

Impacts of Nutrition Transition in Indigenous Communities of Northern Ecuador: What can we do next?



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Project Overview

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Organization: Partnership between McGill University and Andean communities of Northern Ecuador

Location: rural area of Cotacachi, Ecuador

Mentor: Dr Alison Doucet

Fellowship Duration: March 6- April 6, 2015



About the McBurney Fellowship Program

Through McGill's Institute for Health and Social Policy, the McBurney Fellowship Program supports students in international service programs related to health and social policy in Latin America. McBurney Fellows serve abroad in organizations working to meet the basic needs of local populations. One key aspect of this fellowship is its mandate to make a significant contribution to improving the health and social conditions of poor and marginalized populations through the delivery of concrete and measurable interventions. Students and their mentors identify issues, make connections with local organizations, and develop a strategy for the fellowship. The views expressed in this document are the opinions of the fellow, and do not necessarily reflect the opinions of the IHSP.

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IMPACTS OF NUTRITION TRANSITION IN INDIGENOUS COMMUNITIES OF NORTHERN ECUADOR: WHAT CAN WE DO NEXT?

Fellowship Rationale and Objectives

The Department of Family Medicine at McGill University developed a participatory research partnership with Andean communities of Northern Ecuador that has been ongoing since 2008. Since then, each summer a first year medical student from McGill University has been awarded a summer research bursary and has examined a topic deemed important to these communities.¹ In 2011, the department of Family Medicine received funding from the McBurney Fund and initiated the TEACH project (Training and Education for Andean Community Health). TEACH is a program designed to train indigenous community health workers (CHWs) in health promotion and disease prevention in several communities of the region of Cotacachi, Ecuador.

Nutrition has repeatedly been identified as a major concern for the CHWs and their communities during the TEACH workshops. Indeed, indigenous communities around the world face health challenges associated with malnutrition [1-3]. Their food supply depends heavily on traditional agriculture. However, changes in environmental, economic, and social conditions have forced many families to adopt new ways of obtaining food supplies and sometimes abandon traditional agricultural practices, a process referred to as nutrition transition [4-5]. These changes can affect food security², reducing food diversity and increasing consumption of processed foods, which in turn can cause malnutrition, stunting, and obesity [1, 7]. The student projects in the summer of 2013-2014 addressed the topic of malnutrition in 4 indigenous communities (Chilcapamba, Arrayanes, Iltaqi and Morales Chupa) and evaluated food security, food diversity, agriculture practices and childhood malnutrition through questionnaires and focus groups. There were 169 families that answered the questionnaires and 298 children's height and weight were measured.

Objectives

During my one month stay in Ecuador, my objective was to disseminate the results of the Summer 2013-2014 research project on nutrition transition to various stakeholders. This process involved discussing the interpretation of the results and the conclusions that could be drawn from them. We also aimed to find potential solutions to the issue of malnutrition including interventions that the communities/CHWs themselves could implement, as well as a specific interventions for the Summer 2015 student project.

¹ In 2012, in the context of this partnership, I conducted a research project on access to maternal and newborn care.

² Food security is defined by the WHO as access to sufficient, safe, and nutritious food to maintain a healthy and active life [6].

What issues did you seek to address?

Malnutrition was the issue that we wanted to address. In the summer 2013-1014 projects we found that in the four communities, 48.4% of the children had stunted growth and 43.2% were overweight/obese. There were a high proportion of children that had both stunting and overweight/obesity. These results suggested that children in these communities eat a diet that is higher in calories than their daily energy expenditure but that lacks the micronutrients to support their growth. See Appendix 1 for details.

Background/context

The high prevalence of malnutrition in these communities has concerning health consequences. Malnutrition can affect growth, the ability of children to do physical work, their susceptibility and ability to mount an immune response to infections, as well as their cognitive development, all of which can affect their future income [8]. Overweight and obese children are developing health problems that may progress into adulthood (eg. osteoarthritis, diabetes, dyslipidemia, hypertension, heart problem and stroke) [9]. It is also important to note that malnutrition in children reflects malnutrition in the communities in general.



