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Ability and Willingness to Change Among African Immigrant Patients at Akwaaba

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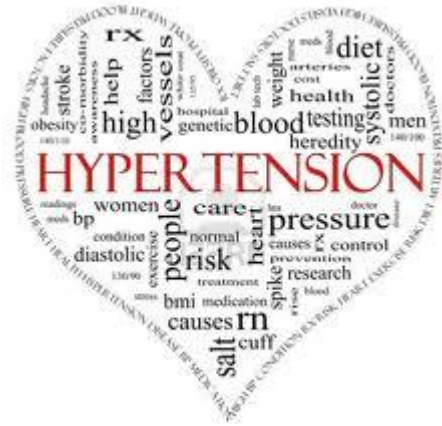
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Community-Based Health Research Report:
**Examining Hypertension Understanding and Treatment
within African-Born Immigrants at Akwaaba**



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Table of contents

Abstract3

Theoretical framework4

Study8

Results.....9

Discussion14

Conclusion and Recommendations for Future Research.....16

Appendix20

Abstract

This study investigates the relationship between the understanding of high blood pressure, and the ability and willingness to modify behavior among African patients at Akwaaba, a free health clinic in Worcester, Massachusetts. Interviews were conducted to analyze health providers' responses during a five-week study period.

In this research, our team specifically explores how the understanding of lifestyle risk factors of hypertension, such as diet, exercise, and levels of stress, influence the willingness and ability to modify behavior among African born patients at Akwaaba. The assumption we made, based on our previous research, is that patients who have more than basic health literacy are typically more likely to abide by doctors' recommendation and follow dietary and medications regimen. This study assumes that patients do not follow instructions due to lack of understanding of high blood pressure causes, management and consequences, limited access to hypertension education and management materials, and cultural barriers.

Our analysis took a different direction and therefore given the evidence we have we can neither prove nor disprove this assumption. What did become clear was that language barriers, cultural differences, and approach to health care within the African population at Akwaaba inhibit the ability to follow dietary and medication regimens. Medical literacy may in fact be a factor in adherence to treatment but our research does not provide solid enough evidence to argue that. We did however find conclusive data mainly from the providers about barriers to care.

The findings of this research will be shared with Akwaaba to inform health providers' intervention and health education efforts, with respect to their African born hypertensive patients.

Theoretical framework

Hypertension or high blood pressure is a common condition in which the force of the blood against your artery walls is high enough that it may eventually cause serious health problems, such as cardiovascular disease (Mayo Clinic, 2012). Hypertension is estimated to cause 4.5% of current global disease burden and is prevalent in many developing countries, as in the developed world (WHO, 2003). There are two classifications for hypertension: primary (essential) and secondary hypertension. Primary hypertension there is no specific cause but develops gradually over many years in adults. Secondary hypertension is when high blood pressure is caused by an underlying condition such as medications, illegal drug use or kidney problems (Mayo Clinic, 2012). It is becoming increasingly common health problem worldwide because of increasing longevity and prevalence of contributing factors such as obesity, physical inactivity, and an unhealthy diet (WHO, 2003). There are many other risk factors for hypertension including: age, race, tobacco use, genetics, and stress. In most cases, it is not a single risk factor that causes hypertension but a combination of risk factors. Uncontrolled, hypertension increases the risk of serious health problems, including heart attack and stroke (Mayo Clinic, 2012). In Worcester, there is a slightly higher rate of hypertension compared to the state of Massachusetts, according to Mass CHIP data of 2009 (Health of Worcester Repot, 2012). Improved recognition of the importance of systolic blood pressure (SBP) has been identified as one of the major public health and medical challenges in the prevention and treatment of hypertension (Oliveria, 2005). Therefore hypertension management is an ongoing high priority for healthcare worldwide.

The purpose of this literature review is to examine previous research that has been done on hypertension, specifically research on risk factors and disease management. Even though dietary, socio-cultural and environmental determinants of high blood pressure are well documented in the literature (Dressler and Bindon,2000; Gaudenmaris et al, 2002; Moran et al, 2007), few studies have focused specifically on African-born immigrants living in the United States. A number of studies, however, noted that Africans have higher risks for developing hypertension. High blood pressure is particularly common among blacks, often developing at an earlier age than it does in whites. Serious complications, such as stroke and heart attack, also are more common in blacks (Mayo Clinic, 2012). However, very few studies focused on African-born immigrants residing in the US. First, we will evaluate literature on risk factors for Africans and African-born immigrants in the US. Specifically, reviewing literature on the risk factors of race and stress, which are typically not thought of as important risk factors compared to diet and exercise level. The second part of this literature review discusses previous studies that have focused on hypertension disease management trends and patient compliance.

Andrew Moran (2003), notes that Africans who migrated from a rural to an urban area within their native country have increased blood pressure. This is due to environmental exposures

being the key causative factor. Also noted is that there is a correlation between socio-economic status and blood pressure levels. The study showed that there was a distinction between black populations from West African and from the US is that while socioeconomic status correlates negatively with blood pressure in African Americans, SES correlates positively with BP in black West Africans. Moran et al (2007) associate increased hypertension prevalence with living in an industrialized country. Moran et al. also add that the place of birth and acculturation influence hypertension prevalence. Their study demonstrates that hypertension prevalence is lower among people born outside the US, who do not speak English at home, and have fewer years living in the US.

A study by Gaudenmaris et al (2002) examined the disparities in hypertension awareness, prevalence, and therapeutic control in a cross-sectional analysis of a cohort study in France. Among other findings of the study, the authors found that in lower occupational categories, prevalence of hypertension was higher and therapeutic control was lower. This also suggests that Socio-Economic status plays a role in hypertension prevalence.

Stress is one of the risk factors for hypertension. The human body can handle short term stress well and can recover quickly, meanwhile life stress that is persistent on a daily basis the body handles poorly. This long term stress can be attributed to several variables such as occupational stress, SES/poverty and acculturation. William Dressler and James Bindon (2000) explore the relationship between biological factors and cultural factors, more precisely, the association between cultural consonance and health status. They define cultural consonance as the level to which a person evaluates in his/her own behavior the cultural models of social support and lifestyle. Having a low cultural consonance of lifestyle may stress someone because it complicates social interactions. For example, a person who has many relatives and friends, but has a lifestyle culturally considered as "bad" will always be criticized by these relatives and friends. These criticisms increase the person's psychological stress which could lead to high blood pressure. Therefore, someone who often cares to respect the kind of behaviors that are culturally tolerated is less likely to develop high blood pressure because he is less stressed during social interactions.

Dressler and Bindon (2003) add that cultural models need to be adjusted when people move to a new place. The new models in the host society might be different from the cultural models in the society of origin. For example, cultural models in West Africa are different from cultural models in the US. Therefore, during social interactions in the US, West African immigrants are sometimes confused on what is right or wrong. This creates stressful social interactions which might also increase hypertension prevalence.

It is also important to note that stress can be associated with racism especially for immigrants living in the United States. Ryan et al. (2006) argue that perception of racial discrimination is associated with poor health in minority groups. They use data from a cohort in New Hampshire which used Latino and African immigrants in the study. Ryan et. al found that

discrimination is significantly associated with poor health and (SBP) high blood pressure in African immigrants. Their study also notes that denial is used as a coping mechanism to deal with discrimination causing an individual stress. Eliminating discrimination might be a health promotion priority to be considered.

