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Research Article

A Community Explored: Healthcare on a Nicaraguan Coffee Farm

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Abstract

Objectives: The production of coffee provides 280,000 permanent agricultural jobs in Nicaragua and is considered an economic pillar for many rural communities. Close to half of Nicaragua's population lives in rural areas; and 80% of the country's extreme poor live in rural regions. Main objectives of this research were to explore health care visits of coffee farm workers in rural Nicaragua and identify health education needs.

Study Design: This coffee farm is in north central Nicaragua and offers an on-site clinic. A retrospective chart review of visits was completed.

Methods: Visits that occurred three months prior to the on-site visit were those reviewed. Exclusion criteria included any visit entry with a missing medical diagnosis.

Results: A total of 334 clinic visits were explored. More than half of the sample (58%) worked and/or lived on the farm where the clinic is located. Sixty-one percent of the visits were for acute reasons; 17% were for a chronic illness-related diagnosis.

Conclusion: There is a dearth of information available about the health of coffee farm workers. Various cost-effective health promotion interventions could impact those affected by the preventable diagnoses noted. Areas of prospective health promotion/education include suggestions that could be implemented both in the working fields and within the farm communities such as occupational safety, hand-washing education, pain management and the promotion of preventative care services.

Introduction

The production of coffee in Nicaragua provides 280,000 permanent agricultural jobs [1] and is considered an economic pillar for rural communities since 80% of these families depend on agriculture for their livelihood [2]. Close to half of Nicaragua's population lives in rural areas; of that half, 63% live on less than US$1 per day [2]. Many of the poorest areas in the country are in the central northern region, in the departments of Estelí, Jinotega, Matagalpa, and Nueva Segovia [3]. Communities located in these coffee-dependent central regions encounter limited employment opportunities and inadequate infrastructure for electricity, water, sanitation and transportation [2]. People also have difficulties accessing an appropriate level of care due to inhospitable physical terrains and long distances to the closest medical facility.

Rural poverty is often more profound than the poverty seen in urban areas. Many remote communities confront various challenges which put them at a greater risk for negative health outcomes. The poorest households are those with little or no access to land, a condition that affects an estimated 38% of rural households [3]. These landless coffee farm workers are more vulnerable than small farm owners as they often must travel to find work. Migrant and seasonal farm workers are a marginalized population with a vast array of healthcare needs. In addition to poverty, other barriers to receiving adequate health care include substandard living conditions, nomadic lifestyles and multiple occupational hazards. Agriculture workers also regularly have less access to healthcare services. Several health challenges faced by this population are infectious diseases, chemical and pesticide related illnesses, heat related illnesses, respiratory conditions, musculoskeletal disorders, traumatic injuries and mental illness (related to job stress, intense time pressures and separation from families) [4].

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In Latin American countries, there is also a growing body of research studying the health outcomes of farm worker populations exposed to pesticides [5]. Many of these studies have been carried out with workers in sugar cane fields. Chronic kidney disease has been discussed as a significant problem among these agricultural workers in Central America and Brazil. While pesticides are used in coffee growing regions, one of the suspected contributing determinants of this illness has been the extreme heat that these workers must endure during cutting season. This is in distinct contrast to the shade-grown, coffee-picking environment, which is usually much cooler due to the higher altitudes. A small number of studies in Nicaragua have also demonstrated evidence of lower prevalence of chronic kidney disease in higher-altitude regions, including coffee farming regions [6-8]. Therefore, chronic kidney disease incidence has not been seen uniformly throughout the country of Nicaragua. Nevertheless, more research is needed (especially in relation to coffee farm workers) to understand the health effects of pesticide exposure in this vulnerable population.

Limited research is available on the health of coffee-farm workers and therefore this information is timely and would fill an important gap in the literature. The purpose of the study was to gain a better understanding of the reasons that coffee farm workers access healthcare services. This was considered a small piece of a comprehensive healthcare needs assessment to examine the personal health and health education needs of agricultural workers in rural Nicaragua. The results will be used to inform future health promotion and disease prevention efforts for these rural communities.

