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Original Study

Examination of Demographics and Chronic Health Condition Management in an Underserved Population at a Pro Bono Physical Therapy Clinic

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Abstract

Background: The purpose of this study was to identify and describe the demographic information of the patient population at a student-run physical therapy pro bono clinic. We hypothesized this patient population would present with more chronic health conditions that are either unmanaged or undermanaged compared with Genesee County, Michigan.
Methods: New patients were asked to complete a 47-question survey on demographic information, past medical history, and social history. Vital signs were also recorded. Frequency tables were run to determine the health needs in this patient population. Self-report of hypertension, diabetes, and depression was compared to self-reported medications to determine medical management of the conditions.
Results: Some patients report taking medications for these conditions, but many individuals are not medically managing these conditions.
Conclusions: With this information, clinicians can better create programs that meet the specific needs of this patient population including fitness programs, chronic disease management education, and pain management programs.

Introduction

In 2014, it was estimated that there were 42 million individuals without health insurance.[1] By definition, "Medically underserved individuals are described as those who need assistance with improving their health as a result of limited access to health care due to lack of health insurance and low income."[2] This population is less likely to receive preventative or maintenance care leading to worse health outcomes when compared to their insured counterparts.[3] These individuals may be able to find services for primary care or emergency care, but specialty services are often not an option. Physical therapy falls under the category of specialty services that are out of reach for many underserved individuals.[2] With the Affordable Care Act, many specialty services have become available, but there is still a great need for research related to the demographics and common health conditions seen in this underserved and uninsured population. With this information, the gaps in access to physical therapy and other specialties can be better understood and plans developed to manage these breaches in care.

Flint, Michigan is located in Genesee County and has a population of 102,434.[4] As of 2011, the unemployment rate in Flint was 25.7%, nearly 20% greater than the national average of 6%.[4] Furthermore, of those families employed in Flint, the average household income in 2013 was $33,029. This is $20,000 lower than the average household income in Genesee County, and more than $35,000 lower than the national average in 2013.[4] This environment of economic hardship has been the primary driving factor in the high levels of uninsured individuals in the Flint community. According to a County Health Rankings report released in 2015, 12% of Genesee County is uninsured, with Medicaid enrollment steadily increasing due to low-income individuals and families.[5,6] As this trend for decreasing household incomes continues, there will continue to be a large percentage of residents without insurance.[4]

Barriers to receiving services continue to contribute to the health disparities seen in this population. Underserved communities have a more difficult time accessing and obtaining insurance.[7] The insurance provided often does not cover specialty services such as physical therapy, or there may be a lack of awareness of these benefits in their insurance package.[7] There can also be a disconnect between patients and providers causing tension in the patient-provider relationship. Physicians identify a lack of personal accountability as a major problem of their patients, but patients perceive a lack of understanding coming from their physician provider as a component of the problem.[7] This disconnect leads to patients' needs remaining unidentified and appropriate services and treatment not being provided.

Several studies have addressed the perceptions of care in pro bono clinics from the perspectives of both patients and health care providers.[2] Providers identified common diagnoses seen in their clinics including hypertension, diabetes, and high cholesterol.[2] Patients self-identified similar issues as their chief complaints including hypertension, arthritis, and obesity.[2] Physical activity can help in managing hypertension and weight disorders, and physical therapy has been shown to improve the management of symptoms associated with arthritis.[8]

Uninsured and underserved individuals have a need for physical therapy services; however, providers need to know the demographics and needs of this population in order to provide effective care. Few studies are available that look at this problem, and none specifically address physical therapy. Cadzow et al. looked at primary care pro bono clinics in New York and found that their services were utilized by patients between the ages of 30-49.[9] Additionally, these individuals only had high school diplomas and most of them were unemployed and looking for work.[9] They also found that unemployment was associated with higher rates of illness and mortality.[9] The patients seen at the clinics studied were offered primary care and only a few specialty services, not including physical therapy.

In order for physical therapy services to be successful, they have to be accessible and patient oriented. Therefore, the purpose of this study is to describe the demographic and health information of the patient population at a student-run pro bono clinic located in the north end of Flint. We hypothesized that this patient population would present with chronic, comorbid health conditions that are either unmanaged or under-managed when compared with Genesee County at large.

