A Preliminary Understanding of Healthcare Needs in Rural Jamaica

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ABSTRACT

A medical team from Lock Haven University (LHU) ran a basic health clinic in a rural, impoverished community in south central Jamaica. Data was collected from 95 patients by method of personal interview and included medical history, vital signs, diseases, and diagnoses of each patient. The data collected was analyzed descriptively to assess overall health and to identify the major health issues the community faces. The data were collected from 95 patients, ranging from age five months to 81 years, with a median age of 32 years. Noteworthy findings include: the high prevalence of hypertension (42%); the prevalence of poor nutrition as indicated by body-mass index (BMI) (26% of the population was underweight and 27% of the population was above normal weight); and the high prevalence of diabetes in the families of patients (44%). Data also describes the leading health concerns facing the community as hypertension, diabetes, and allergies and asthma. Based on this research, it is recommended that future service-learning programs to rural Jamaica provide interventions that address hypertension, diabetes, access to care, and health literacy. LHU is currently developing a 5-year plan to collect further data and provide better health care to the community.

Keywords: service-learning; service-learning program; poverty; diabetes; hypertension; health

INTRODUCTION

Jamaica, located in the central west Caribbean with a national population of 2,727,991 citizens is divided into 14 Parishes (Government of Jamaica 2015). The Parish of Manchester, centrally located in southern Jamaica, is the fourth largest parish in the country and has a population of 190,812 people (Government of Jamaica 2015).

The government is a constitutional monarchy and a parliamentary democracy, which helps facilitate development of health policies in a concerted effort. The government is an active member of strong international institutions such as the Caribbean Community and Common Market (CARICOM), Organization of American States, the Commonwealth, and the United Nations (World Health Organization, 2013). There are strong national health objectives put in place by the Jamaican Government. Although the country has strong national health organizations and objectives, Jamaica faces many health care challenges.

The Jamaican economy is classified as a lower middle-income economy (World

Health Organization, 2013), and many health care issues are the result of lacking financial resources. The World Health Organization describes the following barriers to health care in Jamaica: Health care financing and sustainability, weak public health leadership, high incidence of crime and violence related costs, lack of implementations of development programs, and inadequate planning, monitoring, evaluation, and enforcement of health legislation. Additionally, there is a deficit of health care providers because many native practitioners migrate out of the country after obtaining a degree. (World Health Organization 2013). Jamaica has a high need for additional medical care from outreach organizations.

For one week in January 2015, a team from Lock Haven University (LHU) was hosted by a relief organization working in a small, rural community in Manchester Parish as part of an international service-learning program offered by the university. The team, consisting of undergraduate students, graduate students from the physician assistant program, and led by the faculty from the health science, physician assistant and nursing programs at LHU, provided a health clinic and anatomy and physiology lessons to the people of the community. The purpose of the servicelearning program was to provide basic medical care and provide anatomy and physiology lessons for the medically underserved Harmon's community, while providing students with a cultural experience.

The objectives of this project were to: (1) to report the demographics of patients who attended the 2015 clinic; (2) to describe the clinical presentation of patients in the clinic; (3) to compare the data collected from this community in rural Jamaica to national Jamaican trends; and (4) to make recommendations for future LHU servicelearning programs to Jamaica.

METHODS

This project was approved by the Institutional Review Board (IRB) for the use of human subjects at LHU. A health clinic was held for two days in January 2015 in a rural village in south central Jamaica in a small clinic consisting of one waiting room and three exam rooms. Participants were recruited through written advertisements and word of mouth. There were no limitations placed on age or sex of participants. Patients consented to treatment and parents assented for their children under the age of twelve.

One examination sheet was completed for each patient. The top of the sheet was a section for medical history and vital signs and the bottom of the sheet included a section for diagnoses and treatment. For the purpose of data collection and protection of personal health information, each patient was assigned a study-specific unique numerical identifier, which was recorded on the examination sheet.

