Uncovering the Needs of Underserved Areas in Arequipa, Peru: Community Perspectives

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ABSTRACT

Objective: The purpose of this study is to obtain community perspectives in Arequipa, Peru to better understand and address their specific needs.

Methods: This is a secondary data analysis of a previous cross-sectional study conducted by in July 2015. Seventy-one (71) individuals answered questions pertaining to recent health impacts, fears for themselves and families, approaches for illness treatment, and desires for their community. The data were categorized and stratified to better determine the impacts on the community as a whole.

Results: Analyses for the 41 women and 30 men demonstrated that the majority were both impacted by and feared non-communicable diseases (NCDs). Also, 63% of people seek medical attention when becoming sick while nearly 30% utilize home-remedies and 15% rely on prayer. Furthermore, 40% reported a need for environmental improvements, while 36% stated healthcare improvements were a major need.

Conclusions: These results were consistent with previous studies on NCDs, which portrays the need for help to overcome this growing problem. Also, the majority of participants stated there is a need for more healthcare facilities, which is also consistent with previous reports that believed there is a shortage in access to healthcare. Additionally, a need to improve conditions for the rural were held true in this population. With these results, it can help to better guide organizations by knowing there is a need to address NCDs in communities alike. Finally, there is a need for more community perspective research studies as a shortage exists and limits understanding of specific community needs.

Keywords: Perspectives, Underserved, Healthcare Access

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Short title: Uncovering Needs through Community Perspectives

Synopsis: This paper seeks to outline current needs that exists in underserved communities in Arequipa, Peru. Through community perspectives, needs for these communities will be better understood, allowing organizations to meet said needs, ultimately creating an overall better quality of life.

INTRODUCTION

A great lack in the accessibility to health care exists in many countries, but to a greater extent in countries of low- and middle-income levels (1). Although investigators have acknowledged the need for additional research and resources to be provided for these countries, little success has followed these requests. Non-communicable diseases (NCDs), or chronic diseases, have become of increasing interest due to the recent trends signifying their burdens, especially for low- and middle-income countries (2). These NCDs consists primarily of cardiovascular diseases, diabetes, chronic respiratory diseases, cancers, etc. (3). Worldwide, NCDs have been found to attribute to 60% of all deaths, while 80% of those deaths are associated with low- and middle-income countries (1).

When focusing on the Americas, the World Health Organization (WHO) found that 78% of all deaths arise from chronic diseases (4). Further, the WHO estimated that there will be a 17% increase in deaths resulting from chronic diseases as well as an increase by over 80% from diabetes alone (4). Peru is one country in South America with multiple, growing health needs that require attention. The Pan American Health Organization (PAHO) produced a profile of Peru, which illustrated that there are 7.9 physicians for every 10,000 people living in Peru, most of which are

in the major cities (5). This is paralleled to one study that discovered one-fifth of individuals living in the Peruvian Amazon have never seen a doctor (6). They also reported radical differences between those living in the cities, which were wealthier, compared to those impoverished in the Peruvian jungle and Andean Mountain regions (6). Over the years, although there has been a decrease in the total poverty levels of Peru, there still exists a notable gap between the urban and rural population.[5] The poorest individuals were found to be the indigenous people residing in the Andean Highland populations of Peru (7).

In focusing on Peru, the World Health Organization found NCDs to account for 60% of all deaths.[8] Another study produced by Wu et al. (9) reported children living in rural communities throughout the Peruvian Andes were at a high risk for acute respiratory infections. Further, another study reported pneumonia to be the leading cause of mortality amongst children younger than five years of age, stating a possible risk factor to include the high altitude producing colder air thus leading to childhood pneumonia (10).