There seems to be a discrepancy between medical knowledge and understanding of hypertension by the public. As of 1999, the scientific community, generally considered hypertension to be an asymptomatic condition; or in other words were unconvinced of the physiological reality and reliability of symptoms (Schoenberg, 2002). Some researchers believe this line of thinking makes symptom-directed hypertension control behaviors problematic for patient adherence to treatment. According to the U.S. Department of Health and Human Services, the majority of Americans believe that there are distinct symptoms associated with hypertension (Schoenberg, 2002). According to Schoenberg and Drew, much of the literature associated with hypertension argues that subjects who indicate they experience symptoms approach the management of their health and lifestyle decisions differently than those who do not experience symptoms.

An article by Nelson et al. (1973) explores how patient noncompliance with medical treatment is a common obstacle to hypertension management due to their perceptions of health, disease, and medical treatment. They applied the health belief theory to their research, which argues that the likelihood of a patient pursuing preventive health action depends on their “core perceptions concerning health and hypertension and a variety of modifying factors” (p.894). Nelson et al. predict increased patient compliance if they place value on their health in general, and perceive they can influence their own health. For their methods, they used personal interviews with 142 individuals, and broke down behaviors into two categories: Medication Taking and Appointment Keeping. They further evaluated patients using the 18 Health Belief Model core perceptions, examples of categories used include: Control Over Health Matters, Priority of Health in Life, Time Costs of Visiting Physician, Perceived Hypertension Symptoms When First Diagnosed, etc. Out of the modifying factors examined, they found level of anxiety when hypertension was first diagnosed, education level, and the impact of hypertension on lifestyle to be the most relevant with blood pressure control; age was associated with self-reported medication taking and appointment keeping; and employment status appointment keeping alone (p.904). Nelson et al. also speak to the importance of patient-physician interaction with patient compliance to medical treatment. Physicians who were most successful in motivating patients used techniques such as Being Approachable, Justifying the Treatment Plan, Monitoring Compliance, and Emphasizing Key Issues (p.905). While this study was conducted 35 years ago, its findings still appear relevant to understanding hypertension management.

An important component of our study deals with trying to assess health knowledge about hypertension. Walsh et al (2006) began with the knowledge that care for hypertensive patients is often suboptimal or lacking. Hypertension care in the United States often fails to comply with evidence-based guidelines. From 1999 to 2000, only 68.9% of individuals with hypertension

were aware of their hypertension, and only 58.4% of hypertensive individuals were treated. Thus, the purpose of this article was to assess the effectiveness of quality improvement (QI) strategies in managing hypertension. For this study, reviewers abstracted data and classified QI strategies into categories: provider education, provider reminders, facilitated relay of clinical information, patient education, self- management, patient reminders, audit and feedback, team change, or financial incentives were extracted. The data came from trials, controlled before-after studies, and interrupted time series evaluating QI interventions targeting hypertension control and reporting blood pressure outcomes that were studied. Many QI strategies have focused on improving hypertension control. QI strategies can include one or several components and can target the provider, the patient, the healthcare system, or any combination of these. The study found that QI strategies are associated with improved hypertension control. A focus on hypertension by someone in addition to the patient's physician was associated with substantial improvement. Patient education appeared to be a successful strategy for improving blood pressure control. Looking forward, the study suggests that future research should examine the contributions of individual QI strategies and their relative costs. Knowledge of hypertension is not the only determinant of treatment adherence.

Cummings et al. (1982) discusses determinants of drug treatment adherence for hypertension in Detroit. It is applicable to our study as it discusses the barriers to maintaining treatment methods in a city, with a variety of cultures. The article states that it is clear from previous literature that the failures of patients to remain under continuous medical care and their inability or unwillingness to adhere to a prescribed treatment are major obstacles to the successful treatment of hypertension. Post-referral drop-outs are extremely high among patients with high blood pressure. Several studies also show that blood pressure control is a greater problem among blacks than among whites. The article discusses this problem as being incredibly complex. Factors that may influence disease management include socioeconomic status, education regarding the disease, physician-patient relationships, and the patient's beliefs about the severity of the condition and perceived value of adhering to the treatment. This study in particular found that those who discontinued drug treatment differed very little from those who remained in treatment in terms of perceptions about personal susceptibility to hypertension, beliefs in the benefits of treatment for hypertension, and reported difficulty in following a physician's advice. Also, the study's respondents' perception of their health status seemed to be an important factor influencing their decision to continue drug treatment. The most common reason for discontinuing treatment by persons who stopped taking their blood pressure medicine was that they felt well without the medicine. Health beliefs generally were not predictive of discontinuing drug treatment. As far as suggestions, the findings from this study point out the need for providers to emphasize to their hypertensive patients the need to continue to take their blood pressure medicine and comply with their treatment regimen even when they feel well. A number of studies have demonstrated that compliance can be enhanced through increased provider supervision or vigorous follow up or both.

Study

Overview:

We applied a mixed methods approach to our hypertension research project which involved qualitative analysis of four formal interviews with medical providers, as well as quantitative analysis of approximately 2000 medical charts. We also used field notes for additional support in our qualitative analysis because they helped us to contextualize the data we had gathered at a more formal level.

Population:

Our study population included four formal interviews with medical providers as well as 2000 chart records of patients visiting Akwaaba over the past three years. It also included the patients observed at the Akwaaba site visits, as recorded in our field notes.

Instruments:

We developed formal interview questions for the medical providers. Each session was audio recorded, and field notes were taken during the interview to make note of extra body language, intonation, etc. See Appendix for interview questionnaires. We also worked with a rough database that Akwaaba provided for further quantitative data collection.

Procedure:

In partners, our researchers contacted and scheduled interviews with four medical providers at off-campus locations. Interviews lasted between 15 and 55 minutes. All group members transcribed the interviews and coded them to look for patterns. 55 codes emerged. Once the interviews had been coded, we collapsed similar codes and developed them into 6 categories: hypertension education, barriers to change, doctor-patient communication, new culture, African immigrants' culture and lifestyle, challenges for Akwaaba. The group quantitatively formed themes from the categories by calculating how often the codes repeated, which helped them find which would be the most important themes: understanding of hypertension, ability and motivation to change among African patients, and African patients at Akwaaba. After three themes had emerged, the group developed a theory that reflected the data findings.

We also gathered as a group to systematically categorize and re-organize patient records to improve usability. Each group member was assigned approximately 400 patient charts to re-categorize. We created clean data columns for the diagnoses that used consistent terms, so we could better calculate their frequencies. Once the data was cleaned, we used SPSS to run quantitative analysis. We looked at hypertension frequency patterns based off of age, gender, and nationality.

Consent:

We received oral consent from the medical providers that we interviewed. Since we did not interview any patients, we did not use the consent form that we developed in our research design.

Results

Our results show that according to health care providers, the understanding of hypertension mostly depends on cultural differences, language barriers, and approach to health care. Thus, from the perspective of these providers, ability and willingness to change among African patients at Akwaaba is also influenced by these variables.

