Measuring health in coffee farm workers in rural Nicaragua: *What matters?*

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Objectives

- Explore the impact that an international partnership can have on their health

- Explain the influence of modifiable lifestyle factors on coffee farm workers' health in Nicaragua

- Identify targets for short-term interventions for health promotion in rural environments

Partners

- ## Universidad Centroamericana (UCA)
  - Institutional partnership with Fairfield University
  - Students learning to teach English as a second language

- ## Fairfield University
  - Senior nursing students completing public health clinical rotation abroad
  - Nursing students from other universities as space allows

- ## Santa Maura finca
  - On-site clinic nurses and their outreach to neighboring fincas

Nicaragua

- Second poorest country in Latin America
  - *42.5 % poverty rate*
  - *HDI:129*
- Population: 6 million, 45% rural
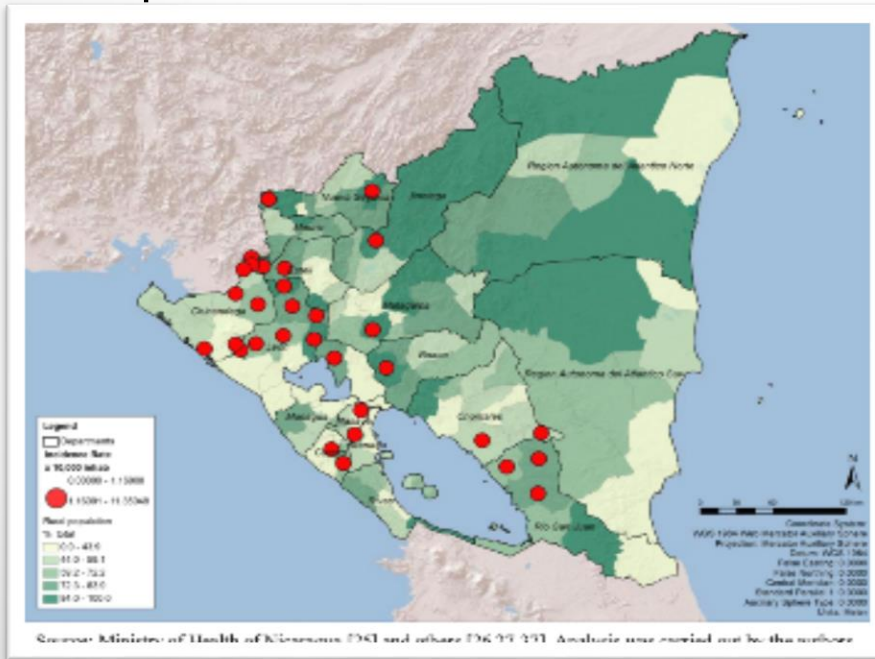
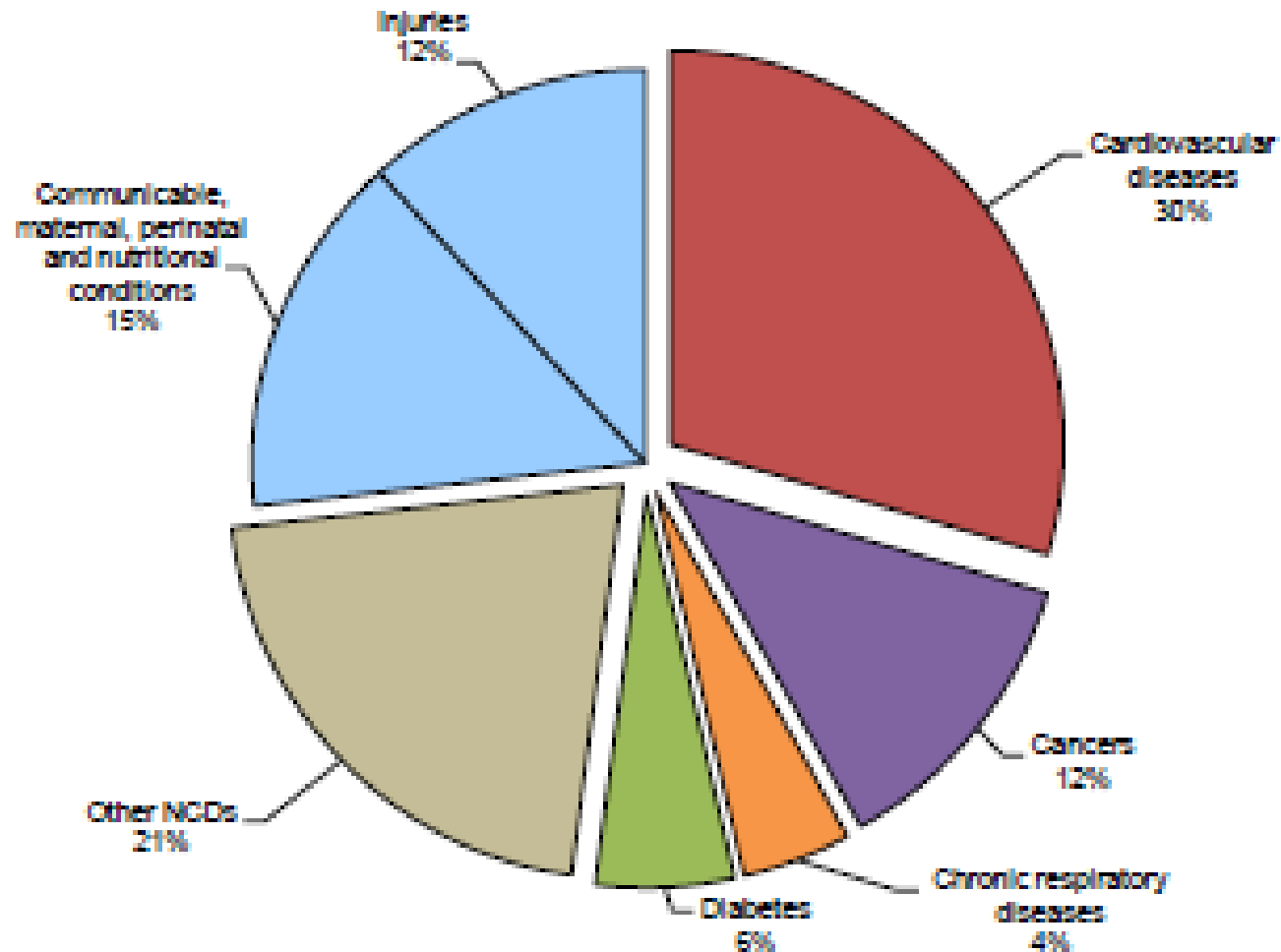**65% of poor & 80 % of the extreme poor live in rural areas**

