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VETERANS' SATISFACTION WITH VETERANS' ADMINISTRATION HEALTHCARE SYSTEMS

by

Dale Arnold

A thesis submitted to the Graduate College
In partial fulfillment of the requirements
for the degree of Master of Science
Geography
Western Michigan University
April 2017

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VETERANS' SATISFACTION WITH VETERANS' ADMINISTRATION HEALTHCARE SYSTEMS

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Western Michigan University, 2017

There are currently over 600,000 veterans in the State of Michigan served by only five Veterans' Administration Medical Centers. These medical centers are not evenly distributed throughout the state with the majority located in the southernmost portion of the state. There necessarily will be a number of veterans for which it is unreasonable to travel to these medical centers to receive care to which they are entitled. This research will investigate the number of veterans that are currently required to drive excessive distances to receive adequate care under the present system, and to possibly suggest solutions to the current situation.

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Dale Arnold

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CHAPTER 1

1.0 Veterans in Michigan and Geographic Barriers to Veterans' Healthcare

Throughout the history of the United States of America, there have been veterans that fought in our nations' conflicts and returned home from the wars needing additional medical care to tend to wounds and injuries sustained during conflict. Early in our history, these soldiers were often kept on active duty until they had fully recovered or had succumbed to their injuries (VA, 2015). Over time, American veterans wanted to return home sooner than this system would allow yet there was no mechanism in place other than staying in the military to qualify for free medical treatment. Access to the military healthcare system was only available to those on active duty. Also, as drafts were enacted during wartime and as service members were rotated, many veterans weren't given the option to stay beyond the end of the conflict. Additionally, as medical technology and knowledge has advanced the care available and what could be done to mitigate injuries has improved dramatically, including treatments for psychological trauma that have been wrought upon numerous veterans. As a consequence, the number of veterans requiring additional healthcare significantly increased.

This chapter will provide a brief history of veterans in Michigan and the role the Veterans' Administration (VA) has played in providing healthcare. This chapter will also introduce the concept of geographic barriers as barriers to satisfaction with Veterans' Administration healthcare in Michigan. Lastly, a summary of the chapters incorporated within this thesis and an overview of what to expect in these chapters will close out this chapter.

1.1 Background

For many veterans, the real battles with recovery begin upon returning home. This front has many obstacles that serve as barriers to accessibility to healthcare. There have been numerous articles on the diversity of barriers related to access to healthcare, including the identification of some of these barriers that limit or prevent accessibility to treatment (Chen, 2012; Arcury, et al., 2005; Haworth, et al., 2006). Many studies that show that travel distance to healthcare is a primary barrier to accessibility (Hawthorne & Kwan, 2012; Virgo, et al., 2006), but no study has been identified that actually estimates the degree that distance as a spatial barrier begins to limit the use of medical centers by the nation's veterans.

Many excellent studies cover issues related to healthcare for veterans. Most of these focus on healthcare concerns and the means to mitigate these concerns in terms of type and quality of medical care. There are important socio-economic and racial barriers that non-veterans face to healthcare and these issues also apply to veterans (Hawthorne & Kwan, 2012; Parés, 2013). Modern breakthroughs in psychology and social sciences have shown there are also other types of barriers that the VA wasn't originally designed to contend with that are currently effecting veterans' access to healthcare.

The Veterans' Administration has a history that goes back to the founding of the nation (VA, 2015). Early care of U.S. veterans was performed by keeping injured soldiers in active service until they recovered enough to care for themselves. Provision of services was formalized with the creation of the Veterans' Administration as a government agency in 1930 with the signing of an executive order by President Herbert Hoover. This system has evolved into the federal agency of today that employs almost 280,000 with a budget of over \$90 billion

as of 2009 providing many services to veterans in terms of both healthcare and financial benefits. This thesis will focus on access to healthcare provided by the VA serving the needs of the 658,000 veterans who live in Michigan. Michigan's veterans constitute roughly 3% of the 23.4 million U.S. veterans throughout the U.S.A. (VA, 2015).

Again, the VA estimates there are approximately 658,000 veterans currently residing in the State of Michigan (VA, 2015) (see Table 1.1). There are only 5 Veterans' Administration Medical Centers (VAMCs) that serve this population (see Figure 1.1). A VA medical center is a location that provides more advanced care including surgery and in-patient care. These 5 Michigan VAMCs are located in Detroit, Ann Arbor, Battle Creek, Saginaw and Iron Mountain. This distribution reflects population density in the state with four VAMCs located in the southern third of the state and one VAMC in the Upper Peninsula. A quick review of Figure 1.1 indicates there might potentially be veterans that live too far from these five medical centers to be reasonably expected to travel for appointments, particularly if they have to make frequent trips.