In an effort to address the many issues, studies have reported the need to increase access and resources, such as healthcare research and infrastructure, especially for those living in rural communities (11). It was reported that living conditions for the isolated rural populations have yet to be improved and they received poor healthcare options (12). Further, PAHO addressed a need to increase access to basic services for the rural while also working to prevent and control NCDs (5). An additional study by Anderson and Chu (13) stated the need for international aid agencies to put forth added measures towards combating NCDs. One group of international supporters who set out to address these issues, found challenges to exist in the communities of Arequipa, Peru, such as limited supplies, inability to afford services, and a limited pharmacy (14). Further, they concluded there are benefits of both short- and long-term volunteer missions trips to address the needs of the communities in Arequipa, Peru. In similar regions, scholars have raised awareness for

others to draw more resources, but this has fallen short to provide for those communities in need (15). This study, as well as most others are the result non-community members conducting research. Furthermore, there is a great lack in research that would allow for community perspectives in order to better understand the needs of specific communities or regions.

The aim of this study is to obtain community members' perspectives in order to better understand and determine the specific needs (medical, environmental, etc.) as well as desires in order to create a healthier overall community.

METHODS

Data collection

One organization that has set out to meet the needs of underserved communities is e3 Partners. e3 Partners is a global organization that exists to partner with individuals and churches, in the United States as well as internationally, in an effort to share the gospel and start churches throughout the world (16). In July 2015, e3 Partners set up free medical and dental clinics to anyone interested in villages surrounding Arequipa, Peru. Researchers randomly selected participants from those who were at the clinic and waiting for the nurse, doctor, dentist, or pharmacy. Following verbally informed consent, they utilized interviews following an eight (8) short-answer response, paper-based survey. Because of the language barrier, a local Peruvian translator, with previous experience in working with English and Spanish for e3 Partners, was utilized for each participant. With the help of the translators, researchers asked the questions verbally to the local community members. The responses from the participants were given verbally and translated from Spanish to English allowing the researcher to record the answers onto the paper survey.

There were 71 participants (30 males, 41 females) surveyed during the four days of clinic where approximately 450 community members were treated. The data collected included demographic information such as gender and age. Other questions were related to the individual's health and what health problems they most worry about, as well as the participants' current approaches for healing when sick and changes they would like to see in the community. All data were transcribed and stored electronically through Microsoft Excel.

Data analysis

For this secondary data analysis, all short-answer responses to the survey were provided by e3 Partners. They were organized and prepared before being categorized and compared across gender and age groups. Further, responses were stratified to generate broader representative groups. For example, the category non-communicable diseases (NCDs) was used to group the many people that reported some form of chronic disease (Table 1). Additionally, gastrointestinal problems were analyzed by grouping all individuals reporting a form of stomach, liver, gallbladder, or pancreatic problem. Also, separated groups were created for those reporting being affected by a form of respiratory issue or environmental exposure.

The data were further analyzed using the Center for Disease Control and Prevention's program, Epi Info, which allows for epidemiological and bio-statistical work. This program allows for Odds Ratios and Chi-Squared analyses for the categorized data. Further, this displays statistical significance of the outcomes, which utilized a 95% confidence interval and $p<0.05$.

RESULTS

Demographics

All the participants of the study resided in villages throughout Arequipa, Peru. There were 71 total participants with an average age of 43.9, with the eldest being a 91-year-old male. The total number of female participants was 41 (57%) with an average age of 43.2 while the 30 (43%) males had an average age of 44.9. Aside from age and gender, the following five (5) research questions were analyzed.

Question 1: "In the last year, what has impacted your health the most?"

This question found 36 (50.7%) responses were categorized as a form of NCD (see Table 1). With these responses, females were 1.67 more likely to report a NCD, but these results did not prove to be statistically significant (CI: 0.64-4.31; p=0.34). There were also 23 (32.4%) participants that listed being impacted by an environmental factor (i.e. cold or dusty/dirty air causing respiratory or eye problems). Respiratory problems were reported by 17 (23.9%). Eleven (15.5%) people reported a gastrointestinal issue (i.e. gastritis, liver problems). For all the issues reported, there were nearly equal numbers of males and females reporting except for "Accidents" which were only reported by men (n=3; 10% of men).

Question 2: "What health problems do you most fear?"

When analyzing responses for this question, there were 50 (70.4%) responses that listed being fearful of a NCD. This was compared to 20 (28.2%) individuals reporting being afraid of cancer. Also, 9 (12.7%) were afraid of gastrointestinal problems. Of those fearing NCDs, females were 2.37 more likely to report although this did not reach statistical significance (CI: 0.83-6.70; p=0.11). For those fearing cancer, females reported this 2.88 more times than men yet this also did not reach significance (CI: 0.91-9.12; p=0.10).