Providers highlight the influence of culture in patients' understanding of health issues by showing the different approaches in disease prevention and health management from one country to another. In African countries, they say, screening and prevention are not big issues like they are in developed countries:

“Ya know, in Africa and in other places, you don't go to the doctor for a well visit”
Akwaaba Board Member

“Most countries don't seek medical care unless they are sick, hypertension does not show symptoms until it gets really bad. So there may be a lot of people walking around with hypertension and may not even realize it because I feel fine , i don't feel bad at all you no. Unhmm... so that is one part of their culture that we have not really made that big of a dent in yet you know. We have to tell people that listen, you really need to come in maybe once a year get your blood pressure checked, get your sugar checked get this checked.. it is not like here where we do our physicals and stuffs.” *Medical Provider*

“Prevention is not a part of medical care in most of the countries as its more in the United States, and in England, in France, but I guess I can't really say it's all industrialized countries that have I that but I think people are more aware of it in industrialized countries and try to do more prevention. Whereas in poorer countries they just cannot afford the prevention part although, they will like too and they would some help to do it. But the people just don't come in until they are sick! and sometimes with hypertension they are very sick at first, they have already gotten some problems with their kidneys, and other organs as a result of untreated hypertension.” *Medical Provider*

One of our respondents mentioned that the African community is known for not liking medication:

“I don't know [low tone] we've a community which does not like medication and I have no idea why. And...it's not just in hypertension Also like I've seen patients with mental

illness like someone has bipolar depression and they're prescribed for medication and they don't want. With that one, it's more of stigma, I'm not very sure with hypertension, it's more stigma.” *Health education specialist*

Following treatment is not a big issue in the African culture, but once African immigrants arrive in the US, they are trying to change their lifestyle and adjust to the American culture:

“They want to become part of the American community. I think they are very sincere about it. And I think that they want to, the American Dream is a big thing for them. Um and I think they are very sincere about it.” *Medical Provider*

Providers draw attention to the increased health risks that African immigrants take in their ‘naïve’ pursuit of the American dream:

“I think a lot of the things that make you unhealthy about the US, since we were born here and now a lot about the culture, like we know what is unhealthy, it’s just something that you know, I think a lot of people who come here from other countries may not know that necessarily, so they may not know that what they are eating is unhealthy, or they may struggle to find somewhere to exercise, even if they wanted to, so that doesn’t come up too much honestly, I think people will still do what they did at home, can’t imagine there are many problems there”

The change of culture also results in a change of life habits and pace which increases stress levels and raises exposure to hypertension:

“Huge amount of stress in that first generation. It’s a new country, new culture, limited income.” *Medical Provider*

Like I said, a lot of these people are working multiple jobs and stuff...and trying to remember to take a pill at a certain time, can be very very difficult.” *Akwaaba Board Member*

In their attempt to adjust to the American lifestyle, African immigrants become aware of the importance of prevention and screening. Indeed, American health care providers at Akwaaba try to convince African immigrants who are trying to adapt to the American culture, that prevention is a “good thing” and that they should do it:

“The whole idea of trying to teach people that you don’t wait until it gets to that point...requires work. And that’s part of what we do here I think, we try to hook people into regular medical care, and try to convince them, ya know...prevention is a good thing.” *Akwaaba Board Member*

However, there are barriers for these patients to efficiently follow doctors’ recommendations. According to our respondents, these barriers are language, culture, and

approach to health care. Providers consider language barriers as one of the biggest challenges to understanding hypertension education. To the question “Do you think there are any unique barriers that African-born patients have?” providers replied:

“I think, the language barrier is the hardest thing, I think sometimes you feel like people try to say they understand what you are saying but they really don’t, and that’s true for anyone not just African, but that’s the hardest thing, they just don’t understand what you are saying. And that’s true for language speaking as well so it’s just, language is a problem” *Health education specialist*

According to these providers, certain patients are unable to manage hypertension because of this language barrier:

“Apart from the language, some people don’t understand their specific diseases. So it was difficult to explain it to them especially when you have a language barrier on top of that. So your are barely able to explain to them how to take the medication much less explain why. So there is a lot of confusion as to, well I took my BP meds, now my BP is fine, do I still need to take it?” *Medical Student*

In order to avoid any misunderstanding due to language, providers recommend the use of basic and simple vocabulary that everybody, even someone without a medical background can understand:

“Um you have to explain using their own basic language. No medical terminology. They’ll shake their head but they don’t understand that. You have to explain to them very clearly.” *Medical Provider*

Akwaaba doctor emphasizes on the use of simple vocabulary because speaking the same language with the patient does not mean that the patient understands medical terminology in that language:

“They speak English and they speak English well, but they don’t understand a lot of the medical background about diseases, so you have to talk to them in their own language, not natural language which is true I don’t speak but you have to talk to them basically in very plain English.” *Medical Provider*

Providers pointed out that language barrier is a key obstacle in accessing the complex health care system in the US:

“One of the big ones is navigating the complex system. You know like in Africa you...you go to a small clinic you know everybody. Over here by the time you get to the mean level of the hospital, it's like a maze. So if you have a language barrier or don't have insurance, even like, just a structure and the system that's care zero. The number of forms

you have to fill you don't even understand them...so...the system is also very intimidating.” *Health education specialist*

Limited understanding of hypertension education and restricted access to health facilities and treatment influence patients’ ability and motivation to change because it deprives them from interacting with health specialist who can explain the disease to them and help them change. Many providers emphasized the importance of doctor-patient communication in high blood pressure management:

“The most important think is ... to access them, where they are because every patient is different to access, their literacy level: will they understand hum where you are coming from; is it something they identify themselves with. And if we talk about family history a lot of them check 'not' because the other members of their families have not been screened so you have to first teach them from the what-goal: what is screening for; what is the importance of screening; about diet...they...you have to go with them through every, every step of the way and explain to them what you're doing and why you are doing and..first, build a relationship with them: relationship is the most important thing. When you build relationships, they are able to listen to you and they are able to adhere also to the treatment” *Health Education Specialist*

Approaches to guiding patients’ understanding of hypertension and encourage them to take care of their health varies from one provider to another. Some providers believe that helping patients manage their disease can be done by listening to them:

“I think that the most important thing is just being willing to listen to patients.” *Akwaaba Board Member*

Other providers think that it is better sometimes to ‘scare’ patients:

“Sometimes scare people in order to properly treat them” *Medical Provider*

“I think it’s just to show them if you don't do this, this is what gonna happen. If your blood pressure continue going high and you're not taking any medication, or you are not doing exercise that can help you, you gonna have a heart attack or you gonna have a stroke” *Health education specialist*

All these approaches have the same ultimate goal which is to building a relationship of trust with patient in order to make him/her adhere to treatment and make him/her feel well:

“They have the biggest smile when their blood pressure is down to normal. And once it comes down, they’re your patient then. They come back then because now feel more comfortable, you took care of their problem, and now they trust you” *Medical Provider*

Some providers recommended working with church staff to address language and cultural barrier issues because:

“The center of African life is church.” *Akwaaba Board Member*

According to them, the church staff can play the role of intermediary in the communication between providers and patients:

“Well I think it’s important if you have somebody who’s from their community, like some of the church staff, help you out and speak highly of you, that’s really important, so working with some of the church leaders there CHURCH STAFF, they can translate for you but also having them there helps you relate to the patients more.” *Medical Student*

However, providers pointed out that specific personal barriers such as willingness to change also influence hypertension management among the African immigrants:

“Depends on the patient, some are very willing to talk about what they do, some really aren’t. We always ask the, What do you do for physical exercise? The answer that’s pretty common, say 90% say they walk for exercise, or some say no exercise at all. So it’s sort of depending on your patient, so talk a little bit about...” *Medical student*

To the question “what is the most important disease management strategy that you recommend to patients with hypertension?” a provider answered:

“It’s the diet and exercise; lifestyle behavior changes.” *Health Education Specialist*

“Because diet is, especially Ghanaian community, their diet, the food is so...a lot of carbohydrates and so much...differently kind of oils and fats.” *Health education specialist*

Providers’ stance vis-à-vis Africans’ diet and their lack of exercise shows the disconnect between what African patients and health care providers believe exercising and good/healthy food are. According to African patients, walking (even a short distance) is exercising and eating food with lot of carbohydrates is normal. According to health care providers:

“A lot of people don’t exercise enough. I think a lot of people when you ask what they do for exercise will say nothing or they walk, and that’s not enough. Cause walking can just mean me coming here for this...” *Medical Provider*

“Their food is very sweet: I love it![Laughs] but it is something that you don’t wanna do every single day yeah you don’t wanna do that every single day.” *Health education specialist*

Discussion

Our original assumption was that patients who have more than basic health literacy are typically more likely to abide by doctors' recommendation and follow dietary and medications regimen. Our research question took a different direction and therefore given the evidence we have we can neither prove nor disprove this assumption. What did become clear was that language barriers, cultural differences, and approach to health care within the African population at Akwaaba inhibit the ability to follow dietary and medication regimens. Medical literacy may in fact be a factor in adherence to treatment but our research does not provide solid enough evidence to argue that. We did however find conclusive data mainly from the providers about barriers to care.