Table 1.1 Michigan Veteran Populations Broken Down By Era Served

Michigan Veterans	
Total	658,469
Gulf Wars	155,745
Vietnam Era	237,675
Korean Conflict	59,711
World War II	34,769
Peacetime	181,361

Source: U.S. Department of Veterans Affairs (2015)

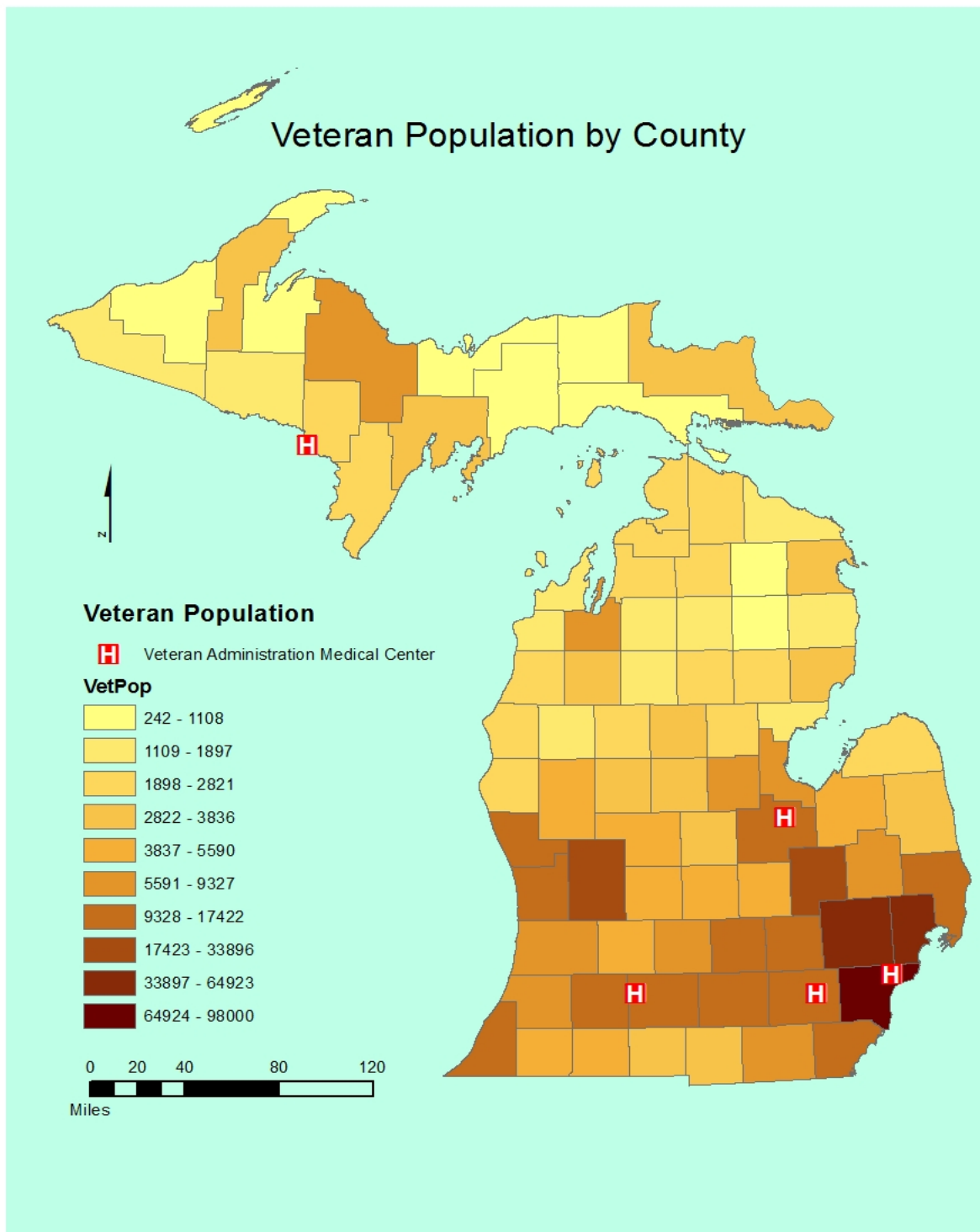


Figure 1.1 Veteran Population by County with Locations of VAMCs
Source: Map Created by Author (2017)

This is a growing problem for two primary reasons. First, the nation is currently involved in multiple conflicts with no immediate end in sight so the number of veterans with service-connected injuries and wounds is increasing. Second, more advanced trauma care is evolving at the same time as the current conflicts. There are an increasing number of veterans who are surviving with chronic injuries that will require life-long care. These veterans are entitled to receive care for their injuries that they sustained during service. At the same time, veterans also have a right to live where they wish as is the case with all citizens. These last two points need not be in opposition. There needs to be a way of identifying areas lacking adequate accessible facilities and further to suggest ways to mitigate problems and provide better service to the veteran community of Michigan.