Study Design

The study design consisted of a retrospective review of clinic visits that spanned a total of three months prior to the data collection. Since the charting was not done electronically and all documentation was on paper files at the time of the visit, only the logbook of the prior three months of visits was available. Exclusion criteria included any visit entry with a missing medical diagnosis. All visits reviewed were distinct and individual visits.

Methods

This study was reviewed by university IRB (#119) and approved. The coffee farm is in north central Nicaragua in the department of Jinotega. Fifty to sixty families live and work year-round on this farm. There can be an influx of upwards of 1,500 workers during coffee picking months (typically from November to March). In addition to housing availability and working wages, the farm owners provide three meals a day to those harvesting beans.

There is a clinic situated within the farm that employs a nurse provider who is available seven days a week, including evenings. Being that the coffee farm and clinic are remote, walking is the primary way that patients arrive at the clinic. Annually, the clinic records about 2,500 visits and is open to both migrant and permanent workers of the farm (including those living in surrounding communities or neighbouring coffee farms). Workers on the coffee farm and family members can access health services by utilizing their government issued insurance. While the visits are free of charge, costs can be incurred for non-formulary or over-the-counter medication or supplies used (for example gauze for dressing changes or the syringe used for an injection). Any work-related injury incurred while picking beans are cared for free of charge.

The form of documentation used by the healthcare professionals at this clinic included a paper log where the following information was recorded: name of patient, age, town where the patient lives or coffee farm on which they work, diagnosis, medication provided during visit, insurance coverage and a small area where other relevant information could be included. All information was inputted into an excel file by only one coder. Once the data collection was completed, the Excel file was exported into SPSS (v20). Data analyses included both univariate and bivariate statistics.

Results

A total of 334 individual clinic visits were explored. The ages of the patients ranged from 9 months to 90 with 33% (n = 112) being female and 67% (n = 222) male. Almost 50% of the samples panned the age's between20-39; but the entire sample ranged from 9 months to 90 years old. More than half of the sample (58%, n = 191) worked and/or lived on the farm where the clinic is located; 11.4% worked and/or lived on surrounding coffee farms; 30.6% lived in surrounding towns. Sixty-one percent of the visits were for acute reasons; 17% were for chronic illness-related diagnoses and 22% were for dressing changes.

Excluding dressing changes, the most common reasons for a visit were: common cold (8.7%), trauma (6%), family planning (6%), stress-related (5.4%), machete injuries (5.1%), pain- related (5.1%) and intestinal parasites (4.8%). Only 1% of the visits reviewed were referred out for additional consultation (n = 3; surgical referral for hernia repair, hospital referral for snake bite and specialty referral for epilepsy study) (see Table 1). Seventeen percent of symptoms could be related to a waterborne illness and 54.5% could be classified as visits attributable to occupational hazards.

A chi-square test was performed to examine the relationship between gender and diagnosis of an acute or chronic illness, X2 (1, N=260) = 20.16, p< 0.001. There was a significant difference between males and females and the diagnosis of an acute or chronic illness, with men being diagnosed with more acute conditions than women (86.7% *vs.* 13.3%). An independent sample t-test was conducted to compare the age of patients and an acute or chronic diagnosis. There was a significant difference in scores between acute (M = 23.9, SD = 17.2) and chronic condition diagnosis (M = 30.1, SD = 12.6); t (257) = -2.50, p = 0.017. These results support current evidence that demonstrate chronic disease diagnosis is more likely as age increases. In this population, acute diagnosis was seen more in the younger age groups.