Activities

While in the field I presented the results to:

- *Cabildos*, a yearly elected governing board in the community consisting of the president, vice president, and secretary, as well as to community members through assemblies, in 3 out of 4 of the communities that were involved in the investigation (Chilcapamba, Morales Chupa, Arrayanes)
- Community health workers (CHWs) from TEACH
- The Ministry of Economic and Social Inclusion (MIES): among other roles this ministry works closely with daycares for the protection of children.
- Director of the school in Chilcapamba. Children from Morales Chupa, Iltaqui and Chilcapamba attend this school. They are usually children from the poorest families because families that have more resources send their children to schools in the city.
- Director of the school in Quiroguá where children from the four communities attend
- The institute for Self Reliant Agriculture-Feed the World
- UNORCAC, the union of all 43 indigenous communities in the canton of Cotacachi
- Local Hospital Asdrubal de la Torre
- Universidad Técnica de Ibarra, the closest public university in the region

I prepared a power point presentation that I adapted according to the stakeholders that I was presenting to. When I presented to the *cabildos*, the assemblies, and CHWs, I also included slides about the consequences of malnutrition. Prior to presenting to them, I performed a number of analyses to ensure their understanding of the concept of percentage. Since some of the members were not familiar with percentage, I expressed the results in different ways. I also prepared a proposal on behalf of the communities for the institute for Self Reliant Agriculture to collaborate with the communities.

Our main contact with the communities is a leader who has been directly involved with the planning and execution of all summer research projects with medical students. She is also the coordinator of the TEACH project. She facilitates communication with the *cabildo* as well as other stakeholders, and she accompanied me to every presentation and helped me reach out to a variety of groups.

My supervisor was present during two weeks of my stay. She was giving workshops to the CHWs. I attended some of their workshops to gain a better understanding of the TEACH project.

Summary of discussion with stakeholders

Cabildos, assemblies and CHWs

The discussion with *cabildos* and CHWs focused on better understanding some of the findings of the summer 2013-2014 projects. More specifically we sought to understand why owning chicken had a protective effect on stunting and why families who sold animals were at increased risk of malnutrition.

The *cabildos* and CHWS explained that chickens are easier to handle than other animals, they need food only once per day, they can live on a small piece of land and are cheaper to take care of. In addition, they also have the advantage of laying eggs every day, which is an excellent source of protein. In this regard, we feel that promoting owning chickens could be one way of reducing malnutrition in the community. Following this discussion, we raised awareness about the protective effect of having chickens to stakeholders including the community itself through assemblies.

In regards to the association between selling animals and malnutrition, both *cabildos* and CHWS agreed that malnutrition could have to do with how families manage their savings and capital. They explain that sometimes families have to sell animals because they have too many of them and are at risk of having them stolen or because they do not have enough food to feed them. Other times, animals are sold because families need money at that specific moment. Discussions suggested that families often buy food that is not as healthy with the money from selling the animal such as fried street food, or spend it on clothes, books or an event such as a wedding. Thus, families do not sell their animals when the market is favorable. In fact, it is unclear how much profit they are making from their sale. Hence, another direction for intervention would be to teach the community about management of their capitals and raising awareness about the nutritional advantage of their animals. Families should be encouraged to, first, secure their food supply with their crops and animals and, second, to think of economic advantages. This was discussed during assemblies with the community members which is a first step forward.

In addition, during discussion with the *cabildo* of Chilcapamba, it was suggested to use a piece of land to do a crop demonstration for the community. They also suggested having a special day during which the members of the community would exchange crops.

Ministry of Economic and Social Inclusion (MIES)

We spoke to the provincial coordinator of daycare, and he explained that the Health Ministry, through a program called “Desnutricion 0,” will measure the weight, height and hemoglobin of all children in daycare. However, it is unclear what they will do with the results. We did not find new solutions or interventions with them.

