Archives of Diabetes and Endocrine System

ISSN 2638-4981

Volume 2, Issue 2, 2019, PP: 09-12

Bridging the Gap, A Comparison of Factors Preventing Control of Diabetes in Low-Income Settings of the USA and Guatemala

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Abstract

The aim of this study is to evaluate the type II diabetes status and health beliefs of individuals living in villages in Northeast Guatemala, and compare them to the same parameters in a free medical clinic in a resource poor area of Toledo Ohio. This was done with anonymous survey data, except in except in situations of illiteracy when the surveys were administered by a healthcare worker fluent in the patient's native language. By comparing data from 21 diabetics in Petén, Guatemala to 34 diabetics in Toledo, Ohio, we combined their responses to determine areas of emphasis for medical mission work compared to humanitarian efforts in urban America. In Toledo, the three largest barriers were lack of ambition to treat a disease with no current symptoms, lack of eagerness to comply with chronic treatment, and lack of feelings of control over their disease/ mistrust of the medical system. In Guatemala, the biggest detriments to successful diabetic management was lack of access to healthcare resources, and a lack of education of the pathogenesis of diabetes and its potential complications. In Petén, the individual's claimed to have trust in their medical system and in foreign aid from medical missionaries, however this may be overreported since many of the surveys conducted in Guatemala were not anonymous due to illiteracy of many of the patients. In America, the largest area of emphasis is to create a therapeutic alliance with the patients and establishing their intrinsic locus of control. In Guatemala, medication supply, and delivering education to individuals, concerning their diabetes is necessary to implement lifestyle changes and help manage the disease.

Keywords: *Diabetes, Guatemala, Petén, Access, Ambition, Eagerness, Education, Compliance, Control, Culture, Low-income, Medical Missions, Health Education.*

Diabetes in Toledo, Ohio, Usa

A fifty year- old woman stands in line outside of a church on a 90-degree day at 5:00 pm. She is countingthe minutes until 5:45, when she will be able to enter and obtain respite from the heat. She knows that her best chance to have her medical needs addressed is at this free clinic in an urban area in Toledo, Ohio. Of course, she will have to wait while she is triaged and then interviewed by a team of first or second-year medical students who are developing their patient communication skills. Following that, she will probably wait a few hours before seeing a physician. She hopes to be seen by 9:00 pm, which may give her enough time to catch a bus ride home. But, of course, it's possible she may not be seen until 10:00 or 11:00 pm. She sighs and knows it may be a long night – but this is the way she obtains her Metformin refill.

This is a typical scenarioat the Community Care Clinic in Toledo Ohio on a Thursday evening, where the challenges that diabetics, and those with other chronic illness, face are evident and real. Understanding the health beliefs that affect the motivation and ability of individuals to address their health needs is an important step to helping break those barriers. We undertook a study in which patients completed a multifaceted beliefs survey andprovided us with insight regarding the challenges they face as they strive to control their diabetes, the impact diabetes

has on their life, and the feelings they experience while managing their condition. We hope an improved understanding of patient beliefs and challenges associated with disease management will ultimately lead to improved patient care.

Ambition Vs. Access

Every patient we interviewed was utilizing a Free Clinic (with a basic pharmacy) to address their medical needs. Some were recently diagnosed with diabetes, while others were diagnosed years ago. When asked to rank the impact various items have on their diabetes control, “doctor” and “medication received from a doctor” tied as being the most influential. Nearly every patient indicated that medication and/ or insulin was an important component of their diabetes management. Since many saw physicians as an influential factorin their diabetes management, positive patient/physician interactions, mutual understanding, and effective collaboration and planning can be crucial for diabetes control. Patients whocannot access medical care on a consistent basis – whether it is due to scheduling, transportation, or other challenges – may struggle more to control their diabetes. Due to the financial hardships many of these patients face, some are not even able to afford glucose test strips. They therefore forgo this componentof disease management. A variety of factors may impact a patient’s ability to control their diabetes, and even in the setting of adequate access, the ambition to prioritize this care is essential to ongoing care.

Eagerness Vs. Education

Type 2 diabetes can impact patients’ lives in a variety of ways. We asked patients “Are there things that you believed caused you to get diabetes?” and investigated how diabetes currently impacts patients’ lives. A number of patients believed their diet, lifestyle, alcohol consumption, and/or weight caused them to suffer from diabetes. For some, this realization largely impacted their life. While some were motivated to make lifestyle changes, others viewed the need to alter their diet and monitor their blood glucose as burdens. Dietary changes may be challenging to implement, especially when healthy food may not be readily accessible, affordable, or offered during family or social functions. Although some patients admitted they may struggle to find motivation to achieve their health goals, others have difficulty managing their condition due to a lack of knowledge. For example, a patient who was previously diagnosed with gestational diabetes and warned by a physician to implement lifestyle changes at that time stated she needed “more education” to know how to successfully implement lifestyle changes. Similarly, another patient struggled with implementing healthy eating. Although a physician referred her to a dietician, she admitted she was not likely to attend a separate appointment and wondered why she could not obtain simple dietary advice from a doctor. Patients may view lifestyle and dietary changes associated with Type 2 Diabetes as noteworthy life challenges. While some may implement specific changes independently, others want more specific and/or personalized guidance from a physician. Eagerness, or lack thereof, to apply knowledge can itself be a barrier to change.