The team collected medical histories and vital signs on each patient before he or she entered an exam room. Medical histories, which included age, sex, allergies, medications and pertinent family history, were collected by an individual interview with each patient. Interviews also captured health topics that were of educational interest to the individual.

A standard scale was used to measure weight, while a stadiometer was used to measure height. Body Mass Index (BMI) (kg/m2) was calculated retrospectively for all participants. Patients were placed in one of the following categories based on the World Health Organization (WHO) international body mass guidelines: underweight (< 18.5 kg/m2), healthy weight (18.5- 24.9 kg/m2), overweight (25 - 29.9 kg/m2), or obese (\geq 30 kg/m2) (WHO 2015).

Blood pressure was obtained using a standard blood pressure cuff and a stethoscope. The blood pressure of each adult patient was retrospectively placed in one of the following categories based on guidelines from the American Heart Association (AHA): Normal (less than 120 mmHg systolic and less than 80 mmHg diastolic), Pre-hypertensive (120-139 mmHg systolic or 80-89 mmHg diastolic), Hypertension Stage 1 (140-159 mmHg systolic or 90-99 mmHg diastolic), Hypertension Stage 2 (160 mmHg or higher systolic or 100 mmHg or higher diastolic), or Hypertensive Crisis (higher than 180 mmHg systolic or higher than 110 diastolic) (AHA 2015). For blood pressure categorization, an adult patient was defined as age 18 and older. Only adult patients were screened for blood pressure.

After the medical history and vital signs were obtained, the physician assistant students provided physical examinations and discussed diagnoses and medical treatments, under direct supervision of the registered nurse and certified physician assistant. The diagnoses and treatments provided were documented on the patient examination sheet and all data collected were entered into a project specific electronic spreadsheet and analyzed descriptively.

RESULTS

The data were collected from 95 patients. More females (69%) than males (19%) attended clinic, while the sex of a small group of patients (12%) was unreported (Table 1). The age of the patients ranged from five months to 81 years, with a median age of 32 years (Table 1).

The average height of female patients (age 18 and older) was 169.95 centimeters and the average height of male patients (age 18 and older) was 169.64 centimeters. The majority of patients (34.7%) had a BMI that classified them as having healthy weight (Table 1). A relatively large group of patients (26.6%) were classified

as being underweight, while a lesser amount (17.9%) was classified as being overweight. A small group of patients were classified as being obese (9.5%) or unreported (11.6%).

BMI		Age	
Category	Percentage	Category	Percentage
	(%)		(%)
Underweight	26.60	<12	23.15
Healthy	34.70	12-17	0
Overweight	17.90	18-44	40
Obese	9.50	45-64	25.26
Unreported	11.60	65-74	4.21
		>75	5.26
		Unreported	2.10

Table 1.	Sample	Characteristics
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The average blood pressure obtained in the clinic (139.4/83.6 mmHg) was classified as pre-hypertensive. As displayed in table and figure 4, the majority of patients (31.9%) were classified as hypertensive. A substantial number of patients were also classified as normal (26.1%) while lesser number of patients were classified as stage one hypertension (21.7%). The remaining patients were classified as having stage two hypertension (14.5%) or hypertensive crisis (5.8%).

Table 2. Blood Pressure Categorization Distribution

 of Patients

Blood Pressure	Number Of	Percentage
Category	Patients	(%)
Normal	18	26.1
Prehypertension	22	31.9
Hypertension Stage 1	15	21.7
Hypertension Stage 2	10	14.5
Hypertensive Crisis	4	5.8

Among the 95 patients, 24 different diagnoses were discussed. The most common diagnoses included headaches/viral sinusitis (13.7%), hypertension (10.5%), fungal rash (8.42%), gastroesophageal reflux disease (GERD) (7.4%), and yeast infections (5.3%).

Of the 73 patients that reported significant family medical history, many reported the prevalence of hypertension (66%), diabetes (44%), asthma (15.1%), cancer (13.7%), and stroke (2.7%). Lastly, of the 33 patients who reported health topics that he/she would like to learn more about, the greatest requests were for further education on blood pressure (39.4%) and diabetes (30.3%).

