Homelessness and its impact on health outcomes: A survey based investigation in Middletown, NY
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INTRODUCTION
A 2017 HONOR (Helping Others Needing Our Resources) “Point in Time” survey of these living in shelters, warming stations, and outdoor locations in Orange County, NY, found 350 people to be homeless (1). Within the Mid-Hudson Valley, Middletown, NY has some of the highest rates of poverty at 13% (2). Studies have shown that homeless populations face additional health challenges, increased morbidity and mortality, and high stress levels compared with the general population (3,4,5).

Since 2014, Touro College of Osteopathic Medicine (TouroCOM-NY) has partnered with HONOR to offer a bi-monthly health screening program. At this physician supervised clinic, first and second year medical students see a broad range of patients to assess blood pressure, conduct a basic health exam, provide counseling on topics including nutrition and smoking cessation, provide basic osteopathic manipulative therapy treatments, and help connect clients with follow-up medical care through a local mobile health van program. These screenings allow students to work with a high needs population, break down barriers that exist between homeless individuals and health care providers, and assess the needs of our homeless population.

Starting in 2017, we began conducting a general survey to collect data on clients to assess demographic information including age, health conditions, insurance status, and more. The following study discusses the demographic data collected, how it mirrors some of the data found in the homeless population in Orange County, how our clinic addresses some of the patient health concerns, and items that can be improved upon in the future.

OBJECTIVES
1) To identify and address health conditions that are most common among the homeless of Middletown, NY
2) To find ways to address these health conditions through a student run clinic with local community agency support.

METHODS
56 participants voluntarily and anonymously completed a 43 question survey at the completion of an encounter with a Touro medical student at the HONOR student run clinic. Survey questions covered demographic information, past medical history, education level, housing status, and employment. Participant questions were readily answered. Participants with literacy concerns were given the option to have the survey read to and filled out for them by a student volunteer. Surveys were collected and coded electronically via Google Forms to analyze data trends.

RESULTS
Our survey determined that 55.6% of participants were male while 44.4% were female (Figure 1). Figure 2 demonstrates the age representation of the surveyed group. In terms of race representation, 50% identified as Caucasian, 25.9% as African American, and 22.2% as Latino (Figure 3). There was a 78.2% unemployment rate among participants with 34.4% receiving disability benefits (Table 1). Figures 4 and 5 demonstrate participant housing and health insurance status. Hypertension (44.9%) and musculoskeletal problems (34.7%) were the two most commonly encountered health concerns, while 41.1% have had or currently have a mental health disorder. We also found that 37.1% currently smoke tobacco products, 16.1% currently consume alcohol, and 32.1% of participants have been treated for alcohol or drug addiction in the past 55.4% also stated that they experience moderate to severe stress on a daily basis. 23.1% of individuals also report they are never able to control stress in their life, while 48% report that they feel they are sometimes or almost never able to control their stress levels.

DISCUSSION
Hypertension is the most common health condition affecting this sample of the homeless population in Middletown, NY. This demonstrates the need to address the management of hypertension with these residents with an emphasis on specific risk factors such as diet and smoking. Unfortunately, in the homeless, these are complex issues that necessitate situation specific education regarding food choices that are available and affordable as well as introducing stress management and smoking cessation techniques. Furthermore, increased morbidity, metabolic health, and mood. Students at the clinic provide basic osteopathic manipulative therapy treatments to help address acute and chronic musculoskeletal problems. This modality has demonstrated a positive impact both physically and emotionally as expressed through feedback from those residents treated. OMT will continue to be offered to the residents with the goal of establishing continuity of care for those residents who have extended stays at HONOR and to offer self-treatment modalities which encourage mobility and injury recovery.

Regarding self-reported stress levels, it is evident that this sample population experiences significant stress that is difficult to manage. These results identify the need to expand our clinic services to address stress management with the residents of HONOR. Although this is a complicated issue for individuals living in emergency shelters or on the street, we believe our healthcare screenings are partially helping to alleviate this stress by providing an outlet for residents to speak about their stress with medical students. In the future, we are looking into developing activities that could help individuals cope with stress such as an exercise/yoga class, art therapy, or a kid night which would allow parents a brief respite from child related stress.

This study also identifies that while 75% of the residents surveyed has a regular primary care doctor, and 87.3% have insurance, 92.9% do not have a permanent home. These results support that HONOR and local agencies are clearly connecting these individuals with health resources and ensuring health insurance coverage; however, the lack of a permanent residence and related reliable, predictable transportation may be preventing patients from accessing these resources on a regular basis.

The commonly encountered health conditions (hypertension and musculoskeletal problems) discovered in this study closely mirror trends in national homeless health data as hypertension and arthritis are the most commonly reported health concerns in this population (Figure 4). Our data also supports reported trends in mental health among the homeless as 41% reported a past or current mental health condition. It is important to recognize and address these health concerns as previously reported studies have shown homeless individuals face increased mortality compared to those with stable homes (6).

Given the medical and psychological needs of the homeless and the barriers they face for future health, it is important for future care health providers to be aware of the medical resources that are needed to best serve these individuals in their communities. With the majority of osteopathic medical students pursuing primary care specialties (7), they will almost certainly interact with members of the homeless and uninsured community. Therefore, it is critical to provide medical students with the opportunity to participate in similar partnership programs with homeless shelters to foster an appreciation of ostensibly encountered medical conditions, dispel myths surrounding the homeless population, address the underlying factors contributing to the development of these health problems, and understand medical management challenges that are more important than stress for empathy, patience, and holistic, sensitive patient care for these individuals.

The data collected in this study helps elucidate the health concerns faced by a small proportion of the homeless population in Middletown, NY. This investigation allows us to assess prominent health conditions leading to the identification of helpful clinic practices and the future development of solutions to address these concerns through our TouroCOM-NY student run clinic. This study also provides data that can be shared with HONOR and community agencies to respond to the specific challenges that homeless individuals face. By looking into the health needs of the homeless, particularly strong medical practitioners, can assist in the development of community based, targeted interventions to address health disparities faced by this population.

REFERENCES