Language Barriers

Part of the reason this research was so critical was because it is largely unstudied. We could identify very few studies that looked specifically at hypertension prevalence within the African immigrant community in the US. There is some literature on African immigrants, health care, health literacy, and hypertension treatment and adherence, but very little that looks at all of the factors and their combined impact on health. Our findings however, do appear to fit in within the current available research on the more general topics.

The African immigrant community is diverse (culturally, linguistically, spiritually), and that in itself affects treatment (Office of Minority Health). Still, it appears that there are certain commonalities within the African immigrant population in regards to health care. Part of this commonality is the often present language barrier between patient and providers. As the population of the United States becomes ever more diverse and the languages spoken multiply, growing numbers of patients who speak no English are being isolated by language barriers. And hospitals are scrambling to find ways to communicate with them (Fein, 1997). Full time interpreters are expensive even for large hospitals, so the reality of free clinics is that they must survive without one. Language barriers can lead to misdiagnoses of problems, contributes to a much lower likelihood for follow-up appointments, and suggest a higher risk of drug complications. The consequences of medical miscommunication can be severe. Patients become sicker because they fail to stick to treatment regimens that they do not understand. They miss appointments. They pass on infectious diseases because they do not know how often to take their medication or when to return for follow-up care (Fein, 1997) The Chief of emergency medicine at Maimonides Medical Center in Brooklyn, said, 'When you can't speak to your patient in their native language, you do the best you can.... But no system of translation will ever be foolproof and you will never be able to duplicate that trust you establish when you speak the same language" (Fein, 1997).

We found that language barriers make it difficult to communicate the chronic nature of hypertension as well as how to prevent, treat, and maintain medical adherence. Through

conversations with providers, it became clear that the Church staff was invaluable in facilitating communication between patients and providers, acting as interpreters as well as cultural liaisons.

Hypertension

Very few studies have focused specifically on African-born immigrants living in the United States. A number of studies, however, noted that Africans have higher risks for developing hypertension. However, we were unable to find studies that solely looked at African-born immigrants residing in the US. From our research we found that 14% of the diagnoses from Akwaaba patient records were Hypertension. Providers noted that the way Hypertension presents itself, with its general lack of symptoms, makes treatment difficult. This fits with the literature on the topic as it pertains to Americans. As of 1999, the scientific community generally considered hypertension to be an asymptomatic condition or in other words were unconvinced of the physiological reality and reliability of symptoms (Schoenberg, 2002). Some researchers believe this line of thinking makes symptom-directed hypertension control behaviors problematic for patient adherence to treatment. According to the U.S. Department of Health and Human Services, the majority of Americans believe that there are distinct symptoms associated with hypertension (Schoenberg, 2002). According to Schoenberg and Drew, much of the literature associated with hypertension argues that subjects who indicate they experience symptoms approach the management of their health and lifestyle decisions differently than those who do not experience symptoms. Providers believe this is especially true for African Immigrants.

Lastly, it imperative to note that though it was not found in the literature, practitioners noted that one of the biggest barriers to care and hypertension treatment was the different approach to health care. Interestingly enough, as critical as this finding is, we were unable to find it mentioned in scholarly works, even though it was noted by many of the interviewers. Preventive care, and Chronic disease management appear to be dealt with differently within the African immigrant community. This may act as a hinderance to care.

Implications

The evidence presented in this report strongly demonstrates a need for better care for African immigrants, and specific ways to meet their needs. Akwaaba, as a free clinic, operates as best it can, given its resources. The practitioners are committed to their patients and enjoy the multi-cultural setting. It appears that cultural competency is lacking to a degree. Some hurdles are too great, like language barriers. Facilitation by community members are the best ways to break down that barrier. Also, it is integral to better understand the different understandings of health care, and work to bring together two very different sets of ideas on how to maintain health.

Limitations

One of the major limitations of our study is that our results may not necessarily be generalizable to the entire hypertensive African immigrant community in Worcester, since we are only gathering data from one location. Their experiences may differ from the rest of the African communities due to contextual circumstances at Akwaaba. This could be especially true with regards to lack of access to health insurance, and access to resources such as transportation to the free health clinic; those without access to transportation would most likely have differing levels of understanding of hypertension than those patients at Akwaaba. The strategies that health providers use to explain hypertension to their patients have a major effect on patients' thorough understanding of the risks of the disease; this can manifest in their admonition to the treatment and behavior modification recommendations. So we cannot conclude from our research study that our findings are applicable to the entire hypertensive African immigrant community in Worcester, only to those with whom we worked at Akwaaba.

Like all semester-long research projects, we have a limited timetable to work within to gather and analyze all of the necessary data. Since we only have one month for data collection, it may be difficult to schedule interviews, depending on the reliability of communication between the researchers and the clinic. We also acknowledge that there will be unavoidable language and cultural barriers. We go into this research project being as aware as possible, and will try to adjust for those barriers as much as possible. Finally, we realize that we are not public health professionals, so we lack expertise in health matters.

Another limitation to our study was that we did not interview patients at Akwaaba. We did take field notes, and observed the events during clinic evenings, but we did not hear first hands from the patients themselves. Hearing from those whom we wish to study is always important. Certainly our study could have been advanced by hearing about the struggles of health care and hypertension management from the patients themselves. If this study were to be repeated it would include interviews with patients, potentially facilitated by church staff.

Conclusion and Recommendations for Future Research

Even though medical literacy seems to be fundamental in behavior change for better hypertension prevention and treatment, health providers consider cultural differences, language barriers, and patients approach to health care as essential in influencing patients' ability and willingness to change.

For future research, the scope of our study needs to be extended to include the entire African immigrants in Worcester because a sample from Akwaaba does not define the African community. Most of the people who are visiting Akwaaba are newly immigrants most of the time

without health insurance. Thus, our future research needs to include people who have health insurance with all the gym benefits included, but are still not exercising.

Our future research also needs to include observation within the African community in Worcester. One of our respondents, who is a health education specialist recommends that we:

“Visit a few of the YWCA, just do a head count,... you do not have to know who is African American and who is African, but just a head count like how many people do you see there. Then, go to another restaurant that is just uh...[inaudible] for everyone and find out like when they are busy and find out how many people you see there... and go to African stores, what is being offered in African stores...”

In view of the high prevalence ratio of hypertension in the African immigrant population, early identification and treatment is vital. Therefore, there is a need for program specific health management systems for African immigrant in Worcester with providers being trained in cultural competency in order to better deal with patient-doctor cultural barrier issues.

