

Community Health Assessments in Guatemala and Honduras



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Agenda

- Introduction and Background
- Methods
- Results
- Discussion and Conclusion
- Limitations and Recommendations
- Implications for Practice

Introduction

- Community Health Assessments (CHAs)
 - Key health issues
 - Community engagement
 - Comprehensive data collection and analysis
- Hierba Buena, Chiquimula Guatemala
- Copan Ruinas, Honduras- 3

Background

- Guatemala
 - Mountainous regions
 - Limited access to water and food
 - Gaps in healthcare system
- Honduras
 - Poverty and malnutrition
 - COVID-19 impact

Methods

- Questionnaires
 - Health Screenings
 - Doctor Consultations
-
- Team from Liberty
 - Public Health professionals
 - Iglesia Vida
 - Iglesia de las Americas



Questionnaire

- Demographics
- Family Planning
- Drink and Food Sources
- # of meals & what they consist of
- COVID-19

Health Screening Form (English)

Height		Blood Pressure Normal: <120/80 mm/Hg, High:>140mg/dL	
Weight		Heart Rate Normal: 60-100 beats per min at rest	
Have you eaten in the past 8 hours? Yes or no		Oxygen Saturation Normal: 95%-100%	
BMI Underweight:<18.5, Normal: 18.5-24.99, Overweight: 25-29.99, Obese: >30		Blood Glucose Normal: <140 mg/dL, High: >140 mg/dL	
% Body Fat Normal men: 10-20% Normal female: 20-30%		Hemoglobin (Anemia) Normal men: 13.2-16.6 g/dL Normal women: 11.6-16 g/dL Anything under is anemia	
Cholesterol Normal: <200 mg/dL, Borderline: 200-239 mg/dL, High: >240 mg/dL		Triglycerides Normal: < 150 (mg/dL), Borderline: 150-199 mg/dL, High: 200-499 mg/dL	

Screening Value Card (Spanish)

Triglicéridos:

- Normal: <150 mg/dL
- Medio alto: 150-199 mg/dL
- Alto: 200-499 mg/dL
- Muy alto: >500 mg/dL

Cholesterol:

- Normal: <200 mg/dL
- Medio alto: 200-239 mg/dL
- Alto: > 240

% Grasa Corporal:

- Hombre: 8-19%
- Mujer: 21-33%

Vision:

- Miope: puedo ver objetos cercanos con claridad, los objetos distantes están borrosos
- Hipermetropía: puedo ver objetos lejanos con claridad, los objetos cercanos están borrosos.

Glucosa:

- Normal: <140 mg/dL
- Alto: > 140 mg/dL

Presión sanguínea:

- Normal: 120/80 mm/Hg
- Hipertenso: 140/90 mm/Hg

Anemia:

- Normal hombre: 13.2-16.6 g/dL
- Normal mujer: 11.6-16 g/dL
- Cualquier cosa debajo es anemia

BMI:

- Bajo peso: <18.5
- Normal: 18.5-24.99
- Sobre peso: 25- 29.99
- Obeso/a: >30

Demographic Characteristics of Guatemalan Participants

- A total of 112 participants
 - Information about age, sex, and DOB was not collected

Demographic Characteristics of Honduran Participants

- 425 total
- El Barrio San Pedrito – 132
 - Most sex, age, DOB data collected
- Monte Fresco – 149
 - Most sex, age, DOB data collected
- Rincon del Buey – 144
 - Some sex, age, DOB data collected

Results

Table 1.1: Anemia Outcome T-test in Women Comparing El Barrio San Pedrito to other Honduran localities

Honduras 1: Rincon del Buey		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.082
Significantly More	Reject Ho	0.041
Significantly Less	Fail to reject Ho	0.041
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.001
Significantly More	Reject Ho	0.000
Significantly Less	Fail to reject Ho	0.000

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 1.2: Anemia Outcome T-test in Men Comparing El Barrio San Pedrito to other Honduran localities

Honduras 1: Rincon del Buey		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.026
Significantly More	Reject Ho	0.013
Significantly Less	Fail to reject Ho	0.013
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.026
Significantly More	Reject Ho	0.013
Significantly Less	Fail to reject Ho	0.013

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 2.1: Elevated Blood Glucose Outcome T-test Comparing Guatemala to each Honduran locality

Honduras 1: Rincon del Buey		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.506
Significantly More	Fail to reject Ho	0.253
Significantly Less	Fail to reject Ho	0.253
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.302
Significantly More	Fail to reject Ho	0.151
Significantly Less	Fail to reject Ho	0.151
Honduras 3: El Barrio San Pedrito		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.639
Significantly More	Fail to reject Ho	0.320
Significantly Less	Fail to reject Ho	0.320

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 2.2: Elevated Blood Glucose Outcome T-test Comparing El Barrio San Pedrito to Honduran localities and Guatemala

Guatemala: Hierba Buena		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.639
Significantly More	Fail to reject Ho	0.320
Significantly Less	Fail to reject Ho	0.320
Honduras 1: Rincon del Buey		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.804
Significantly More	Fail to reject Ho	0.402
Significantly Less	Fail to reject Ho	0.402
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.580
Significantly More	Fail to reject Ho	0.290
Significantly Less	Fail to reject Ho	0.290