1.2 Impact of Michigan's Size and Configuration

Michigan's unique geography creates potential barriers to veterans who are seeking care at the limited number of Veteran's Affairs Medical Centers that are primarily located within the greater Detroit region of the state. The first step to rectifying the barriers that veterans face is to identify these barriers and to document the perceptions of veterans related to distance that might go hand in hand with other barriers to accessible healthcare.

Many Michigan residents live in the state for the natural beauty and recreational resources that are available. As such, many veterans choose to live in more remote areas to fully enjoy and participate in this lifestyle (see Figure 1.2). Living outside of major metropolitan areas means more difficult access to existing Medical Centers. Further exacerbating this is the peninsular nature of the state. There is only one point of direct access between the northern and southern peninsulas of Michigan.

There are many veterans who necessarily must seek care with venues that lie outside of the VA healthcare system due to these distances, both perceived and actual. This is a situation that requires greater attention so that these veterans can be adequately provided care and compensation according to their individual needs and burdens.

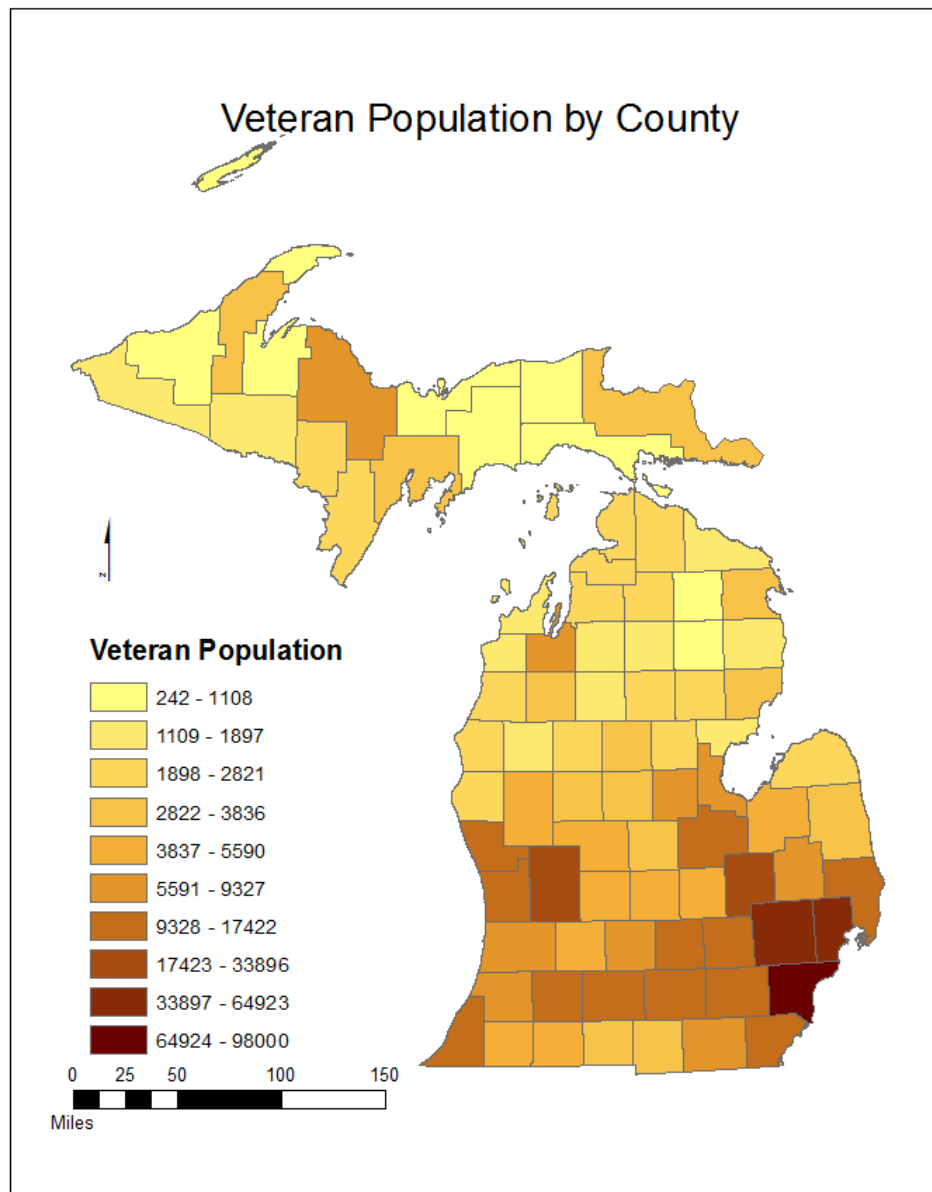


Figure 1.2 Veteran Population by County
Source: Map Created by Author (2017)

