant built my capacity and increased my confidence, which will help me to compute with other individual and university for further educational opportunities.



Dereje Wolde

Comparison of Nutritional and Sensory Quality of Vegetables Grown on Aquaponics Technology and Conventional Produces

Principal investigator: Dereje Wolde

Advisors: Paulos Getachew (PhD), Abebe Tadesse (PhD)

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Key Thesis Findings

Aquaponics is a sustainable and alternative food production sector integrating aquaculture and hydroponics. It is an emerging part of aquaculture that uses the natural interaction between bacteria, fish and plants to change waste into clean water. Compared to soil-based agriculture and aquaculture production methods, aquaponics has many benefits including re-use of wastewater from the growing fish, production of two commodities from a single system and expanded food production by urban residents. This study compared the nutritional quality and customer preference of lettuce (*Lactuca sativa* L.) and kale (*Brassica carinata*) grown on aquaponic system with that conventionally grown in a soil-based system.

The aquaponic lettuce from Shewa Robit site had significantly higher amounts of crude fiber, magnesium, potassium, iron, copper, and boron compared to soil-grown lettuce ($p < 0.05$). The aquaponic lettuce from Addis Ababa University (AAU) site had significantly higher amounts of crude fat, crude ash, crude fiber, calcium, magnesium, phosphorus, iron, boron, copper, and manganese than soil-based lettuce. Aquaponic kale had a significantly higher amount of crude protein, crude fat, crude ash, crude fiber, zinc, copper, manganese, and macro minerals than the soil-based kale. However, the aquaponic lettuce and kale at both sites had lower concentrations of vitamin C and β -carotene than the soil-based lettuce. A higher concentration of nitrate ($78.48 \mu\text{g/g}$) and ($70.73 \mu\text{g/g}$) was obtained in aquaponic lettuce at Shewa Robit and kale at AAU, respectively, than in the soil-based products. Concentrations of chromium, lead, and nickel were lower in the aquaponic lettuce than the soil based harvests at AAU. Aquaponically grown lettuce and kale at AAU had a lower sensory preference score compared to the soil-based products. The microbial load of the aquaponic lettuce and kale was within the safety range for such products. In conclusion, in this study aquaponically grown lettuce and kale had a better nutritional quality compared with the soil-based ones. The heavy metals and microbial safety of the aquaponic products were within acceptable limits. Further studies to improve the sensory qualities of the aquaponic leafy vegetables are strongly recommended.

Progress Made So Far

I have presented my findings to AAU and Kotebe Metropolitan University (KMU) and upgraded my academic profile from graduated assistant I to full lecturer. In addition to teaching, I am working on aquaponics technology as coevaluator with professionals from Germany at Shewa Robit and Metehara aquaponic sites where the aquaponics technology launched.

Testimony About the MSc Grant

First and foremost, I am grateful to receive this grant which is helping me pay for the whole research experiment. I have benefited a lot from this program in many ways.