In fact, this meeting brought into question whether disseminating our results to ministries was a good avenue. We realised that discussion at the governmental level was challenging and it seemed hard to have a real impact. The system is big and hierarchical. It is difficult to find the right person to speak to who will be able to implement policy changes. Furthermore, the government deals with a large number of communities and their policies must affect a great proportion of them. Following this meeting, we decided that presenting to ministries would not be our priority but if we still had time that we could reach out to the Ministry of Education, Agriculture and Health.

School of Chilcapamba

The director of the school in Chilcapamba explained that every day, children in Ecuador receive granola bars and/or cookies with a beverage from the Ministry of Education. The school in Chilcapamba also receives meals from an organisation (e.g. rice with beans). The director stated that there were no vegetables and little variety in the menu. He suggested using the land behind the school to make a community garden and complement the meals offered by the organisation.

School of Quiroga

It was interesting to see some interventions that are put in place by the health system of Ecuador. We learned from our meeting with the director of the Quiroga School that the local health center measures the weight and height of children in pre-school at the beginning of every year. Following this, there is a talk with the parents about nutrition that is given by the health center. Vitamins are given to the children that need them. Furthermore, the local hospital goes to the school a few times per year to ensure that the food sold in the school is healthy.

The director stated that a good way to educate children about malnutrition would be to show them a movie on the issue and then have a discussion with them. She also mentioned that a good time to raise awareness to mothers and teachers about malnutrition would be when the semester evaluation of the students is given to the parents.

Institute for Self Reliant Agriculture- Feed the World

A very positive meeting throughout my project was with the institute for Self Reliant Agriculture (SRA), also known as Feed the World. The institute, funded by international organisations, aims to bring families first to nutritional self-sufficiency and second to economic stability. Therefore, their goals are directly in line with the messages that we wanted to convey to the communities based on our results. Its team is composed of professionals including agronomists and nutritionists. The topics of their program revolve around production of food, diversity of crops (both Andean and nutritious) and nutrition itself. For example, with regard to production of food, the institute (SRA) gives recommendations according to the space available for a field of agriculture. The institute also gives seeds and animals to families involved in their program but ensures that they receive updates about how the families are doing. At the end of the program, families are required to return the equivalent weight in seeds they initially received and/or donate the same number of animals to a neighbor or someone else in their community. As for nutrition, the institute (SRA) can teach how to prepare or combine food. They have several lessons related to nutrition and agriculture that they present to groups.

SRA also has a pilot project in the Canton of Ibarra on water recollection involving 15 families. They have a person working in their team that knows a lot about the regulation/law related to the right to irrigation. With some of the data collected in this study, this person could help the community to formulate a proposal to the proper governmental level (Gobierno autonomo descentralizado-GAD).

The people we met from SRA impressed upon us that continuous program evaluation is important: they check not only how well things are being grown or kept but also evaluate the health of the children or elderly in the household. Interestingly, they said their research has not found that agricultural cooperatives have been successful in the area except when the cooperative is composed of families that are related.

We had a second meeting with SRA in collaboration with the CHWs. A more concrete plan for collaboration between the institute and the CHWs was established and I subsequently wrote a formal proposal to SRA on behalf of CHWs. The plan for now is to have SRA teach CHWs about various issues related to agriculture, management of small animals, nutrition and health. In June, SRA will start working with CHWs on optimising their garden and ensuring sustainability, as well as managing small animals. This will allow theory to be put into practice. The idea is that following this training the CHWs would be able to independently teach other community members about how to manage gardens and livestock.

March 6- April 6, 2015

We are very enthusiastic about the involvement of the SRA institute. Their teaching is practical, they use organic methods of agriculture, it is a local organisation with good understanding and knowledge of the communities, they provide follow up, and their goals are directly in line with those that we established based on the results of the study.