DISCUSSION

The data collected highlights a number of interesting findings. First, there was a large imbalance in clinic attendance ratio of males (19%) to females (69%) and no clinic attendance by children between the ages of 12 and 17 years old. Additionally, the BMI distribution of the patients was concerning because 26% of the population was underweight and 27% were above normal weight based on the internationally recognized BMI scale. Hypertension was by far the most prevalent health issue facing this group of patients, as only 26.1% of patients had a blood pressure in the normal range while the remaining patients were classified as having prehypertension (31.9%), stage 1 hypertension (21.7%), stage 2 hypertension (14.5%), or as being in the state of a hypertensive crisis (4%). Additional topics that need to be addressed include the prevalence of diabetes, the health literacy of the community. and the sustainability of the treatments provided by the medical team.

The demographic distribution of patient age and sex of Jamaicans who attended the health clinic do not reflect national trends. Regarding age distribution, national data describes that 28.4% of the total Jamaican population are between the ages of 0-14 years of age and 21.7% are between the ages of 15-24 years old (CIA 2015). Clearly, the lack of attendance of children between the ages of 12 and 17 indicates that the team did not reach a large portion of the community. The most likely explanation for this was that the children were in school during the hours that clinic was held. The sex distribution of the population that attended clinic also deserves comment because while national trends describe a national 98 male to 100 female sex ratio (CIA 2015). However, in this program 69% of patients that attended clinic were female. Several explanations may aid this discussion. First, it is plausible that many males did not attend the health clinic because they were at work, but with a community unemployment rate of about 75%, there may be another explanation regarding the low attendance of male patients. Previous research has provided evidence that Jamaican men have poor health-seeking behavior along with poor health literacy (Bourne & Morris 2010). Further research

needs to explore the link between gender barriers to health care access in Jamaica, and future LHU service-learning programs need to implement strategies to reach more individuals in the community.

Next, it is important to further analyze the BMI data collected. Comparison to national BMI trends was not possible because there are no nationally documented data describing BMI or national averages for height and weight. Regardless of the comparison between data collected and national data, the BMI distribution collected by LHU was concerning. It is likely that the underweight and overweight populations are both facing the same financial barrier to obtaining proper nutrition. The poor nutrition in the community needs to be many secondary addressed because complications arise from poor nutrition. including heart disease and diabetes, both of which are prevalent in this community.

Poor nutrition raises difficult questions: Who is underweight and who is overweight? Why are they overweight or underweight? What is the typical diet of individuals in the community? What strategies can be implemented to provide this community with access to affordable, healthy food? Future service programs need to address these questions and incorporate education and interventions that focus on proper nutrition. Additionally, future service-learning programs need to collect data pertaining to activity level among the population.

The data collected from this community pertaining to blood pressure was perhaps the most concerning finding. Published in the WHO Country Cooperation Strategic Plan 2010-2015, the WHO 2008 national survey found that the prevalence of hypertension Jamaica was in 25.2% (hypertension defined as a systolic value ≥ 140 mmHg and/or a diastolic value ≥ 90 mmHg) (WHO 2010). In comparison, the prevalence of hypertension documented in this study was 42.0% (includes stage 1, stage 2, and hypertensive crisis categories), which greatly exceeds the national average. It is important to note that the most recent WHO survey was administered in 2008 and it is likely that national averages have increased since then.

Awareness of hypertension is certainly not the issue facing this community, as

hypertension was the most frequently patientrequested topic for future educational programs. The challenge is more likely that lifestyle and nutritional changes are difficult to make due to the prevalence of poverty and the lack of resources and money in the community. The prevalence of hypertension needs to be addressed and interventions need to be implemented by future LHU service-learning programs because hypertension is a major risk factor for many chronic diseases, including diabetes, heart disease, and stroke.

The most prevalent diagnosis in this study was headaches/ viral sinusitis, which is not a documented health concern in the literature. There is no current research addressing this concern, but perhaps there is a link between the geographic location of this community (265 meters above sea level), or the time of year of data collection (Google Maps 2016). More research needs to be carried out to explore the very high prevalence of headaches/viral sinusitis.