1.3 Hypotheses and Research Goals

This thesis will evaluate the potential role that distance may play with regards to the self-reported satisfaction levels of Michigan veterans who use the Veteran Administration Medical Centers for their healthcare. Anecdotally, veterans are dissatisfied with the distances they have to travel (either overall or as one travels farther and farther from the VAMC), but no study has actually tested this hypothesis. This research will help identify primary concerns that veterans have regarding the VAMCs in Michigan. Shedding more light on the particular problems that distance may play into the current crisis of healthcare inaccessibility in Michigan would mean more can be done to resolve these problems and improve overall satisfaction with services to veterans in Michigan.

I hypothesize that (1) veterans are generally unsatisfied with the VAMC model of healthcare and that (2) distance is a significant factor in this level of dissatisfaction. Additionally, (3) I propose that there will be significant variance in satisfaction levels as distance increases suggesting that distance is a primary variable in determining satisfaction with healthcare in Michigan. My research was designed to answer these three fundamental questions although more issues will be discussed as well.

The remainder of this thesis is organized by the following chapters. Chapter 2 will cover in greater detail past research on healthcare in the U.S. while discussing how location plays a role in helping or hindering accessibility to healthcare systems. There will also be a discussion on veterans' needs relating to healthcare. Chapter 3 will introduce the methods of data collection and analysis that are used to address the problem. Chapter 4 provides the initial results of data collection (both surveys and interviews) and reports on underlying bias

associated with the survey groups. Chapter 5 contains the analyses of the data and the interpretations of all results. Chapter 6 concludes the thesis and discusses how further research might be developed to improve the services provided to veterans in Michigan.

CHAPTER 2

2.0 Reflections on Healthcare and Geography

Healthcare in the United States of America is a many faceted system that has many barriers to accessibility both physical and psychological. No single summary could capture the full essence of the complexity of this system, but hopefully a general sense of the issues relating to healthcare can be presented here in terms both geographical and sociological. Every population group has a particular set of obstacles that hinder their access, including veterans of the United States Armed Forces. This chapter will discuss some of the current problems that plague the healthcare system in the U.S., how distance and special needs impact accessibility, and finally how veterans in particular face a unique set of barriers as they seek to access quality healthcare.

2.1 Healthcare in the U.S.

The United States has a quality of healthcare nearly unparalleled in the world (Shi & Singh, 2015). However, access to this system of high quality services can be limited for many people who are financially incapable of paying for services. Problems related to access for healthcare can come in many forms, such as absolute cost, a lack of insurance, high travel expenses, housing, and other ancillary expenditures depending on the duration of the medical visit. Healthcare can be inaccessible in other ways as well, as in geographically it is difficult for many people who live in rural or isolated locations. There can also be social barriers associated with stigmas against oneself or societal stigmas about race, social status, perceived ability to pay, and other perception-based barriers.

These limitations and challenges facing the U.S. healthcare system partially explain why many people feel that the healthcare system is ineffective or broken. This has led to many reforms in recent years including demand for a universal healthcare model where everyone has access to healthcare regardless of expense. While these newer reforms are still being developed and debated, there exist many previous systems that might shed some light on the efficacy of these models. Reviewing some of these problems might help identify obstacles in the U.S. healthcare system that limit accessibility to healthcare for all who need it. The Veterans Administration is one such organization that exists to provide service to veterans that meet certain criteria based on a priority service model for triage purposes. Such a system would prioritize severity and urgency of need amongst the whole population of veterans seeking care and schedule appointments according to these priorities.

2.2 Geographic Barriers and Underserved Populations

One major factor in limiting access to healthcare in the U.S. is the vast area and the distribution of population throughout the country. The population in the U.S., as in most developed countries, is highly urban (U.S. Department of Census, 2010; United Nations, 2014). It makes the most sense to achieve maximum service efficiency of the population to have most medical facilities located in or near these higher-order centers of population as well. This works well for urban populations, but rural populations face much larger than proportionate barriers to accessing the same healthcare systems. This problem is exacerbated by the layout of particular regions and/or states within the U.S. Michigan, for example, is a state that is divided into two peninsulas that are only conjoined by a bridge at one point. The majority of the population for the state live in the greater Metro Detroit area, located in the southeastern

corner of the state. While there are hospitals and other medical centers distributed throughout the state, there are often disparities in the quality of care provided as resources can be most effectively allocated in locations that will have the most impact. This disparity becomes even clearer when discussing particular groups of underserved populations such as veterans. Figure 1.1 illustrates the population distribution of veterans in the counties of Michigan relative to the five Veteran Administration Medical Centers (VAMCs) that are located in Michigan. Figure 2.1 identifies the major roadways in Michigan with respect to the VAMCs. This map highlights regions within the state that have a greater difficulty with accessibility to VAMCs. Figures 2.2 to 2.6 are photographs of the exteriors of the five VAMCs in Michigan.