"Unión de Organizaciones Campesinas Indígenas de Cotacachi" (UNORCAC)

UNORCAC knew our project well since some of our results were previously presented to them unofficially. There is already collaboration with the communities in place, and as such they have given medicinal plants, seeds and animals to the 4 communities including to the CHWs. However, they have not evaluated the programs post implementation and therefore have no data to support whether or not they are making a difference.

With this organisation, we also discussed lack of irrigation in some parts of Morales Chupa and Chilcapamba as well as complete absence of irrigation in Itaqui and Arrayanes. UNORCAC explained that there are two types of water tanks in the communities, plastic and cement. The plastic tanks are less expensive and come in two sorts: the ones UNORCAC have been setting up which collect rainwater, and black tanks from the municipality that have to be connected to the community irrigation with tubes. UNORCAC stated that it is unclear if they are being used or if they are effective.

Therefore, there is a clear need to evaluate the efficacy of tanks, as well as the outcomes of programs that gives seeds and animals to families. We thought that this could complement the student's project in summer 2015.

Local hospital Asdrúbal de la Torre and Universidad Técnica de Ibarra

In attendance: pediatrician, 2 coordinators of community health, nutritionist and one representative from the Universidad Técnica

We had a very fruitful discussion on possible interventions. Following the presentation and discussion regarding the results, the university took responsibility to teach the CHWs through their department of nursing, nutrition and gastronomy about various themes related to malnutrition. The hospital took on the responsibility of teaching at the level of schools and daycare.

Six themes were agreed upon and each month a topic is going to be presented to the CHWs and schools/daycare simultaneously:

- 1) Get to know our food (good and bad nutrition)
- 2) Various ways to prepare food (new recipes)
- 3) "My son does not want to eat"
- 4) How to save money
- 5) Breakfast and healthy snacks
- 6) Physical activity and how to use free time

It was also stated that the workshop would focus on practicality and would not be a formal lecture. A date for the first workshop was scheduled.

Challenges and successes

I am highly pleased with the work that I have done. The objectives of my project were realistic for my one month stay in Ecuador. There were multiple factors that contributed to the success of the project. The exceptional partnership between McGill University and the communities and the fact that I knew the communities from my previous experience eased the achievement of our goals since a trusting relationship was already established. The local coordinator helped me reach various stakeholders and accompanied me to all meetings, which facilitated and expedited the process of dissemination. While in the field, I also had help from my supervisor, Dr. Doucet, who guided me in the various steps. I believe that we were able to tackle the issue from different point of view. By talking with various stakeholders, we spread the responsibility of addressing the issue and assisted the communities in utilizing local resources to achieve sustainable and culturally-appropriate solutions.

The results that we presented were complex for some of the community members who had limited education. Nonetheless, I believe that I was able to captivate their attention, since they asked many questions following the presentation and actively participated in the conversation concerning interventions.

However, the presentation to the *cabildo* of Chilcapamba was relatively difficult. The president of Chilcapamba was perplexed regarding the results. He stated that indigenous children in these communities worked hard physically. For example, it is common to see a 5-year-old child carrying their younger sibling on their back. He thought that this had more to do with their stunting than



nutrition, and that stunting resolved once children became adults. He stated that in the communities there are no adults that experience the consequences of obesity apart from high cholesterol. He also wanted a concrete solution that we would suggest. He affirmed that he could suggest interventions but that he did not have a good sense of the resources we could offer. He also mentioned that he did not want us to come to their communities find results and then not do anything about it. We emphasized the fact that our goal was to find an intervention in collaboration with different stakeholders, to work together, and to address the issue of malnutrition from different angles. Despite this challenge, we were able to sustain a conversation about possible interventions with this *cabildo*.

This meeting was thought-provoking. First, I realised that nutrition transition is relatively recent in these communities; hence they have not seen many of the consequences of overweight/obesity. For this reason, it can be hard for them to understand or relate to the issue. Second, I also understood that presenting results about malnutrition with no well-developed solution could be frustrating, especially in an area with such a great sense of community. Therefore, I saw how complex starting this type of discussion can be. I initially needed to prove to them that malnutrition is an issue in their communities. Then, I had to convince them that this type of issue can only be solved by small steps since no major intervention can solve the issue entirely. One important intervention related to malnutrition is lifestyle changes, but this can be hard to act upon and may not be seen as a real solution.