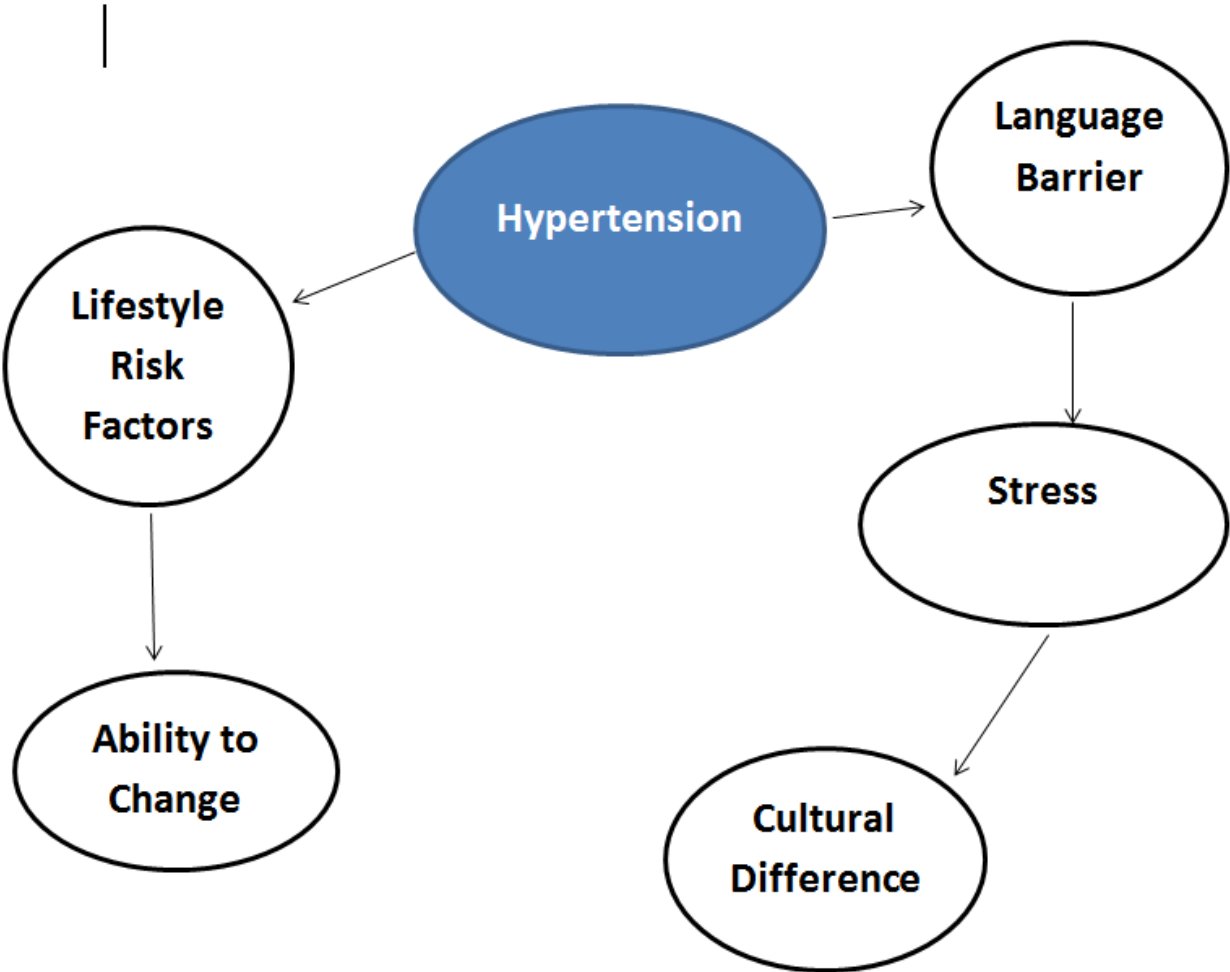
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Appendix

Conceptual map



Research instruments

Interview questions for providers

Interviewer: Thank you for agreeing to speak with me. As you know, we/I are students at Clark University doing research about hypertension in the African-born community in Worcester. The reason we/I are interested in speaking with you is because you are a health provider at Akwaaba which provides care to the African community in Worcester.

I am going to start by asking you some brief questions about yourself, and then I will ask questions about services you provide at Akwaaba, especially to the African community. The interview should take less than 10 minutes.

Also, if at any point you don't want to answer a particular question, just let me know, and we can move to another question or stop the interview.

1. How long have you been working at Akwaaba?
2. Why are you at Akwaaba?
3. Did you receive any sort of culturally specific training for African immigrants?
4. If yes, what did it involve?
5. Please describe the "typical patient" at Akwaaba.
6. What do you think are the 'typical' health issues common in the African community?
7. What do you think would be an effective strategy for teaching African patients about disease management and hypertension?
8. How do you deal with cultural barriers with patients?
9. How long, on average, do you spend with each patient discussing health management strategies?
10. How do you make sure they understand the disease?
11. How do you insure that they follow your advice for hypertension management?
12. What is the most important disease management strategy that you recommend to patients with hypertension?
13. Do you think there are any unique barriers that African-born patients have? If yes, please expand on these.
14. What are the biggest barriers patients face in managing their hypertension?
15. Is there anything I forgot to ask you about that you would like me to know?

Thank you very much for your participation!

List of codes, categories, themes, and theory

Categories

1. *Hypertension education 81*

Health Education	18
Hypertension	8
Hypertension management issues	4
Med. School and training	16
Medical professional	6
Medical understanding	12
Medication refill	2
Preventative care	3
Recommendations for hypertension management	1
Time	5
Time spent for education	3
Dangers of hypertension	3

2. *Barriers to change 58*

Barriers to behavior change	1
Child care	1
Fear	4
Health insurance	8
Language barrier	16
Life choices	6
Transportation barriers	2
Accessing resources	4
Patient challenge	4
Religious barriers	2

Poverty	10
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3. Doctor-patient communication 56

Doctor- Family relationship	10
Reassurance	3
Sincerity	4
Stress	8
Psychological issues	4

4. New culture 16

US culture	10
Health system complexity	6

5. African immigrants' culture and lifestyle 79

African immigrants in Worcester	7
African culture	28
Community	10
Diet	9
Exercise	12
Family medical history awareness	2
Health issues among African	6
Stigma	5

6. Challenges for Akwaaba 59

Challenges for clinic	24
Church staff	5
Data utilization	3
Doctor C.	5
Volunteer	1

Free clinics	12
Partnership (with schools and church)	7
Advocacy	1
Recommendations for Akwaaba	1

Themes

1. *Understanding of hypertension 140*

Hypertension education	81
Challenges for Akwaaba	59

2. *Ability [1] and motivation to Change Among African Patients 121*

Doctor-patient communication	56
Barriers to change	58

3. *African Patients at Akwaaba 95*

New culture	16
African immigrants' culture and lifestyle	79

Theory

For providers, who are caring for African immigrants at Akwaaba, obstacles of hypertension understanding are related to cultural differences, language barriers, and approach to health care.

SPSS Data Analysis of Patient Charts

Chart 1 : Gender Frequencies

M/F

N	Valid	1951
	Missing	28

M/F

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	1025	51.8	52.5	52.5
	Male	926	46.8	47.5	100.0
	Total	1951	98.6	100.0	
Missing	System	28	1.4		
Total		1979	100.0		

This chart represents the gender of the 1979 patient charts from Akwaaba that were reviewed. The 28 missing in the system were patients that marked no gender.