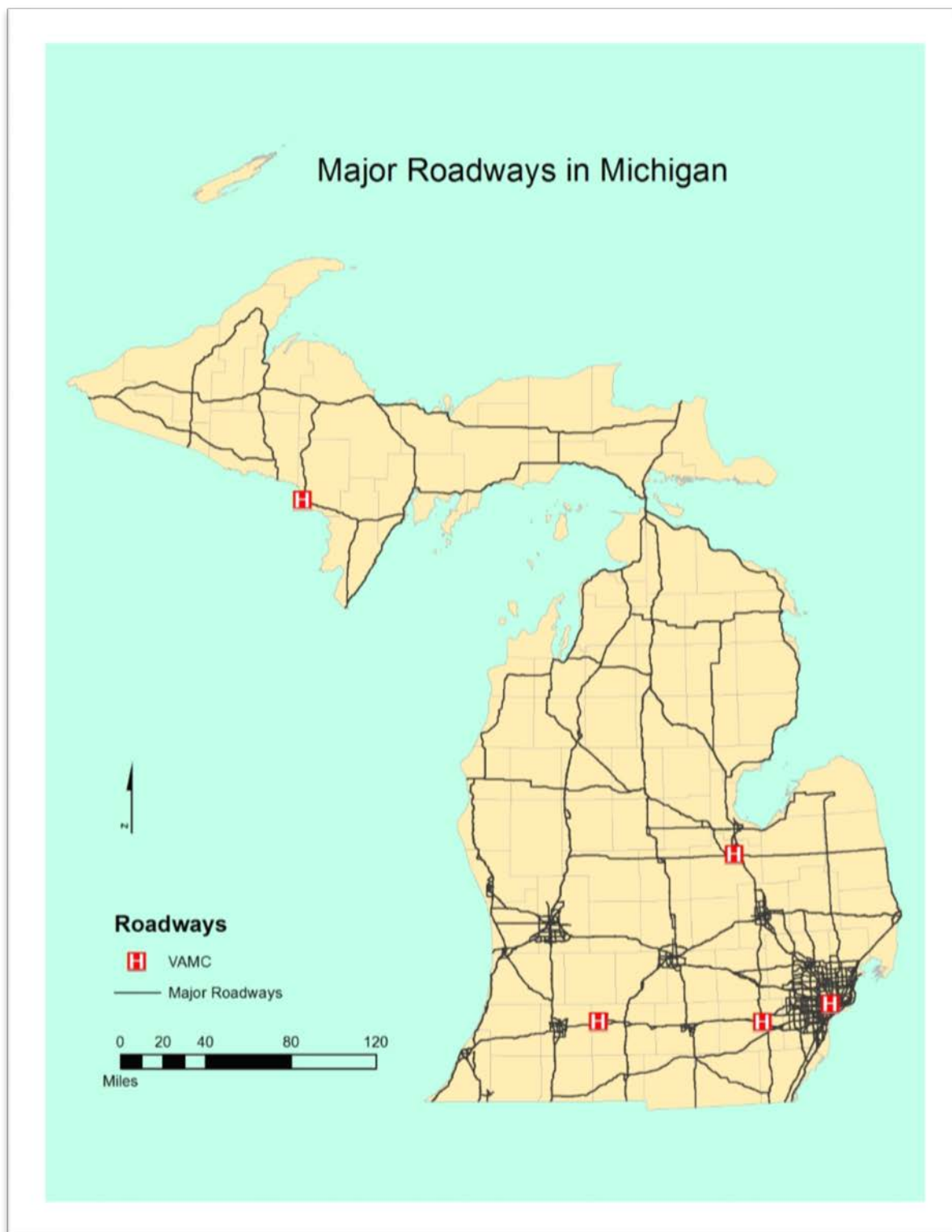


Figure 2.1 VAMC Locations within Michigan with Major Roadways
Source: Map Created by Author (2017)



Figure 2.2 Battle Creek VAMC (Main Building)
Source: Veterans' Administration (2014)



Figure 2.3 Detroit VAMC
Source: Veterans' Administration (2014)



Figure 2.4 Iron Mountain VAMC
Source: Veterans' Administration (2014)



Figure 2.5 Ann Arbor VAMC
Source: Veterans' Administration (2014)



Figure 2.6 Saginaw VAMC
Source: Veterans' Administration (2014)

2.3 Veterans' Needs

Veterans are a growing group of disabled persons in the United States due to more than a decade of war in Afghanistan and Iraq (2003-current). Michigan veterans are dispersed throughout the state and yet there are only five VAMCs to service all of them. A review of the VA map of the total Michigan (including all veteran groups for all periods) veteran population by county shows a significant number of veterans are located on the periphery of major urban centers but many also live much farther from major urban areas serviced by the current VA medical centers (VA, 2014).