Diagnosis	Frequency	Percentage
	n	%
Abdominal Pain	12	3.6
Abscess	2	0.6
Allergic rash/pruritus	4	2.4
Allergies	4	1.2
Arthralgia	2	0.9
Back Pain	3	0.9
Bite (snake/dog)*	3	0.9
Chest Pain	4	1.2
Chronic gastritis	7	2.1
Cough (dry)	8	2.4
Common cold	29	8.7
Conjunctivitis	2	0.6
Dental issue	7	2.1
Diarrhea	12	3.6
Dressing change/suture removal	74	22.2
Edema	5	1.5
Epilepsy*	1	0.3
Ear Infection	3	0.9
Fever	7	2.1
Fungus (foot)	5	1.5
Family Planning	20	6
Genital herpes	1	0.3
Gout	1	0.3
Headache/migraine	11	3.3
Hernia *	1	0.3
Hypertension	5	1.5
Ingrown toenail	2	0.6
Joint pain	7	2.1
Lice	1	0.3
Machete Injuries	17	5.1
Pap results	1	0.3
Parasites	16	4.8
Pharyngitis	9	2.7
Pneumonia	6	1.8
Post-partum visit	3	0.9
Sinusitis	5	1.5
Trauma	20	6
Urinary tract infection	4	1.2
Vomiting	2	0.6

Table 1: Documented diagnoses, including frequency and percentages.

*Referred out to other health post for additional testing and/or treatment.

Discussion

There is limited information available on the health of rural coffee farm workers in Nicaragua and this information does fill a gap in the literature. The visits reviewed were during non-harvest times, limiting the number of migrants that would have accessed health services. However, beginning to understand the experiences of vulnerable groups living in rural areas of Nicaragua and their reasons for accessing health services is important as well. Although the clinic nurse recognizes the

importance and need for primary care and preventative services (D.R., personal communication), this clinic is primarily used for acute visits. Limited resources may factor into the lack of additional preventative options, given that supplementary staff and medical supplies have increased screening opportunities in the past (D.R., personal communication).

The wide range of ages is not surprising considering that services can be accessed by anyone living in this rural community. There is no other health post or clinic within a twenty-mile radius. The labor-intensive nature of coffee bean harvesting was a driving force behind many of the visits. More than half of the recorded visit diagnoses had an occupational connection (i.e. machete injury, trauma secondary to falls while in the fields, and various pain related concerns). A study investigating the physical load on harvesters in shade growing coffee regions in Nicaragua identified various ways to improve pain and discomfort associated with picking the coffee cherries. Suggestions included changes to the basket design and additional back support straps to minimize and more evenly distribute the load [9]. This may influence clinic visits involving musculoskeletal pain, certain work-related injuries, stress and has the potential to improve job satisfaction among workers. In the current study, many of the acute diagnoses reviewed could also be linked to weather-related issues. Driven by a need for employment, coffee-pickers often travel from much warmer regions in Nicaragua. The climate change (warmer to colder temperatures) often leads to upper respiratory infections and/or the common cold.

Initially it was hypothesized that those living on the farm would have increased access to care and therefore a higher prevalence of a chronic disease diagnosis. However, statistical analysis revealed that there was no significant difference in diagnosis of an acute or chronic disease and whether a person lived on or off the farm, suggesting equitable availability of access to health care. An additional means used on this farm to facilitate access to care is the utilization of health care related payment plans for workers of the farm where the clinic is located. All patients were able to purchase medication from the clinic pharmacy (at a lower than market-value cost). Over the counter medication and other health related items (such as pregnancy tests) were also available for sale (D.R., personal communication).Given the distance to town or another healthcare facility, this is an important service that allows people living in rural areas greater access to medication and medical supplies.

Limitations

Several limitations were noted. The on-site mechanism of charting and cataloging the visits was specific to the needs and resources available within this rural community. There was no electronic recording of visits and the hand written notes were extremely time-consuming and challenging to read. The system used to log patient visits was organized in a way which was difficult to follow, with no dates of births (only names and current ages). Without dates of births, it was impossible to determine if specific individuals had multiple visits. There were separate logs used for referrals and medication, making it more taxing to compile all facets of the visit. Copies of prescriptions dispensed were available but organized by insurance payer and/or worker number (not patient name or date of visit), which was extremely difficult to decipher.