Question 3: "What do you most worry about for your family's health?"

In determining what participants most fear for their families, NCDs were most reported (n=28; 39.4%). Although a type of NCD, specially fearing cancer was next with 13 (18.3%)

participants. Results to this question also displayed that 10 (14.1%) individuals reported a fear that no one would be there to care for their family if they were unable. When comparing an individual's fear with those for their family, it was found that those fearing a NCD for themselves were 4.07 more likely to also fear NCDs for their family (CI: 1.29-12.84; p=0.018) (Table 3).

Question 4: "What do you do when you get sick?"

This question provided responses that were categorized into a few different groups. The largest group studied those who sought some form of medical treatment (pharmacy, doctor, health center, etc.) and included 45 (63.4%) respondents. Those who specifically went to the doctor/health center were 31 (43.7%). Those utilizing home remedies, such as herbal teas, included 19 (26.8%) people. There were also 10 (14.1%) participants who reported praying when sick. When comparing those reported seeking some form of medical care to those fearing NCDs, an odds ratio of 1.46 was found but this was not statistically significant (CI: 0.51-4.13; p=0.59).

Question 5: "What changes would you like to see in your community?"

When searching to obtain the community members' perspective of what was needed to improve the community, 28 (39.4%) participants reported a need for environmental improvements such as asphalt streets, fixed stairs, parks for children, removing garbage and dust from streets, and more greenery. There were 26 (36.6%) people who stated a need for health centers, doctors, and health access. Also, there were 15 (21.1%) individuals who believed the community most needed churches, Christian organizations, and more evangelism efforts. In comparing those addressing the need for churches and those who first pray when they become ill, the odds ratio was 7.33 (CI: 1.84-29.15) and this was statistically significant (p=0.0063).

Discussion

The results from this secondary data analysis provides a perspective from the local community members which ultimately allows outsiders to better appreciate and more purposefully

address the existing needs. These results highlight what the communities in Arequipa are being impacted by, as well as their health fears and their personal needs for a better community. Results from this study are comparable to the findings of the WHO which highlight the heavy burden of NCDs that currently exists in the Peru (8). This creates a great call to action as it was also stated that nearly 80% of deaths in the Americas were a result of these NCDs (4). Further, these results align with PAHO recommendations for a need to increase resources in order to prevent and control the issues with NCDs in Peru (5). Furthermore, this study aligns with present findings that in Peru, NCDs most heavily burden and are of most concern for those living in countries of the low- and middle-income range (2). Another area of concern happens in those reporting respiratory problems. Although Wu et al. focused on children at high risk for acute respiratory infections, these results found nearly 25% of participants signified a respiratory problem most impacting their health in the past year.

Another aspect of the study that found significant results was with the needs for a better community. The majority of participants stated their community needed environmental fixes (asphalt streets, greenery, garbage removal, etc.). These findings are symmetrical to those from PAHO which found the rural populations of Peru to be living in worse conditions to those in the urban areas.[5] Additionally, the International Fund for Agricultural Development states the poorest and most poverty-stricken areas of Peru are those in the Andean Highlands, such as Arequipa. Another major finding of this study was the need and desire of community members for an increase in access to health centers, clinics, doctors, pharmacies and other medical treatment. Further, Brierley et al. (12) found that while many parts of Peru is improving healthcare benefits, the isolated, rural communities are still receiving poor conditions and no improvements. These finding which depict a need for increase in availability to healthcare runs parallel to many previous studies as well as recommendations from worldwide organizations (1, 5, 11, 13)

Also interesting are the multiple reports of fearing cancer (20 for self; 13 for family), yet there was only 1 person who reported being impacted by cancer in the past year (and they did not report it as a fear). This raises an important query as to the source from which people are obtaining their medical knowledge. This can be likened to the findings of previous studies that found nearly all their patients felt as though the did not understand their diagnosis, while 25% reported never truly having an official diagnosis (11). Also, there were two individuals in our study that said the community needed more education opportunities, more specifically, to learn about health and diabetes. This was also a finding by Williamson et al. (11) that stated there to be a limit in health understanding and a need for health education. Again, this was comparable to PAHO which stated there was not only a lack of medical equipment, but also in professionals who specialize (5).