Methods

Setting

Physical Therapy and Health Education Rehabilitation Treatment (PT HEART) is a student-run pro bono clinic committed to providing physical therapy services and health education to the uninsured and underserved people of Genesee County in Michigan, specifically the north end of Flint. Since the organization is affiliated with the University of Michigan – Flint physical therapy department, patients receive physical therapy services provided by physical therapy student volunteers under the supervision of faculty and clinicians in the area. Additionally, patients receive health education resources and health screens, which include blood pressure, heart rate, and body mass index (BMI) measurements.

Participants

Participants new to the clinic between November 2014 and April 2015 were asked to complete a medical screening survey. All participants provided informed consent for their health information and demographics to be used for this study.

Medical Screening Survey and Outcome Measures

The medical screening survey consisted of 47 questions addressing general demographic information and past medical, family, and social history (Online Appendix). The majority of the questions within the survey were yes/no questions and twelve board members of the clinic read through the surveys with the participants to minimize the possible effects of low literacy. Participants were asked about recent changes in health, including new incidence of falls, change in appetite, and unexplained weight change as a screen for more serious health conditions. Additionally, the survey included questions regarding the type and quantity of medications the participant was taking at the time.

Blood pressure, heart rate, and BMI were also included in the medical screen. The board members conducting the survey were all trained in taking blood pressure and heart rate. All blood pressures were taken manually over the brachial artery and heart rate was palpated at the radial artery. A digital scale was used to determine the participant's

weight, and BMI was calculated using self-reported height.

Data Collection

PT HEART is open one day a week for two hours; therefore, data was collected between November 2014 and April 2015 during normal clinic hours. The study was approved by the institutional review board of University of Michigan – Flint. The data set was de-identified and entered into IBM's Statistical Package for the Social Sciences (SPSS; version 21, Armonk, New York).

Descriptive statistics were generated for all data to identify demographics and prevalence of common health conditions in the participant population. Additionally, medical management of heart disease, hypertension, diabetes, and depression was assessed by comparing those who self-reported having the condition against whether they reported taking a medication for that same condition. Medical management was defined as reporting taking a medication for the condition they stated they had.

Results

Participants

A sample of 29 participants completed the survey. Table 1 shows the gender and age distribution of our sample. Almost two thirds of our sample was male (n=19) with the majority of them falling between the ages of 45-64 (n=14). The mean age was 48.2±14.9 years.

Primary Care and Insurance

Nearly 20% of participants reported not having a primary care physician or health insurance. This is almost 9% higher than the rate of uninsured individuals reported in Genesee County at large.[5]

Hypertension and Heart Disease

Eight-two percent of participants had elevated blood pressure readings (Table 1). These measurements were tallied into categories of pre-hypertension, hypertension stage I, and hypertension stage II as classified by the Joint National Committee in their blood pressure report.[10] However, only 51.7% of the participants self-reported having hypertension (Table 2). Of this 51.7%, 60.0% reported taking medications for hypertension (Table 3). Furthermore, in those with readings classified as stage I or stage II hypertension, only 36.6% reported taking medications for hypertension and only 37.3% had a primary care physician.

Diabetes

Twenty percent of the participants reported having diabetes and a third of those individuals were not medically managing the condition as defined previously. A recent survey found that 19.6% of Genesee County residents at large have diabetes and 93% are provided resources to manage their condition.[11]

Depression

When asked about depression, 58.6% of participants reported a history of depression, which is above the reported 30.4% of depression found in Genesee County at large.[11] In our sample, over half of those who reported depression were taking medications specifically for depression and over one third were taking medications used to treat depression and anxiety.

Body Mass Index

In regards to BMI, 75% of the participants were considered overweight or obese. Of the 75%, 7 participants were considered overweight and 11 participants were considered obese, as classified by the National Institutes of Health clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults.[12] The mean BMI for our sample was 28.8 kg/m^2 which is similar to Genesee County, whose average is 29 kg/m^2.[11]

Discussion

We were unable to find other studies defining demographic health characteristics for an inner-city pro bono physical therapy clinic. Our findings suggest the population has a high prevalence of chronic health conditions such as hypertension, obesity, and diabetes. Additionally, several participants reported not having a primary care physician, which limits their ability to manage these conditions. Some participants reported they were taking heart medications, which indicates they were receiving some medical care, but may not have self-identified as having a heart condition. This discrepancy suggests there may be a lack of health literacy or understanding of what their medications treat.