Control Vs. Culture

It is important to evaluate the manner in which social and family relationships impact disease management. We found that when patients believe that Type 2 diabetes “runs in [my] family”, the patient may be more motivated to control their glucose levels. Some patients indicated that diabetes did not impact their lives as long as their condition was “under control.” This raises multiple additional questions: Have these patients truly incorporated diabetes management into their lives? Do feelings associated with a diagnosis simply dissipate over time, even if patients do not have optimal control over their disease? Certainly, fear of future sequela can motivate some to manage their condition. For example, one patient was inspired to carefully manage her diabetes because she saw a family member suffer diabetes related vision loss. Others indicated their own sequelae (i.e. neuropathy, cardiovascular complications) inspired them to better manage their diabetes. We believe that understanding patient feelings could help us better connect with individuals, and ultimately improve disease management.

Diabetes in Santa Ana, Peten, Guatemala

You wake up one morning to your young child tugging on the edge of your night shirt with that look on her face that we all internationally recognize as “puke face”. She vomits, of course on your floor, so you clean her up, and the floor, take her temperature – it’s 102, and she says her throat really hurts. So you call work

to take the day off, explaining you have a sick child, and drive the few miles to the nearest urgent care. They explain that your child has an infection called strep throat, give you a course of antibiotics, and send you home.

Now imagine this situation again, but no phone in your house is working with which to call into work. Perhaps there is no "sick leave" at this job, and there is no car available to drive. How would you handle this situation now? You could still walk to get to work, or carry your child the few miles to the urgent care, but not both. Now how would your decision change? Now imagine that you discover the need to take care of your own diabetes or hypertension, illnesses that you don't feel the symptoms of until it is too late? While this example would be considered extreme in North American society, this is the reality for many individuals living in developing countries. Specifically, we looked at a comparison of barriers to treatment of diabetes in regards to access, education, and compliance; the goal is to create recommendations for American physicians who wish to work toward improving healthcare in resource poor countries.

Access Vs. Ambition

Only 10% of the population of Guatemala was estimated to own registered vehicles in 2018 (3). Internet usage was restricted to 26.5% in as of 2016, with comparable estimates for access to telephones (4). Severe illness is required before Guatemalan people are willing to skip work, since if you do not work, your family may not eat that day. In addition, travelling the national average of 3.9 km to the nearest healthcare facility is not easily done due to poor infrastructure(2). Such is a common issue with treatment of chronic disease that we found in survey data in Petén. Hospitals, are often viewed as a location where people go to die, due to the severity of disease required for an individual to go to a hospital, as well as the decompensation of the patient during travel. Additionally, lack of access to a vehicle not only makes frequent visits to medical facilities time-prohibitive, but also makes it difficult to obtain daily medications that are required to treat diabetes. Reduction in access to medical supplies also decreases ability to track progression of disease; with glucose monitoring being more difficult to come by, and A1C testing being nearly unheard of our surveys of the population. Of 17 known diabetics at the medical clinic SewHope, (based on patient reporting a previous diagnosis of diabetes) 4 had blood glucose levels less than 100, 3 had blood sugars in the 200's, 6 had blood sugars in the 300's 3 in the 400's, and an additional one that was unreadable by our glucometers that only tracked up to 600. Altogether, a lack of reliable access to health care is a major contributor to lack of control over chronic disease in Guatemala.

Education Vs. Eagerness

Lack of knowledge about the pathogenesis of diabetes, as well as what was in the foods and beverages commonly enjoyed in Guatemalan culture and effects of diet upon disease was common among the individuals we surveyed. While a majority of our diabetic patients were aware that sugar was bad for them, often boasting that they had stopped putting sugar in their coffee, there was a lack of awareness of nutritional content of other products. Knowledge of the 39 grams average of sugar in one Coca-Cola which most of our patients drank more often than water, was the most glaring deficit. There was also a commonly seen knowledge gap of what the long-term sequelae of their illness could be. When presented with the opportunity to learn more about their illness, however, Guatemalan residents were eager to take advantage of the opportunity. 72% of our patients who we asked to return to our clinic for diabetic education agreed and were in attendance, despite it being early on a Saturday morning. Altogether, despite the eagerness of the Guatemalan people to treat their illness, they lack awareness of their disease to know which lifestyle modifications to enact, which by itself is a barrier to proper disease management.

Culture Vs. Control

Guatemala, like many Latin American countries has a strong sense of religion, and a culture built on paternalism (5). The male figure is the head of the household, and above him most families rely biblical guiding principles. Pictures of catholic saints adorn the walls of factories, the fronts of cabs, and even on the sides of bicycles. We theorize that these cultural reasons lead to a higher level of trust of the healthcare system. Most citizens trust doctors in the paternalistic style of "Dr. Knows Best" and will follow up on their treatment faithfully if they have reasonable access to the medications or services. Never did we hear a

Guatemalan citizen voice concerns that an injection they would receive may cause autism. Even questions about medications, other than how to take it properly, were rare. The largest barrier to chronic disease management, based on our initial survey data, is lack of understanding of pathophysiology and management of chronic disease, and lack of available medical care. While building the medical infrastructure in developing countries will be a long task, we believe that stressing the importance of lifestyle modifications, and proper education of patients while on medical mission trips would have a major impact on improving disease management in resource poor countries.

Summary

In summary, we observed many key differences between healthcare delivery and disease management in Guatemala versus urban USA. It is apparent that health education is one of the biggest barriers to management of chronic disease in Guatemala, where as widespread health education in the USA has made awareness of lifestyle modifications fairly wide spread. The emphasis for treatment in USA therefore should focus on treatment adherence, implementation, and disease locus of control. In Guatemala a key tactic should be widespread health education, and improved healthcare access where possible.

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Citation: Keith Sweitzer BS, Sherry Magrey M.Ed., BS, Coral Matus MD, Andrew Stratton MS. *Bridging The Gap, A Comparison of Factors Preventing Control of Diabetes in Low-Income Settings of the USA and Guatemala. Archives of Diabetes and Endocrine System. 2019; 2(2): 09-12.*

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