Chart 2: Language Frequencies- general

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	89	4.5	4.5	4.5
Akan	28	1.4	1.4	5.9
Albanian	8	.4	.4	6.3
Arabic	13	.7	.7	7.0
Cantonese	2	.1	.1	7.1
chinese	1	.1	.1	7.1
Chinese	9	.5	.5	7.6
Creole	1	.1	.1	7.6
English	1445	73.0	73.0	80.6
Ewe	1	.1	.1	80.7
Fante	3	.2	.2	80.8
Filipino	2	.1	.1	80.9
French	3	.2	.2	81.1
Ghanaian	6	.3	.3	81.4
Hindi	9	.5	.5	81.9
Ibo	3	.2	.2	82.0
Italian	1	.1	.1	82.1
Kannada	4	.2	.2	82.3
Kikuyu	2	.1	.1	82.4
Korean	3	.2	.2	82.5
Malayalam	2	.1	.1	82.6
Mandarin	1	.1	.1	82.7
Mandinka	1	.1	.1	82.7
polish	2	.1	.1	82.8
Polish	49	2.5	2.5	85.3
Portugues	15	.8	.8	86.1
Punjabi	1	.1	.1	86.1
Russian	2	.1	.1	86.2
Spanish	59	3.0	3.0	89.2
Swahili	8	.4	.4	89.6
Tamic	1	.1	.1	89.6
Tamil	1	.1	.1	89.7
Telugu	13	.7	.7	90.3
Twi	184	9.3	9.3	99.6
Unknown	2	.1	.1	99.7
Urdu	1	.1	.1	99.8
Vietnames	4	.2	.2	100.0
Total	1979	100.0	100.0	

This chart represents the primary languages of the patients at Akwaaba.

Chart 3: Language Frequency (English and Non-English)

		Language			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	1445	73.0	76.7	76.7
	Non English	439	22.2	23.3	100.0
	Total	1884	95.2	100.0	
Missing	System	95	4.8		
Total		1979	100.0		

This chart represents English and Non English as primary language for patients at Akwaaba. The variable for Non English was a “dummy variable” which represents all the languages other than English. Missing from the system were languages that were not recoded by the “dummy variable” (Missing from system should be considered Non English)

Chart 4: Primary Diagnosis Frequencies

	Frequency	Percent	Valid Percent	Cumulative Percent
	13	.7	.7	.7
?	3	.2	.2	.8
#N/A	19	1.0	1.0	1.8
0	5	.3	.3	2.0
Abdominal-Abscess	1	.1	.1	2.1
Abdominal-Pain	18	.9	.9	3.0
Acne	4	.2	.2	3.2
Acne breakout/rash	2	.1	.1	3.3
Addiction	1	.1	.1	3.3
Addiction-Withdrawal	1	.1	.1	3.4
Allergic Rxn: Unk allergen	1	.1	.1	3.4
Allergies	5	.3	.3	3.7
Allergies-Dermatitis	1	.1	.1	3.7
Valid Allergies-Rhinitis	4	.2	.2	3.9
Allergies-Rhinorrhea	1	.1	.1	4.0
Allergies-Sinusitis	1	.1	.1	4.0
Amenorrhea	2	.1	.1	4.1
Anemia	1	.1	.1	4.2
Anemia-Iron deficiency	3	.2	.2	4.3
Ankle-Pain	1	.1	.1	4.4
Anorexia	1	.1	.1	4.4
Anxiety	4	.2	.2	4.6
Arms-Pain	1	.1	.1	4.7
Asthma	12	.6	.6	5.3
Asthma-Inhalation	1	.1	.1	5.4
Atrial Flutter	1	.1	.1	5.4
Attention Deficit Hyperactivi	1	.1	.1	5.5

Back-Disc Prolapse	2	.1	.1	5.6
Back-Pain	31	1.6	1.6	7.1
Back-Spasms	3	.2	.2	7.3
Back-Strain	1	.1	.1	7.3
Baker's Cyst	2	.1	.1	7.4
Biceps-Pain	1	.1	.1	7.5
Big toe-Infection	1	.1	.1	7.5
Birth Control	1	.1	.1	7.6
Bite-Dog	1	.1	.1	7.6
Bite-Human	1	.1	.1	7.7
Bite-Spider	1	.1	.1	7.7
Bite-Tick	1	.1	.1	7.8
Bladder-Pain	1	.1	.1	7.8
Blurry Vision	2	.1	.1	7.9
Body-Pain	4	.2	.2	8.1
Breast-Lesion	1	.1	.1	8.2
Breast-Pain	4	.2	.2	8.4
Bronchitis	5	.3	.3	8.6
Buttock Fissure-Pain	1	.1	.1	8.7
Calf-Pain	1	.1	.1	8.7
Cervical Spasm	1	.1	.1	8.8
Chest-Fungal Erution	1	.1	.1	8.8
Chest-Pain	17	.9	.9	9.7
Chest-Tightness	1	.1	.1	9.8
Chills	1	.1	.1	9.8
Cholecystitis	1	.1	.1	9.9
Cholesterol-HDL Low	1	.1	.1	9.9
Cholesterol-High	2	.1	.1	10.0
Chondromalacia Patellae	1	.1	.1	10.1
Claudication	1	.1	.1	10.1
Cold	2	.1	.1	10.2
Congestion	1	.1	.1	10.3
Constipation	3	.2	.2	10.4
Consultation	3	.2	.2	10.6
Cough	22	1.1	1.1	11.7

Cough-Pertusus	1	.1	.1	11.7
Cricopharyngeal Spasm	1	.1	.1	11.8
D/C	1	.1	.1	11.8
Dental Absecin	1	.1	.1	11.9
Dental Services	1	.1	.1	11.9
Depression	5	.3	.3	12.2
Dermatitis	3	.2	.2	12.3
Diabetes	47	2.4	2.4	14.7
Diabetes-NIDDM	2	.1	.1	14.8
Diabetic Neuropathy	1	.1	.1	14.9
Diarrhea	3	.2	.2	15.0
Direct Inguinal Hernia	1	.1	.1	15.1
Dizziness	10	.5	.5	15.6
Dyslipidemia	1	.1	.1	15.6
Dysmenorhea	4	.2	.2	15.8
Dysmenorrhea	1	.1	.1	15.9
Dyspepsia	1	.1	.1	15.9
Dyspnea	1	.1	.1	16.0
Dyssuria	1	.1	.1	16.0
Ear Canal-Cerumen Impaction	2	.1	.1	16.1
Ear-Irritation	3	.2	.2	16.3
Ear-Pain	5	.3	.3	16.5
Eczema	1	.1	.1	16.6
Edema	5	.3	.3	16.8
Edema-Bi Lower Extremity	1	.1	.1	16.9
Edema-Feet/Ankles	4	.2	.2	17.1
Edema-Legs	2	.1	.1	17.2
Edema-Lower Extremity	5	.3	.3	17.4
Elbow-Pain	1	.1	.1	17.5
EOM	1	.1	.1	17.5
Erectile Dysfunction	1	.1	.1	17.6
Erythema Multiform	1	.1	.1	17.6
Excess Perspiration	1	.1	.1	17.7

