

Evaluation of Health in the Peruvian Andes

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Background

Reach Teach Heal (NGO), LSU New Orleans Health Science Center and other volunteers from the US have been going to Peru to provide healthcare to the rural communities around Andahuayllillas, a village near Cusco, for the past few years. The fast electronic medical record (fEMR) was implemented in February 2017 to allow for better data collection to understand disease rates and aid the team in providing care. In May 2019 a survey was incorporated into the fEMR to collect more information on the existing public health knowledge and infrastructure within the communities served by the volunteers.

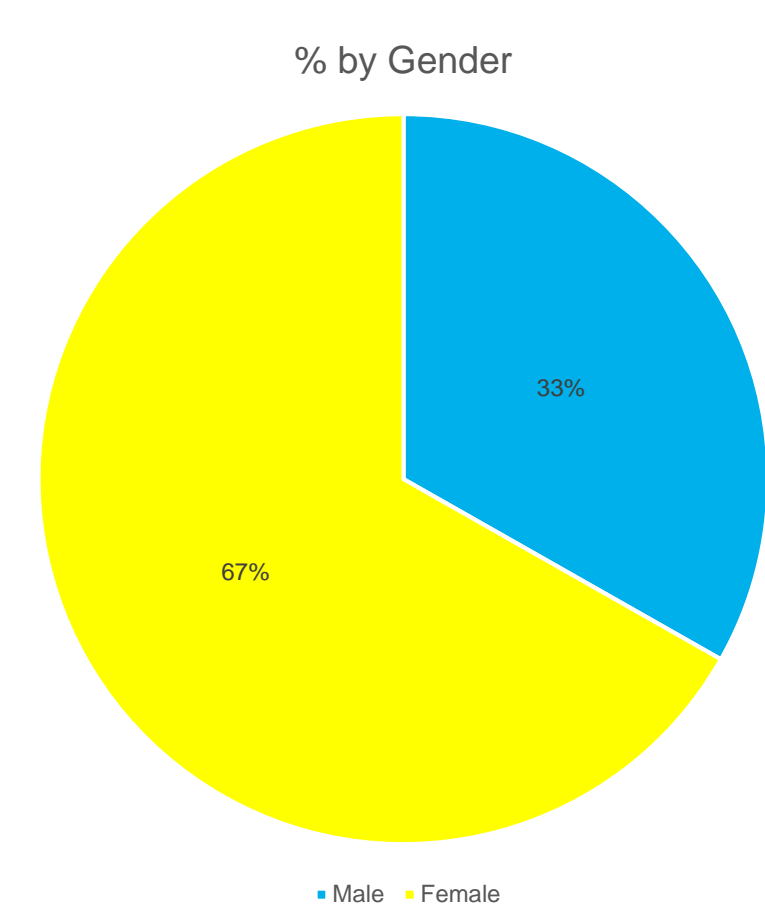
Objectives

- Describe demographics of the population seen in rural clinics in the Peruvian Andes.
- Describe health characteristics (common complaints and diagnosis), healthcare behaviors, infrastructure, and access to care of rural communities around Cusco, Peru.
- Compare information obtained with existing regional statistics.
- Propose future opportunities for region specific engagement as directed by developed data in context of local needs and resources