The second most common diagnosis made by LHU was hypertension, which directly reflects the national hypertension endemic. Other frequent diagnoses such as fungal rash, yeast infection, and GERD are most likely common issues throughout the country that are not documented in the literature due to the low severity of the health issues.

Only a very small percentage of patients were diagnosed with diabetes mellitus. These data may be misleading because it describes the incidence rather than the prevalence of diabetes mellitus in the community. Clinically, many patients already had a prior diagnosis of diabetes, although this was not recorded systematically by LHU. In future service-learning programs, LHU should expand the medical history sheet to specifically include the question, "Do you have diabetes?" Additionally, it is clear that diabetes is a major perceived health concern by members of the community because it was the second highest patient requested health education topic for future clinics. It is important that future servicelearning programs provide education and interventions to address diabetes.

In order to grasp a greater picture of the entire community, each patient was asked to report any significant family medical history. The most predominant reported health issues in families were hypertension (66%) and diabetes (44%). Additionally, with the purpose of planning future service trips to this area, each patient was asked to request any health topics that he or she wanted more information about; the highest requested health topics were blood pressure (39.4%) and diabetes (30.3%).

Previous research has found that the prevalence of chronic disease is higher and the access to care is lower in lower socioeconomic regions of Jamaica, thus creating a paradox; the populations who need care the most are receiving the least (Scott & Theodore 2015). This poor community with a high unemployment rate in a rural location is directly affected by the weak infrastructure of the health care system in Jamaica. Hypertension and diabetes are both chronic diseases that require interventions focused on education and lifestyle changes. These interventions cannot be implemented well by any one medical team serving this community for one week at a time. Therefore, the authors of this study propose a collaborative effort by all medical teams serving through the relief organization to address these very important chronic diseases. The focus of the collaborative effort needs to be on disease prevention and health promotion with the awareness of limitations caused by the low socioeconomic status of the community.

Although this research provides a very strong foundation of healthcare needs in rural Jamaica, it does have several noteworthy limitations. First, results only represent a small percentage of the community and diagnoses and treatments were not documented for all patients. Also, the skewed age and sex distribution of patients that attended clinic may have influenced the proportionally high prevalence of chronic disease. Additionally, BMI is not a completely accurate measure of assessing whether an individual is at a "healthy weight" because BMI fails to account for muscle mass but this is the best tool for international comparison that is available. Lastly, there was no assessment of health literacy, thus while patients were provided education, there were no concrete data to assess their understanding of the care provided by LHU. This study represented a preliminary needs assessment of the community. Results of such a program will help to build on this preliminary research.

Based on findings from 2015 clinic, several recommendations can be made for future research and patient care in rural Jamaica. First, strategies need to be implemented to reach the men and children in the community; some suggestions include holding clinic in the schools or after school hours and specifically working with the relief organization to advertise to men in the community. Additionally, in order to better understand hypertension, diabetes, and access to care, the following questions ought to be added to the examination sheet: Have you taken (blood pressure/ diabetes) medication in the past? Are you currently taking any? If you have taken (blood pressure/diabetes) medication in the past and are not currently, why did you stop? and where do you get your prescription initially and where do you get it refilled? Also, in order to further improve the health of this community, a collaborative effort needs to be implemented, with the local relief organization as the liaison between all medical groups that come to provide health care service to this community.

CONCLUSION

This research provides preliminary information about the health status and health concerns among people living in rural, south central Jamaica and how it compares to trends provided by the WHO and AHA. Noteworthy findings include: the high prevalence of hypertension (42%); the prevalence of poor nutrition as indicated by BMI (26% of the population was underweight and 27% of the population was above normal weight); and the high prevalence of diabetes in the families of patients (44%). Data also describes the leading health concerns facing the community as hypertension, diabetes, and allergies and asthma. Opportunities to reach underrepresented groups were discussed and several priorities for LHU future service-learning programs to Jamaica were identified.

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