No clear structure of follow-up visits for the same patients (especially for dressing changes) was utilized, further complicating the understandability of the documentation. The clinic nurse was on-site during the review and available to answer any questions, which was helpful. Lastly, the visits reviewed were between the months of July-October, which is considered the off-season for coffee harvesting. Unfortunately, at the time of review, these months were the only logs available on-site. Due to this fact, the visits recorded may not give a clear picture of the needs of migrant workers and most likely is more representative of rural, permanent worker needs.

Conclusion

The rural communities that surround coffee farming regions are often isolated and far removed from urban areas, contributing to the limited access to healthcare services. This chart review provided a small snapshot of who is accessing services and the primary reasons they decide to seek care. Areas of prospective health promotion/education identified by this review include various cost-effective recommendations that can be implemented both in the working fields and within the farm communities. Health education information might include teaching strategies on how to safely use machetes, recommendations on best-practices for carrying and lifting heavy items (such as coffee collection baskets and coffee bean sacks) and slip and fall prevention techniques to use while working in the fields. Hand hygiene promotion might decrease the incidence of diagnoses like the common cold, diarrhea or parasites. Health promotion encompassing ways to decrease discomforts after labor intensive work may also be beneficial, considering that pain was a significant reason for visits.

A more in-depth review of the limited referrals for specialized care is warranted to understand whether this is due to inadequacies of the health care system or lack of patient follow through. Continuation of this comprehensive community needs assessment will include conducting focus groups with both migrant and permanent workers of the farm. These would be useful to further explore what coffee-farm workers self-identify as healthcare needs and challenges to accessing services. Individual interviews may also elicit self-care practices and healthcare beliefs of those who are not currently using the clinic services. Lastly, continuation of the promotion of preventative care services, particularly sustained collaboration with agencies that can provide large screening capacity during coffee-harvesting months, is also essential. This would ensure that despite the barriers encountered by the clinic (i.e. limited staffing and resources), this vulnerable population would have access to early detection of various chronic illnesses. Ongoing evaluation of feasible lifestyle modifications in this rural community is vital, as this would also help to guide prospective health promotion plans for other coffee farming communities in rural Nicaragua.

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References

1. Flores M, Bratescu A, Martınez JO, Oviedo JA and Acosta A. 2002. Centroamérica: El impacto de la caída de los precios del café. México D.F: Comisión Económica para América Latina y el Caribe.
2. International Fund for Agricultural Development. 2012. Rural poverty in Nicaragua.
3. United States Agency International Development. 2011. USAID country profile- Property rights and resource governance.
4. Hansen E, Donohoe M. 2003. Health issues of migrant and seasonal farm workers. Journal of Health Care for the Poor and Underserved. 14: 153-164.
5. McCauley L, Anger W, Keifer M, Langley R, Robson MG, Rohlman D. 2006. Studying health outcomes in farm worker populations exposed to pesticides. Environmental Health Perspectives. 114: 953-960.
6. Laux T, Bert P, Barreto Ruiz G, González M, Unruh M, Aragon A, et al. 2012. Nicaragua revisited: evidence of lower prevalence of chronic kidney disease in a high-altitude, coffee-growing village. Journal of Nephrology. 25: 533-540.

7. Torres C, Aragón A, González M, López I, Jakobsson K, Elinder CG, et al. 2010. Decreased kidney function of unknown cause in Nicaragua: a community-based survey. American Journal of Kidney Disease. 55: 485-496.

8. O'Donnell JK, Tobey M, Weiner DE, Stevens LA, Johnson S, Stringham P, et al. 2011. Prevalence of and risk factors for chronic kidney disease in rural Nicaragua. Nephrology Dialysis Transplantation. 26: 2798-2805.

9. Silverstein B, Bao S, Russell S, Stewart K. 2012. Water and coffee: A systems approach to improving coffee harvesting work in Nicaragua. Human Factors. 54: 925-939.