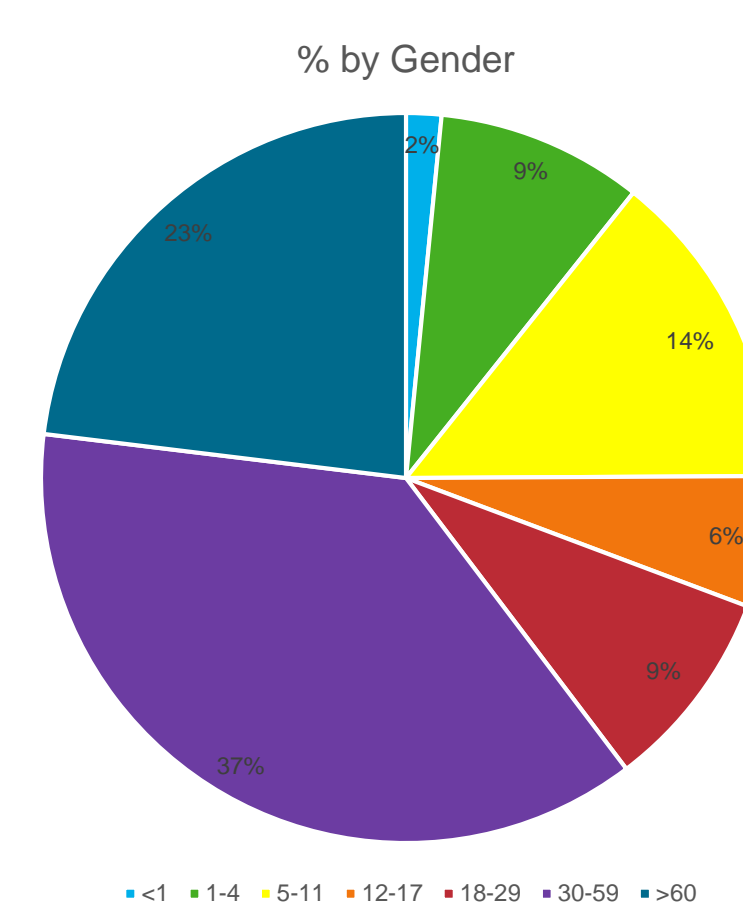
Methods

- Cross-sectional studies were performed utilizing the data gathered and warehoused in fEMR in the 6 medical missions near Cusco, Peru between February 2017 and May 2019. Survey results were also tallied from the mission in May 2019.
- 3511 patient charts were uploaded to Microsoft Excel. Each patient's information was reviewed and organized for analysis in the following categories: age, sex, chief complaints and diagnosis.
- A total of 2416 patient encounters were included in the final analysis. 1095 were eliminated for lack of information in one of the categories required.
- A total of 122 patients participated in the survey implemented in May 2019 and their data was similarly entered into Microsoft Excel.
- Analysis of the information was performed using Microsoft Excel.

Demographic Results



Graphic 1. Distribution by gender



Graphic 2. Distribution by age

Gender/Age	<1	1 to 4	5 to 11	12 to 17	18 to 29	30 to 59	>60	Total	%
M	26	132	237	79	70	269	251	1064	33%
F	24	161	218	107	217	924	488	2139	67%
Total	50	293	455	186	287	1193	739	3203	
%	2%	9%	14%	6%	9%	37%	23%		

Table 1. Distribution by Age and Gender

Epidemiological Results

Principal Cause Of Morbidity	Age Group							Total	%
	<1	1 to 4	5 to 11	12 to 17	18 to 29	30 to 59	>60		
Diseases of the musculoskeletal system and connective tissue	8	3	9	10	24	252	286	592	22%
Certain infectious and parasitic infections	13	94	141	43	38	86	12	427	16%
Diseases of the digestive system	14	29	79	22	39	164	53	400	15%
Diseases of the nervous system	0	2	10	17	35	132	56	252	9%
Diseases of the eye and adnexa	4	3	8	3	40	128	29	215	8%
Diseases of the genitourinary system	3	10	24	23	20	71	62	213	8%
Diseases of the respiratory system	18	35	46	9	14	28	21	171	6%
Diseases of the skin and subcutaneous tissue	8	40	30	15	13	27	13	146	6%

Table 2. Principal Causes of Morbidity (ICD 10 Classification)

Rank	Diagnosis	Total Cases	%
1	Parasitosis	477	19%
2	Osteoarthritis	354	14%
3	Lumbago	307	13%
4	Xerophthalmia	293	12%
5	Vaginitis	234	10%
6	Headaches	225	9%
7	Dental Caries	206	8%
8	Gastroesophageal Reflux Disease	174	7%
9	Gastritis	172	7%
10	Urinary Tract Infection	165	7%