One major challenge that we experienced was the fact that we were unable to present the results to the *cabildo* and assembly in Iltaqui. We had initially set a meeting time but it was cancelled by the *cabildo* at the last minute. Following this, we tried to reach them in person and called them on several occasions to reschedule but it was unsuccessful. I am not sure why this happened. Possibly the president of Iltaqui was overwhelmed with her responsibilities, as suggested by our local coordinator. I do not know what I could have done differently. I was disappointed all the more since the prevalence of stunting and obesity is much higher in this community compared to the others.

Another challenge was to prepare adequately for each meeting. Although I made efforts to adapt the presentation for each stakeholder, it was hard to predict which direction the conversation would take. However, as I gained more experience, I learned to direct the discussion and push further some of the ideas brought about by the stakeholders.



Question Raised

One question raised by the *cabildo* as well as some community members was the fact that they wanted to have individual results for their children in terms of height and weight. It was difficult to explain that we were not going to give them any personal results and that the study sought to give an overall view of how the communities were doing. We explained that one set of data was not enough to say how a child is doing and we encouraged them to go to their local hospital. We also encouraged the CHWs to give this message.

What did you learn?

My internship in Ecuador furthers my understanding of indigenous communities, their social organization and their rich cultural and historical background. It emphasized to me the multidimensional consequences of colonization, such as its impact on employment, education, health, and also on indigenous identity and culture. It made me more sensitive to the reality of indigenous populations throughout the world and made me recognize challenges, but also philosophies that they have in common.

Furthermore, I learned about the process of building a global health project, which was unexpected. Overall, I have learned that key elements in building a global health project include: empowerment of the communities and acknowledgment of their knowledge, a well-established trusting relationship, the use of participatory methods, connections with local organizations, and working with a strong local leader. I saw how teaching a few members of a community about health promotion and disease prevention can have a positive outcome on the community as a whole. Various community health workers shared what the project taught them: they gained knowledge, confidence, and pride which stimulated them to educate their communities about health issues. For example, during my stay, many CHWs participated in a Health Fair at the local hospital in which they performed a play about tuberculosis to teach students from surrounding schools about symptoms and red flags of the disease. TEACH encourages an exchange of knowledge between traditional (e.g., medicinal plants) and occidental medicines. As such, CHWs felt that their ancestral knowledge was acknowledged and respected. TEACH also promotes empowerment, self-determination and continuous learning of CHWs.

Sustainability is an important component of building a project, yet it can be challenging in international programs due to limited monetary resources and the long distance to travel, which limits the frequency of visits to the communities. Nonetheless, the TEACH partnership has grown over time and as such has allowed a trusting relationship to be established. TEACH has created numerous connections in the communities with local organisations such as UNORCAC and the local hospital which ensures that the project continues to grow while the Canadian team is not present. Another strength is the use of participatory research approaches, which involve including the communities in all pertinent stages of the research process, from need(s) identification and setting of research questions, through data collection, interpretation of research results, application and dissemination of findings, and promotes continuation beyond the end of grant funding. It is also important to mention that the local coordinator, with her strong leadership skills, enables the continuation and development of the project over time.

Community Implications and Further Work

As I mentioned previously, raising awareness was a first step in addressing and improving malnutrition in the communities. We also facilitated the communication between stakeholders and the communities. Furthermore, the presentation of the results made the communities more

familiar with research methods. During the discussions with the *cabildos* and CHWs, the participants expressed that they understood the importance of using research methods to identify issues in their communities and the variables that influence them to tackle those issues more efficiently. For example, they stated that without the project on malnutrition they would not have realized that family money management was an important factor contributing to malnutrition. CHWs also understood how research methods are important to evaluate the implementation of new interventions since it was their idea to evaluate the efficacy of tanks, as well as the outcomes of programs that give seeds and animals to families.