Physical therapy is a skilled service which helps with many of the common conditions we identified in this population. Physical activity has been found to be an important part of the management of high blood pressure. Physical therapists are equipped with the tools necessary to initiate an exercise program that is safe and effective for

Table 1. Demographics and Health Screening

Characteristic	n
Gender	
Male	19
Female	10
Age Range (years)	
18-24	3
25-34	2
35-44	6
45-54	7
55-64	7
>65	3
Blood Pressure Classification	
Normal	5
Pre-hypertension	12
Hypertension Stage I	9
Hypertension Stage II	2
Body Mass Index Classification	
18.5-24.9 (Normal)	6
25.0-29.9 (Overweight)	7
30.0-34.9 (Obesity Class I)	6
35.0-39.9 (Obesity Class II)	5
≥40.0 (Obesity Class III)	0
Patients with a Primary Care Physician	23
Patients with Health Insurance Coverage	23

Table 2. Self-reported Conditions and Behaviors

Self-reported Health Condition or Behavior	n (%)
Diabetes	6 (20.7)
Heart Disease	4 (13.8)
Hypertension	15 (51.7)
Medication Used to Treat Diabetes	4 (13.8)
Medication Used to Treat Heart Disease	8 (27.6)
Medication Used to Treat Hypertension	10 (34.5)
Depression	17 (58.6)
Difficulty Sleeping	22 (75.9)
Medication Used to Treat Depression	11 (37.9)
Medication Used to Treat Anxiety	6 (20.7)
History of Smoking	24 (82.8)
Currently Consuming Alcohol	18 (62.1)

this patient population.[13] This population may benefit from instruction in aerobic and strengthening exercises to help reduce resting blood pressure. A meta-analysis conducted by Fagard concluded that exercising three to five days a week, for 30-60 minutes at approximately 50% of the individual's maximum heart rate, can effectively reduce resting blood pressure.[13] These benefits are seen more in hypertensive individuals than normotensive participants where exercise helps to maintain blood pressure.[13] Exercise intervention programs have facilitated significant changes in blood pressure responses. For instance, in a study by Hagberg, et al., systolic blood pressure decreased by an average of 10mmHg after completion of an exercise program combining aerobic and strengthening exercises.[14] This research demonstrated that exercise has the potential to change a patient's blood pressure classification from hypertensive to pre-hypertensive or even to normotensive.[14]

Table 3. Management of Self-reported Conditions

Self-reported Health Condition or Behavior	n (%) Reportedly on Medication for Condition
Heart Disease	4 (100)
Diabetes	4 (66.6)
Hypertension	9 (60.0)
Classified as Hypertensive Stage I or II at Survey	4 (36.6)
Depression	
Depression Medication Only	9 (52.9)
Anxiety & Depression Medications	6 (35.9)

Our study is not without limitations. Our sample size was small due to the limited time we were able to collect data. Another limitation could be the literacy of the population. This was not assessed, but could have affected the responses we received from the survey since the clinic is located in a poor inner-city area. We sought to limit the impact by reading the surveys to the participants, but poor health literacy could affect the responses we received. Additionally, our data set was missing information for blood pressure (missing 1 value), BMI (missing 5 values), and age (missing 1 value) for certain subjects due to participant refusal or participant time constraints in completing the medical screening form. The survey was also based largely on self-reported information.

This study helps to inform pro bono physical therapy and health education clinics of the common conditions seen in patients who access these services. We identified large areas of need in regards to recognizing and managing hypertension. These findings will help guide the development of

programs for these populations in order to help serve them more effectively. They can also serve as a catalyst for addressing other medical needs in patients seeking care at pro bono clinics. Through community outreach to other clinics in the area, and patient education at pro bono clinics, we can help to bridge this gap.

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Disclosures

The authors have no conflicts of interest to disclose.

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