Table 3. Most Common Diagnosis

Survey Results

Question	Results
Primary occupation	30% Homemaker, 24% Farmer, 7% Shingle Factory Worker, 9% Unemployed or Retired
Level of education in years	Average 5.26, Median 4, Mode 0, Range 0-16
Number of people in the home	Average 3.8, Median 4, Mode 4, Range 0-12
Electricity in the home	Yes 93%, No 7%
Internet access	Yes 7%, No 93%
Phone access	Yes 70%, No 30%
Toilet access	Yes 50%, No 50%
Toothbrushing	Yes 93%. 60% at least twice a day
Handwashing with soap before cooking or eating	Yes 94%, No 6%
Running water access	Yes 79% No 21%
Boiling water before drinking or cooking	Yes 85%, No 15%
Primary means of cooking	50% Wood, 34% Gas, 16% Both
Smoking or drinking	1% Smoke, 13% Drink
Sexually active and condom use	57% Sexually Active, 15% Use Condoms
Victim of sexual violence	Yes 20%, No 80%
Insurance status	80% Insured by Peruvian Government
Number of times per year seeing a healthcare provider	Average 3, Median 2, Mode 1, Range 0-24
Major barrier to care	24% Cost, 16% Distrust Healthcare Provider, 11% Did Not Know How, 10% No Transport
Vaccination status	73% Vaccinated, 27% Unvaccinated
Requests more information on	16% Nutrition, 15% General Health, 10% Lung Health, 10% Psychology

Table 4. Survey results

Discussion

Comparison was made between the data collected by Reach Teach Heal Peru and existing data provided by the ministry of health in Cusco. Seven of the top 10 causes of morbidity were present in the top 10 provided by the ministry of health.¹

Survey results showed that most of the population work in the farms or at home. The information primarily describes women as our survey population was 80% female. Most of the population has access to running water, electricity, and a cell phone. Only 50% of the population has toilets the other half using pit latrines. Most people know to brush their teeth twice a day, to wash their hands before cooking and eating, and to boil water. It is possible respondents lied to appear "good" for the doctors.

Almost no one of the sexually active survey respondents reported using condoms. This is likely because the country is predominantly catholic and condoms are difficult to purchase and expensive. 20% of women asked reported being a victim of sexual violence this is significantly lower than numbers provided by the WHO which range from 40 to 60%.² The discrepancy likely exists because the interviewer was a foreign white male speaking Spanish as a second language leading many women to be uncomfortable with the discussion.

The major barriers to care for the population are cost, distrust of healthcare providers, lack of knowledge, and lack of transport. Members of the population requested Reach Teach Heal Peru provide information on primarily nutrition, general, lung, and psychological health.

Conclusion

Differences between the population surrounding Andahuayllillas and the population of Cusco likely exist because of the increased rurality of Andahuayllillas versus the urban Cusco and because our patient population was predominantly female. Furthermore, not all of the data collected by Reach Teach Heal Peru was complete and many patients diagnoses were not properly documented.

Many of the most common diagnoses are caused by poor sanitation or occupational exposure suggesting opportunity for engagement by the School of Public Health. With only 50% of the population having toilets, construction of sanitary waste disposal systems is a clear opportunity to improve health.

Positive health behavior numbers like water boiling, handwashing, and toothbrushing are decent but could be improved by future education efforts. Working with the Jesuit school in Andahuayllillas to educate the youth is an easy starting point for School of Public Health education interventions. Many patients suffer from chronic pains in their joints and back and musculoskeletal health information could be very useful to them.

Most people cook with fire in their home from either wood or gas with little ventilation which contributes to morbidity from respiratory diseases. Better ventilated stoves could be constructed for the population.

The high prevalence of UTIs and vaginitis could potentially be alleviated through education on women's and sexual health.

References

- Health Ministry of Cusco Statistics:
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- WHO Peru domestic violence statistics
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Acknowledgement

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