Through our discussion with the various stakeholders, we brainstormed several interventions that can be done over time to improve this issue. See Appendix 1 for a detailed list of ongoing activities.

Program evaluation

How did this Fellowship further your academic or career goals?

My internship also allowed me to pursue my interest in global health. This July, I will start my family medicine residency at the University of Memorial during which I will spend 6 months in Nunavut. I believe that my internship prepared me well to work with indigenous communities. I observed the complex relationship between physicians and indigenous people related to cultural differences, which emphasized to me the importance of getting involved in the communities of Nunavut to gain a better understanding of their historical, cultural and political background in order to improve the patient-physician relationship.

My experience taught me about building a research and service-based project and stimulated me to reproduce a similar project, if needed, in Canadian aboriginal communities. I can envision building a similar partnership with Canadian aboriginal communities in which medical students and practitioners could take part in participative research project on the one hand, and train community health workers on the other. Among other positive outcomes, this type of initiative would nurture a cultural understanding between health professionals and indigenous communities of Canada as well as benefiting the medical student education. Such a project could empower aboriginal communities of Canada and ultimately reduce health inequalities.

What did you value most about the Fellowship?

What I valued the most about my Fellowship was the privileged relationship that I was able to build with some of the indigenous community members. I interacted with inspiring, dedicated individuals who are driven by a sense of community. I learned enormously from their leadership skills.

I appreciated looking at the practical side of malnutrition and being involved in the translation of knowledge into action. I have often been involved in research projects but never in the part that addresses what to do next. It felt good to be giving back something to the communities. Malnutrition is not an issue that we can solve overnight. To start the process of raising awareness and then talk about possible avenues for solutions was stimulating.

Any advice for future Fellows?

I would suggest a future Fellow, if possible, to speak with people that went to the community/organisation previously to learn from their experience. I would also advise Fellows to take their work one step at a time. We can visualize major changes and have big plans to drive our project. However, from my experience, small changes can have a major impact, are more

realistic and are less discouraging. I also believe that it is important to involve the communities with whom we are working in our projects so that we address issues that are important to them!

Any suggestions for how to improve the program?

I believe that the program is well organized. The pre-departure meeting with Denise was extremely useful, specifically the exercise about adapting messages according to stakeholders since it was directly related to my project.

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APPENDIX 1: Interventions

Short-term concrete interventions

Local hospital

- Workshops to mothers and teachers at the local school. Preferably when mothers receive the semester report of their children.
- Workshops to mothers and daycare workers

These two types of workshops will be on themes mentioned above (in the Activities section).

Universidad Técnica

- Workshop to CHWs on themes mentioned above (in the Activities section)

Institute for Self Reliant Agriculture

- To teach CHWs on various issues related to agriculture, management of small animals, nutrition and health.
- To work with CHWs on optimising their garden and ensuring their sustainability, as well as management of their small animals.

Community health workers

- Workshops and practical work with community members about what they learned from Universidad technical and the Institute for Self Reliant Agriculture

Community of Chilcapamba

- Using a piece of land to do a crop demonstration for the community.

Summer 2015 student project

- Theater project with children about healthy eating habits that they would present to the communities or workshops to the community with CHWs or presentation of a movie to children about healthy eating habits and then discussion about it.
- Evaluation of programs initiated by UNORCAC that gave small animals and seeds to families in the communities, including CHWs.
- Evaluation of two types of tanks

To continue collaboration with UNORCAC

Long-term intervention

- In collaboration with the Institute for Self Reliant Agriculture, to elaborate a proposal to the proper government level (GAD) regarding irrigation.

Possible interventions

- Community garden at the school of Chilcapamba to complement food given by an organisation
- Agricultural project at the local schools in which students would cultivate a plant with the help of an elderly in their communities
- Holding a crop exchange day in the communities