The results from the study found that 63% of individuals, when sick, sought medical treatment in the form of pharmacies, doctors, health centers, etc., while 27% stated they preferred home remedies or herbal forms of healing. This runs concurrent with Williamson, Ramirez, and Wingfield (11) who stated a majority of their study population in Peru chose modern medicine over traditional medicine. Further, they stated there is a decreasing interest in traditional medicines for healing. At the same time, these results contrasted those of another study that found most developing world's relied most on indigenous medicine and only when failing would they seek a clinic or modern form of medication (17). Ultimately, this study concluded the need to be acceptable and incorporate both traditional and modern medical treatments as there is a mixture in developing nations. Further, this is important as this study also found a portion of the study population preferred to rely on prayer or their own forms of care such as "milk and urine mixture."

Limitations of this study exists in a few different sections. One area that limited the study was the small sample size. With a greater sample size, results could be more accurately interpreted and provide a clearer picture of the current, ongoing issues. Additionally, the results would provide

greater external validity. Another limitation was in the data collected portion. Since they were open-ended questions, some results may have been interpreted differently from the way the participants were responding. Also, utilizing a translator has the potential for responses to be translated differently or have different meaning across languages. This also made it difficult when cleaning and categorizing data as some people reported very general answers that were not relative to other responders. More accuracy could have been provided through recording conversations and transcribing each word to search for developing and concurrent themes. Additionally, the data was collected over 4 days in July. This alone puts limits on the findings as different season may change participant's responses. Finally, the study population was limited to those attending the clinic. This could skew the results and limit the overall needs of the entire community.

Future implications from this study highlight the need for an increase in healthcare access for those living in Peruvian Andes and betterment of the community's living conditions. These are possible targets for international aid agencies seeking to address the immediate and specific needs of communities. Additionally, creating campaigns to raise awareness and provide health education of NCDs has the possibility of lifetime benefits for these underserved communities. Also, these results, though found in Arequipa, Peru, can provide importance for other Andean villages throughout Peru, Bolivia, Chile, Argentina, Colombia, Venezuela, and Ecuador.

Also, in searching for community perspectives, there is a great lack of research that can provide first-hand perspectives from the community. Most papers have been reports from outsiders and aren't able to provide the community's perspective, which would provide a better understanding.

In conclusion, there are many communities throughout Peru, the Americas, and the world that are in great need of basic services. Through the work of international organizations, such as e3 Partners, rural, remote, poor, resource-lacking communities are gaining a voice that can be heard

by resource-rich, developed nations. The need that exist is evident and in order to better the health of one country or region, it must begin with hearing and addressing the needs of one community according to their perspective.

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Table 1: Reponses that were categorized in Non-Communicable Diseases

Responses Included in NCDs	
Accident	Gastrointestinal
Arthritis	Heart problems
Asthma	Hemorrhoids
Bronchitis	Hyperthyroid
Cancer	Pregnancy
Diabetes	Tumors

Table 2: Count for Responses to All Presented Survey Questions

Survey Question	Responses	n	%
Sex	Female	41	57.7%
	Male	30	42.3%
Age (years)	>43	39	54.9%
	<44	32	45.1%
In the last year, what has impacted your health the most	NCD	36	50.7%
	Environmental	23	32.4%
	Respiratory	17	23.9%
	Gastrointestinal	11	15.5%
What health problem do you most fear?	NCD	50	70.4%
	Cancer	20	28.2%
	Gastrointestinal	9	12.7%
What do you most worry about for your family's health?	NCD	28	39.4%
	Cancer	13	18.3%
	No one to care for if I am no longer able	10	14.1%
What do you do when you get sick?	Meds/Dr/HC	45	63.4%
	Doctor/Health Center	31	43.7%
	Home Remedies	19	26.8%
	Pray	10	14.1%
What changes would you like to see in your community?	Environmental	28	39.4%
	Medical	26	36.6%
	Churches/Evangelism	15	21.1%