All veterans have difficulties negotiating the VA system. Problems include long wait-times for compensation and ratings reviews, limited access to specialists for specific disabilities, long lag-times from scheduling appointments to seeing a doctor, and general difficulties negotiating the bureaucracy (Brooks et al., 2016; Inagami et al., 2015). There is a demonstrable deterioration of public services in peripheral areas. Kopczewska (2013) showed a significant reduction of socioeconomic services correlates to increasing distance to regional governments up to about a distance of 25 km. Particularly with limited options for service, especially in rural areas, geographic distance and work demands are both significant barriers to participating in any health partnership (Chen, 2012; Arcury et al., 2005; Haworth et al., 2006). Another study found 23 percent of Vietnam veterans surveyed listed limited access to care as a primary barrier to care (Virgo et al., 2006). It can be concluded that distance would also effect all veteran populations in Michigan in a similar fashion.

People expect to travel for some medical and related services. There is evidence that this can be particularly burdensome for younger busier veterans and understanding issues

relating to distance traveled to medical centers can help highlight the problem (Buzza et al., 2011). Both friction of distance and perceived distance can both be particularly burdensome for veterans travelling to the VAMCs.

According to Robinson (1973), friction of distance is the real barrier faced by people traveling to a destination that increase as distance increases. Qualities such as construction on roadways and limited access to particular thoroughfares increases the “friction” a person would encounter travelling to a destination such as a VAMC.

Perceived distance effects which providers an individual will choose. Perception related to accessibility can be a major factor in how far a person is willing to travel for care. Lindrooth et al. (2006) also show distance is a significant factor related to variations of employee responses toward changes in healthcare providers. This is particularly relevant for veterans considering that veterans have severely limited choice regarding which VA medical center they must chose for healthcare treatment and programs. Longer travel times to healthcare are associated with increased mortality and decreased quality of life (Stephens et al., 2013). In addition to actual distance, there is an aspect of perceived distance to adequate health care that is highly correlated to a person’s socioeconomic status (Hawthorne & Kwan, 2012). Hawthorne and Kwan found that a nearby hospital might be viewed as inadequate or inferior to the quality perceived for another more-distant care facility. This could cause either a longer travel time or would simply inhibit patients- seeking care in general. Distance particularly affects the initial choice of whether or not to use VA facilities rather than private healthcare facilities. Even though Nayar, Yu, and Apenteng (2014) found that distance isn’t a factor to the realization of veteran’s care in their study, they fail to ascertain whether those

veterans must rely on a dual use system to maintain an adequate level of health care. Dual use models of VA healthcare are systems in which the veteran seeks primary care through a private care provider (at his or her own expense) and uses the VA medical system to support chronic service-connected injuries. While this may be the VA's preferred model, there may still be room for improvement based on sole access/use of VA healthcare providers which is a model that many Michigan veterans rely upon.

Distance is certainly a factor in veterans receiving adequate medical care, but it might not be the only significant factor (Mooney et al., 2000). Using a synchronous approach such as remote consultation and physical consultation to healthcare might be a way to mitigate some of the dissatisfaction with services rendered. This was found to be true regarding distance learning centers in rural locations throughout the U.S (Irvin et al., 2012). Recent treatment at a VA facility showed an association with personal betterment via education with veterans with Post Traumatic Stress Disorder (PTSD) (Smith-Osborne, 2009). This is an incentive to improve care models for veterans. Involving veterans' organizations in outreach assists veterans' who need more help get that help. Larger organizations are best suited to broad outreach for medical programs (Patterson et al., 2012). This would help veterans to get to appointments while providing a support system to encourage a greater commitment to participating in healthcare services.