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 2.3: Elevated Blood Glucose Outcome T-test Comparing Rincon del Buey to Honduran localities and Guatemala

Guatemala: Hierba Buena		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.506
Significantly More	Fail to reject Ho	0.253
Significantly Less	Fail to reject Ho	0.253
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.821
Significantly More	Fail to reject Ho	0.410
Significantly Less	Fail to reject Ho	0.410
Honduras 3: El Barrio San Pedrito		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.804
Significantly More	Fail to reject Ho	0.402
Significantly Less	Fail to reject Ho	0.402

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 3.1: Hypertension Outcome T-test Comparing Guatemala to each Honduran locality

Honduras 1 : Rincon del Buey		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.014
Significantly More	Fail to reject Ho	0.007
Significantly Less	Reject Ho	0.007
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.003
Significantly More	Fail to reject Ho	0.002
Significantly Less	Reject Ho	0.002
Honduras 3: El Barrio San Pedrito		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.000
Significantly More	Fail to reject Ho	0.000
Significantly Less	Reject Ho	0.000

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 3.2: Hypertension Outcome T-test Comparing El Barrio San Pedrito to Honduran localities and Guatemala

Guatemala: Hierba Buena		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.000
Significantly More	Reject Ho	0.000
Significantly Less	Fail to reject Ho	0.000
Honduras 1: Rincon del Buey		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.075
Significantly More	Reject Ho	0.037
Significantly Less	Fail to reject Ho	0.037
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.044
Significantly More	Reject Ho	0.022
Significantly Less	Fail to reject Ho	0.022

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Results

Table 3.3: Hypertension Outcome T-test Comparing Rincon del Buey to Honduran localities and Guatemala

Guatemala: Hierba Buena		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Reject Ho	0.014
Significantly More	Reject Ho	0.007
Significantly Less	Fail to reject Ho	0.007
Honduras 2: Monte Fresco		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.936
Significantly More	Fail to reject Ho	0.468
Significantly Less	Fail to reject Ho	0.468
Honduras 3: El Barrio San Pedrito		
(p1-p2) t-test	Hypothesis Outcome	Associated p-value
Significantly Different	Fail to reject Ho	0.075
Significantly More	Fail to reject Ho	0.037
Significantly Less	Reject Ho	0.037

*Note: tested under 5% level of significance

*Note: p-value considered significant if $p < 0.05$

Discussion

- Higher anemia (males and females) in El Barrio San Pedrito
- 19% prevalence in Honduran localities
- Another study: highest rates in ages 15-19 and 95+
 - In Honduras: mild public health problem (in children-37.3%, females in childbearing ages- 18.7%)
 - In Guatemala: moderate public health problem (in children-47.7%, females in childbearing ages-21.4%)

Discussion

- No statistical significance in glucose
- 4% prevalence among all locations
 - Highest in Monte Fresco, Honduras followed by Honduras locations then Guatemala
- Similar Study: increasing in rural areas of Guatemala at 12% (national percentage at 10%)
- WHO 2020: over 650,000 people in Honduras live with diabetes but have not been diagnosed

Discussion

- Higher hypertension in El Barrio San Pedrito
- Similar study: in 2015, 21.4% prevalence of hypertension in Honduras in 18+
- Similar study: Hondurans ages 30-79 in 2019, only 33% have their hypertension controlled
- Lower hypertension in Hierba Buena, Guatemala
- Similar study: meta-analysis
 - Lower hypertension rates in higher altitudes

Conclusion

- Necessary to increase sustainable care to people
- Additional studies to provide more comprehensive view of health disparities in each area studied
- Highest cases shown in El Barrio San Pedrito, Copan Ruinas, Honduras
- Concern for Guatemalan remote regions in addition

Limitations

- Missing M and F data from Hierba Buena
 - Hemoglobin
- Liberty students not fluent in Spanish
- One health clinic visit per location
- Obtaining blood samples
 - Missing cholesterol/triglyceride data
 - Those who refused to get a blood sample
 - Only young adults to older adults tested
 - Dehydration/lack of access and quality of water

Ethical Considerations

- Continuation of previous study
- All changes approved by IRB

Recommendations

- Community health worker training
 - CPR/First Aid
- Education and Awareness
 - Diabetes, Hypertension, Anemia
- Continued research

Implications

- Expanding reach and sustainability
- Further indicates need for care in Central America areas
- Differences based on region
 - Mountainous vs. touristic
- Support, empowerment, positive reinforcement



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Biblical Worldview

- The Department of Public and Community Health,
“Embracing the Christian worldview with a commitment to serve the underserved, the Liberty University Public and Community Health Program provides diverse educational, research, and practice opportunities to enable others to experience the embrace of God- ‘A faithful envoy brings healing’ (Proverbs 13:17).
- The research collected during this study can be used to support recommendations of continued training for sustainability and awareness programs.

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