Exposure	1	.1	.1	17.7
External Otitis	1	.1	.1	17.8
Eye-Exam	5	.3	.3	18.0
Eye-Pain	5	.3	.3	18.3
Eye-Pink Eye	3	.2	.2	18.4
Eyelids-Pain	1	.1	.1	18.5
Eyes	1	.1	.1	18.5
Eyes-Conjunctivitis	3	.2	.2	18.7
Eyes-Conjunctivitis	6	.3	.3	19.0
Face-Infection	1	.1	.1	19.1
Fatigue	4	.2	.2	19.3
Feet-Decreased Sensation	1	.1	.1	19.3
Feet-Infections	1	.1	.1	19.4
Feet-Pain	3	.2	.2	19.5
Feet-Pain (Diabetic)	1	.1	.1	19.6
Fever	3	.2	.2	19.7
Fibroma	1	.1	.1	19.8
Fibromyalgia	1	.1	.1	19.8
Finger-Cellulitis	1	.1	.1	19.9
Finger-Felon	1	.1	.1	19.9
Finger-Numbness	1	.1	.1	20.0
Finger-Pain	1	.1	.1	20.0
Flu	2	.1	.1	20.1
Flu like sypmtoms	2	.1	.1	20.2
Flu shot	1	.1	.1	20.3
Flu Shot	7	.4	.4	20.6
Folliculitis	1	.1	.1	20.7
Fungal Infection	2	.1	.1	20.8
Ganglion	1	.1	.1	20.8
Gastric Ulcer	1	.1	.1	20.9
Gastroenteritis	2	.1	.1	21.0
General	1	.1	.1	21.0
General Discomfort	1	.1	.1	21.1
Genital Discomfort	2	.1	.1	21.2
GERD	8	.4	.4	21.6

Gout	1	.1	.1	21.6
Gout-Big Toe	2	.1	.1	21.7
Groin-Pain	1	.1	.1	21.8
Gum Disease	1	.1	.1	21.8
Gums-Bleeding	1	.1	.1	21.9
Hamstrings-Pain	1	.1	.1	21.9
Hand-Numbness	3	.2	.2	22.1
Hand-Pain	4	.2	.2	22.3
Hands-Numbness	2	.1	.1	22.4
Head-Contusion	1	.1	.1	22.4
Headache	18	.9	.9	23.3
Headache-Clusters	1	.1	.1	23.4
Headache-Sinus	1	.1	.1	23.4
Headache-Tension	1	.1	.1	23.5
Heart-Palpitations	2	.1	.1	23.6
Heartburn	1	.1	.1	23.6
Heel-Pain	1	.1	.1	23.7
Hematuria	1	.1	.1	23.7
Hemorrhoids	1	.1	.1	23.8
Hemorrhoids-Internal	1	.1	.1	23.9
Hernia	1	.1	.1	23.9
Hernia-Pain	1	.1	.1	24.0
Hip-Pain	2	.1	.1	24.1
Hypercholesterolemia	1	.1	.1	24.1
Hyperlipidemia	8	.4	.4	24.5
Hypertension	151	7.6	7.6	32.1
Hypoglycemia	1	.1	.1	32.2
Infection-Yeast	2	.1	.1	32.3
Infertility	1	.1	.1	32.3
Insomnia	4	.2	.2	32.5
Instep-Pain	1	.1	.1	32.6
Insurance Papers	1	.1	.1	32.6
Irregular Menstrual Cycles	2	.1	.1	32.7
Irritable Bowel Syndrome	3	.2	.2	32.9

Itch	2	.1	.1	33.0
Itch-Nose	1	.1	.1	33.0
Jaw-Pain	1	.1	.1	33.1
Joint-Pain	5	.3	.3	33.4
Joint-Swelling	1	.1	.1	33.4
Kidney-Failure	1	.1	.1	33.5
Knee-Pain	17	.9	.9	34.3
Knee-Strain	1	.1	.1	34.4
Labs	72	3.6	3.6	38.0
Labs-EKG	1	.1	.1	38.0
Labs-Fasting	1	.1	.1	38.1
Labs-Lipid Panel	1	.1	.1	38.2
Labs-Redraw	3	.2	.2	38.3
Labs-Results	135	6.8	6.8	45.1
Labs-Results-Hep D	1	.1	.1	45.2
Labs-TSH	1	.1	.1	45.2
Labyrinthitis	1	.1	.1	45.3
Laryngitis	1	.1	.1	45.3
Leg-DVT	1	.1	.1	45.4
Leg-Length Discrepancy	1	.1	.1	45.4
Leg-Neuropathy	1	.1	.1	45.5
Leg-Pain	5	.3	.3	45.7
Leg-Sciatica	1	.1	.1	45.8
Libido-Decreased	1	.1	.1	45.8
Lichen Planus	1	.1	.1	45.9
Lipoma	1	.1	.1	45.9
Lungs	1	.1	.1	46.0
Lungs-COPD	5	.3	.3	46.2
Lyme Disease	1	.1	.1	46.3
Lymphadenopathy	1	.1	.1	46.3
Malaria	2	.1	.1	46.4
Medications	4	.2	.2	46.6
Medications Refil	1	.1	.1	46.7
Medications Refill	306	15.5	15.5	62.2

Medications Refill- Ibuprofen	1	.1	.1	62.2
Medications Refill- Insulin	2	.1	.1	62.3
Medications Request- Antimalar	1	.1	.1	62.4
Medications- Contraceptive	1	.1	.1	62.4
Medications- Doxycycline	1	.1	.1	62.5
Medications- Prophylactic	1	.1	.1	62.5
Medications-Refill	6	.3	.3	62.8
Medications-Zoloft	1	.1	.1	62.9
Migraine	3	.2	.2	63.0
Mole	2	.1	.1	63.1
Motor Vehicle Accident	1	.1	.1	63.2
Mouth-Pain	3	.2	.2	63.3
Muscle-Pain	2	.1	.1	63.4
Muscle-Strain	1	.1	.1	63.5
Muscle-Tear	1	.1	.1	63.5
N/A	39	2.0	2.0	65.5
Nail-Infection	2	.1	.1	65.6
Nail-Pain	1	.1	.1	65.6
Nasal-Congestion	1	.1	.1	65.7
Nausea	1	.1	.1	65.7
Neck-Pain	8	.4	.4	66.1
Neuropathy	5	.3	.3	66.4
Nocturia	2	.1	.1	66.5
Nodules-Infection	1	.1	.1	66.5
Nose-Pain	4	.2	.2	66.8
Obesity	1	.1	.1	66.8
OM-Acute	1	.1	.1	66.9
Osteoarthritis	1	.1	.1	66.9
Other	2	.1	.1	67.0

Pain	5	.3	.3	67.3
Palpitations	2	.1	.1	67.4
Parkinson's	1	.1	.1	67.4
PE	128	6.5	6.5	73.9
PE-Infant	1	.1	.1	73.9
PE-Pregnancy	1	.1	.1	74.0
PE-School	49	2.5	2.5	76.5
PE-Sport	2	.1	.1	76.6
PE-Work	11	.6	.6	77.1
PE-Work Pregnant	1	.1	.1	77.2
Physical-Work	22	1.1	1.1	78.3
Pneumonia	3	.2	.2	78.4
Potassium-Low	1	.1	.1	78.5
Pregnancy	4	.2	.2	78.7
Prostate-Exam	1	.1	.1	78.7
Prostrate-Hyperplasia-Benign	1	.1	.1	78.8
PTT	1	.1	.1	78.8
Pubic-Pain	1	.1	.1	78.9
Pulmonary-Contusion	1	.1	.1	78.9
Referred	1	.1	.1	79.0
Reflux	2	.1	.1	79.1
Rhinitis/pharyngitis	1	.1	.1	79.1
Rhomboid-Strain	2	.1	.1	79.2
Ringworm	5	.3	.3	79.5
RUQ-Pain	6	.3	.3	79.8
Saliva-Excess	1	.1	.1	79.8
Scalp-Bumps	1	.1	.1	79.9
Scar tissue	1	.1	.1	79.9
Scar-Pain	1	.1	.1	80.0
Sciatic-Pain Nerve	2	.1	.1	80.1
Scrotum-Lesion	1	.1	.1	80.1
Shingles	3	.2	.2	80.3
Shortness of Breath	3	.2	.2	80.4
Shoulder-Pain	16	.8	.8	81.3