Age and mental health in particular play a role in perceptions related to barriers of distance, both real and perceived, in accessing healthcare. Additionally, elderly (aged 65 years or older) veterans living 30 – 60 miles from a healthcare facility are found to make fewer visits per year than younger (less than 65 years) veterans (Burgess & DeFiore, 1994). There is a

strong inverse correlation with need-based care and distance, particularly for geriatric and mental health based patients (Haynes et al., 1999; McCarthy & Blow, 2004). Distance proves to be a continual barrier to access to healthcare that is particularly challenging to veterans with mental illnesses (McCarthy et al., 2007). With PTSD becoming more and more of an issue (Naifeh et al., 2016), particularly with veterans returning from wars in Afghanistan and Iraq, as well as veterans from older wars finally seeking treatment, mental health status is a significant factor related to seeking treatment as well.

Veterans are notoriously private people, with extensive training in personal and information security. This presents an additional difficulty for acquiring data that involve personal information regarding veterans, particularly health information. Also, with a history of experimentation on veterans (VA, 2016), there is suspicion regarding the motives of researchers working with veterans.

This study incorporates a mixed methods approach, combining both qualitative (focus group and interviews) and quantitative (statistically analyzed surveys) approaches. Considering the concerns noted above, using focus groups and personal interviews to identify which factors concern veterans the most allows for the target demographic to have a voice in the research. This voice will be represented in the survey which was populated using questions developed, in part, by the results of these focus groups. Appropriate survey questions help to identify characteristics of the participants and gather the participant's perceptions while maintaining anonymity. These characteristics ensure important demographic data is included in the survey, particularly questions of age, race, conflict-era served in, and other socioeconomic factors. Studies suggest race positively correlates to the social distance of accessibility to healthcare

providers (Malat, 2001). African-Americans are found less likely than Caucasians to assign higher quality assessment values to veteran care providers (Rosen, et al., 2013). This requires that studies related to healthcare access by veterans incorporate questions related to these characteristics of respondents, in addition to various veteran-based information, such as the conflict-era during which a veteran served.

When conducting a survey such as the one described above, using sub-regions, such as ZIP codes might be a way to gather data by providing a sense of anonymity to participants. These sub-regions might allow effective data collection at a regional level improving satisfaction (Haydukiewicz, 2011). Using geocoded data that is not normalized to ZIP codes is far more accurate than normalizing data with respect to maintaining the privacy of participants, but given that this particular set of subjects (veterans) is very sensitive to privacy concerns, I decided to use ZIP codes. With ZIP code regions in Michigan varying in size due to population density, this could result in misleading results when using regression models (Fortney, Rost, & Warren, 2000). Because respondents to the survey area come from rural, suburban, and urban areas, using ZIP codes as a locational variable is less than desirable given the variance in area that these regions might represent (Hibbert et al., 2009; Delamater et al., 2012). Keeping these limitations in mind as well as the previously mentioned privacy concerns, means that despite problems, using the centroids of ZIP code regions is thought to be the best way to encourage the most respondents to participate in the surveys.

CHAPTER 3

3.0 Methods and Data Collection

Again, this research employs a mixed methods approach to gather the required data. Initially, personal interviews and a focus group were conducted using convenience sampling techniques. These activities were intended to generate information that would ultimately lead to the construction of a survey distributed online and at various Veterans of Foreign Wars (VFW) meetings throughout the state during the spring of 2016.

Mixed methods research is the best way to comprehensively identify potential reasons underlying barriers and also generates a more thorough understanding of seminal issues. Interviews and the focus group identified concerns about barriers that should be included on the survey to best determine what barriers to healthcare in the VA system should be considered the most significant to Michigan veterans. Factors that are determined democratically for socio-economic equality for better management of our development policies (Parés, 2013) remove researcher bias and allow for the target demographic to have a voice in the research.

The following sections describe in greater detail how the interviews and focus group helped me to construct the survey, how the survey was distributed, and how the data are analyzed.

3.1 Initial Interviews & Focus Groups

Initially, personal interviews of veterans were conducted using a convenience sampling method to identify and gather enough participants to generate information regarding issues and limitations that participants perceive as barriers to healthcare. These interviews helped

form a basis for questions later asked in a focus group composed of veterans to ensure the wording of questions were suitable for the research and not in any way damaging to the participants. The script for the focus group session can be found as Appendix 1. After developing the focus group script, discussion with focus group members allowed for a working survey to be constructed. Personal experience and multiple one-on-one interviews with veterans helped refine these ideas into a final survey.

Response from the veterans, regarding what questions to include on the survey, led me to ask questions that were neither weighted toward personal experiences nor to their specific health concerns. The final survey collected data of these types: (1) general demographic information, (2) zip code data (to help retain privacy yet still locate each respondent), and (3) responses to perception-based questions related to the care they were receiving as well as other situations they encounter using the VA healthcare system. After populating the survey with appropriate questions that were neither intrusive nor insensitive, the survey was distributed to as many veterans as possible using a convenience sample of participants. A copy of the online consent documents and final survey are provided as Appendices 2 and 3. Also, a flier offering online completion of the survey is listed as Appendix 4.