Rural Poverty

- Most of Nicaragua 's rural poor live in the dry central region where natural resources are limited; areas like Jinotega being disproportionally affected by extreme poverty *(World Bank, 2008)*

- 80 % of the rural poor depend on agriculture for their livelihood *(IFAD,nd)*

- Also face many constraints, including physical isolation, inadequate infrastructure such as roads, water and electricity supplies, low productivity of soils, obstacles to market access and lack of public services such as education & health services *(WHO, 2008)*

Available Research

- There is limited information on the health of rural coffee farm workers in Nicaragua.
  - Some research has focused on pesticide exposure on farms producing other crops (early 2000s).
  - Migrant and non-migrant agricultural farm workers are considered vulnerable populations with limited access to appropriate care *(WHO, 2008)*
  - Migrant workers face health challenges like infectious diseases, traumatic injuries, poor dietary options, respiratory conditions and mental illness *(Hansen & Donohoe, 2003)*

- We could find no data on screening for chronic health problems in this rural population.

World Health Organization - *Noncommunicable Diseases (NCD) Country Profiles*, 2014.

Proportional mortality (% of total deaths, all ages, both sexes)*

- Injuries 12%
- Cardiovascular diseases 30%
- Communicable, maternal, perinatal and nutritional conditions 15%
- Cancers 12%
- Chronic respiratory diseases 4%
- Diabetes 5%
- Other NCDs 21%

Total deaths: 29,000
NCDs are estimated to account for 73% of total deaths.

Background

- The study was conducted at two neighboring coffee farms in north central Nicaragua
  - Santa Maura (SM) is a socially responsible farm partially located on a protected natural reserve; home to 300 workers year round and up to 1500 during harvest season
  - Jesus Maria is a smaller farm located within 15 minutes of SM

- Workers have block housing: clean water (drinking, cooking and bathing)

- Nurse managed private clinic (SM) provides care for acute and chronic conditions
  - Medication at low/no cost
  - Services available 7 days a week

Methods

- Free health fairs were held during one week in January, 2014. All workers (migrant and non-migrant) were invited to attend.

- Measures included: demographic characteristics, access to health services, self-rated health question and specific lifestyle factors were measured using selected items from the Central American Diabetes Initiative (CAMDI) survey.

  - Additional data collected included blood pressure, blood glucose, height and weights collected using standard procedures

- All surveys were conducted in Spanish by native Spanish speakers

Descriptive Results

- <u>N= 256 people participated; Complete data on 212</u>
  - age range 18 - 75
  - 52 % male
  - 76% with no formal schooling or only primary grades
  - 76% had never had BS tested
    - *FBS ranged from 62-548 mg/dl*
  - 30% never had BP checked
    - *SBP ranged from 90-172*
    - *DBP ranged from 52-120*

Multiple Regression

- Outcome: Self Rated Health

- Variables entered into regression model: Age, sex, days missed due to illness, days worked sick, glucose, blood pressure, BMI, smoking, salt intake, education level, farm of residence, migrant/non-migrant

- The multiple regression model found that age, days worked sick, blood glucose, and SBP were significant predictors of poor SRH.
  - *R^2 = 0.166, F (13, 181) = 2.77, p = > 0.001*

Discussion

- Limitations include a convenience sample and lack of specificity in the variables related to lifestyle factors (smoking and salt intake)

- These results suggest that increased age, more days worked sick, higher systolic BP and elevated glucose are associated with poor health in rural farm workers.

  o Early indicators that attention to chronic health problems in rural farm workers is warranted.

Next steps

- Explore what constitutes "sick" in the context of these farm workers

- Follow-up interviews or focus groups to elicit more information regarding salt intake and smoking behaviors
  - Since most meals are prepared on-site and provided to the workers for free- potential health promotion could focus on diet modifications agreed upon by the farm administration
  - Multiple on-site bodegas which could be included in the assessment

- Develop and expand primary and secondary prevention
  - K-8 school located on the farm

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