Shoulder-Pain limits ROM	1	.1	.1	81.3
Side-Discomfort	1	.1	.1	81.4
Side-Pain	1	.1	.1	81.4
Sinus-Infection	2	.1	.1	81.5
Sinus-Pain	1	.1	.1	81.6
Sinus-Pressure	1	.1	.1	81.6
Skin-Dry	1	.1	.1	81.7
Skin-Eczema	1	.1	.1	81.7
Skin-Irritation	1	.1	.1	81.8
Skin-Pain	2	.1	.1	81.9
Skin-Rash	15	.8	.8	82.6
Skin-Rosacea	7	.4	.4	83.0
Sleep-Problems	1	.1	.1	83.0
Soft Tissue-Infection	2	.1	.1	83.1
Sperm-Low	1	.1	.1	83.2
STI-Chlamydia	2	.1	.1	83.3
STI-Exposure	4	.2	.2	83.5
STI-Gonorrhea	1	.1	.1	83.5
STI-Herpatic lesion	1	.1	.1	83.6
STI-Syphillis	3	.2	.2	83.7
Stomach-Pain	3	.2	.2	83.9
Stomach-Ulcer-H Pylori	3	.2	.2	84.0
Suture-Removal	1	.1	.1	84.1
Test-Blood Pressure	10	.5	.5	84.6
Test-Blood Sugar	6	.3	.3	84.9
Test-CBC with Differential	1	.1	.1	84.9
Test-Cholesterol	1	.1	.1	85.0
Test-Hep B Titer	14	.7	.7	85.7
Test-Hep C	1	.1	.1	85.8
Test-Lead	3	.2	.2	85.9
Test-Lipids	1	.1	.1	86.0
Test-Metabolic Panel	1	.1	.1	86.0
Test-Pap Smear	1	.1	.1	86.1

Test-PB	1	.1	.1	86.1
Test-PPD Negative	1	.1	.1	86.2
Test-PPD Positive	1	.1	.1	86.2
Test-Results	1	.1	.1	86.3
Test-Results TB	5	.3	.3	86.5
Test-Results TB Skin Positive	10	.5	.5	87.0
Test-RF	2	.1	.1	87.1
Test-Sickle Cell	2	.1	.1	87.2
Test-STI	15	.8	.8	88.0
Test-TB	1	.1	.1	88.0
Test-TB Skin	8	.4	.4	88.4
Test-Titers	18	.9	.9	89.3
Test-Vitals	1	.1	.1	89.4
Testicles-Lesions	1	.1	.1	89.4
Tests	3	.2	.2	89.6
Tests-Blood Pressure	2	.1	.1	89.7
Tests-Blood Sugar	1	.1	.1	89.7
Tests-Blood Sugar- Fasting	2	.1	.1	89.8
Tests-Bood Pressure	24	1.2	1.2	91.1
Tests-Cholesterol	2	.1	.1	91.2
Tests-Results TB Skin	3	.2	.2	91.3
Tests-TB Results	8	.4	.4	91.7
Thirst	1	.1	.1	91.8
Throat-Pain	25	1.3	1.3	93.0
Throat-Sore	6	.3	.3	93.3
Throat-Strep	4	.2	.2	93.5
Thumb-Hyperextended	2	.1	.1	93.6
Thumb-Infection	1	.1	.1	93.7
Thyroid	1	.1	.1	93.7
Thyroid-Hashimoto's Disease	2	.1	.1	93.8
Thyroid- Hypothyroidism	7	.4	.4	94.2
Toe-Fracture	1	.1	.1	94.2

Toe-Pain	1	.1	.1	94.3
Toe-Post Operation	2	.1	.1	94.4
Toenail-Infection	2	.1	.1	94.5
Toenail-Removal	2	.1	.1	94.6
Tooth-Infection	2	.1	.1	94.7
Tooth-Pain	2	.1	.1	94.8
Treatment	1	.1	.1	94.8
Trichomoniasis	1	.1	.1	94.9
Trigeminal Neuralgia	1	.1	.1	94.9
Triglycerides-High	1	.1	.1	95.0
Tuberculosis	1	.1	.1	95.0
Ulcer	2	.1	.1	95.1
Ulcer-Peptic	7	.4	.4	95.5
Upper Respiratory Infection	17	.9	.9	96.4
Upper Respiratory Infection-V	2	.1	.1	96.5
Urinary Tract Infection	19	1.0	1.0	97.4
Urinary-Frequency	1	.1	.1	97.5
Urinary Frequency	5	.3	.3	97.7
Urination	1	.1	.1	97.8
Urination-Difficult	2	.1	.1	97.9
Urination-Pain	2	.1	.1	98.0
Urine-Blood	3	.2	.2	98.1
Uterine Fibroid	1	.1	.1	98.2
Vaccination	2	.1	.1	98.3
Vaccination-Hep B Booster	1	.1	.1	98.3
Vaccination-TdaP	1	.1	.1	98.4
Vaccination-Tetnus	1	.1	.1	98.4
Vaccination-Travel	1	.1	.1	98.5
Vaccination-Varicella	1	.1	.1	98.5
Vaginal-Blisters	1	.1	.1	98.6
Vaginal-Infection	1	.1	.1	98.6
Vaginal-Itch	1	.1	.1	98.7
Varicose Veins	2	.1	.1	98.8

Vertigo	1	.1	.1	98.8
Vesicular Eruption	2	.1	.1	98.9
Virus	5	.3	.3	99.2
Vision-Changes	4	.2	.2	99.4
Vision-Decreased	1	.1	.1	99.4
Weakness	4	.2	.2	99.6
Wrist-Pain	1	.1	.1	99.7
Wrist-Strain	1	.1	.1	99.7
X-Ray-Chest	4	.2	.2	99.9
X-ray-Chest order	1	.1	.1	100.0
Total	1979	100.0	100.0	

Chart 4 represents the primary diagnosis for each patient at Akwaaba. In bold are the people that were diagnosed with hypertension. This doesn't mean that at that time they were diagnosed with hypertension for the first time necessarily. In most cases, this was the primary reason why they visited the clinic.

Chart 5: Hypertension Frequencies

Statistics

HT

N	Valid	1966
	Missing	13

HT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non Hypertension	1842	93.1	93.7	93.7
	Hypertension	120	6.1	6.1	99.8
	2	4	.2	.2	100.0
	Total	1966	99.3	100.0	
Missing	System	13	.7		
Total		1979	100.0		

Chart 5 represents the number of patients that have hypertension. The number two is an outlier for this chart.

Chart 6: Hypertension and Gender Cross tabulation

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
M/F * HT	1951	98.6%	28	1.4%	1979	100.0%

M/F ^ HT Crosstabulation

Count

		HT			Total
		Non Hypertension	Hypertension	2	
M/F	Female	962	60	3	1025
	Male	865	60	1	926
Total		1827	120	4	1951

Chart 6 represents the how gender and hypertension are related. This chart shows that there is no difference in effect between gender and hypertension.