As this research involves human subjects, approval was required through the Western Michigan University (WMU) Human Subjects Institutional Review Board (HSIRB). This was initially completed on 4 March 2015 with changes to the survey and final approval to conduct surveys granted on 15 October 2015. The initial HSIRB approval can be found as Appendix 5.

3.2 Survey Construction

The survey consists of three parts. The first portion of the survey asks demographic questions and questions about the nature of the participant's military service. These data are used to identify major groups among the survey participants and to see if concerns vary across these different groups. Secondly, ZIP Codes were the only geographically identifying information on the survey, so as to further ensure privacy as concerns about anonymity were raised by several participants in the focus group. The final portion of the survey was designed to collect information on opinions related to different aspects of the veterans' experience when using the VAMCs. Responses to these Likert-type scale format questions offered some insight into the overall satisfaction of various aspects of the VAMCs and allowed for tests of association comparing key variables across the different groups of veterans. These groups include those with differences in disability types, ethnicity, race, branch of service, and time of service (the conflict periods during which the respondents served). Again, a copy of this final survey may be found as Appendix 3.

Perceptions related to satisfaction with healthcare accessibility were collected using a list of statements in a Likert-type scale format as determined by focus group participants and interviewees' wishes. The questions were written in a fashion so as assume neutrality in all statements, and to maintain consistency throughout the list of questions so that analyses could be done comparing values associated with agreement and disagreement (see table 3.1)

Table 3.1 Perception Questions Included in the Survey

The distance to the nearest VAMC is a concern for me.	(1) Strongly Disagree - (7) Strongly Agree
Wait times when I get to a VAMC is a concern for me.	(1) Strongly Disagree - (7) Strongly Agree
The judgment I feel while waiting in the waiting rooms at a VAMC is a concern for me.	(1) Strongly Disagree - (7) Strongly Agree
The judgment I feel when interacting with the staff at a VAMC is a concern for me.	(1) Strongly Disagree - (7) Strongly Agree
I have difficulty understanding my doctor and/or nursing staff due to language/accent issues and this is a concern for me.	(1) Strongly Disagree - (7) Strongly Agree
I have difficulty understanding my doctor or nursing staff because they do not adequately explain my issues.	(1) Strongly Disagree - (7) Strongly Agree
Repeated schedule conflicts with my work obligations and my appointment times is a concern for me.	(1) Strongly Disagree - (7) Strongly Agree
Waiting rooms are too crowded and I am uncomfortable in that environment.	(1) Strongly Disagree - (7) Strongly Agree
Behavior of and/or interactions with other veterans in the waiting room is a concern to me.	(1) Strongly Disagree - (7) Strongly Agree
Accommodations for those with disabilities are adequate.	(1) Strongly Disagree - (7) Strongly Agree
The scheduling of my appointments at a VAMC that is more distant than the VAMC closest to home is a problem that I encounter.	(1) Strongly Disagree - (7) Strongly Agree

Source: Table Created by Author (2017)

3.3 Data Collection

The survey period was from November of 2015 to March of 2016 with both online versions and paper copies available for participants to choose their preferred method of completion. Online surveys were hosted by Qualtrics Survey Software for the duration of the collection phase of this research. A paper copy of the survey was provided on-demand. At the end of the online survey period, the completed paper versions of the surveys were input into Qualtrics to consolidate the data.

Links to the survey were also posted on social media sites including the Western Michigan University Veterans Affairs Facebook page. The survey was also distributed to the State of Michigan Department of Military and Veteran's Affairs, to be posted in a number of their venues. Lastly, fliers advertising the survey were distributed amongst service organizations such as American Veterans, American Legion, and Veterans of Foreign Wars and also distributed by convenience to any and all veterans that I knew and met during the survey period. This flier can be found as Appendix 4. As the survey period was drawing to an end, in order to solicit more respondents, surveys were additionally handed out at Veterans of Foreign Wars monthly meetings. These VFW posts were chosen for their distribution across the whole state, as well as by the nights they met to facilitate maximum attendance at the most meetings during the survey period. Fliers with the survey information were distributed to those at these meetings (as well as passed out to veterans when identified elsewhere) directing them to the online survey. Physical copies of the survey were also provided for those in attendance who preferred to use that method to participate in the survey. At these meetings no names or other identifying information were collected to ensure confidentiality in the collection of the survey

data. The survey was completely anonymous. The locations of all the respondent ZIP codes can be seen in Figure 3.1. Figure 3.1 also shows the respondents' home ZIP code centroid relative to the VAMCs in Michigan.

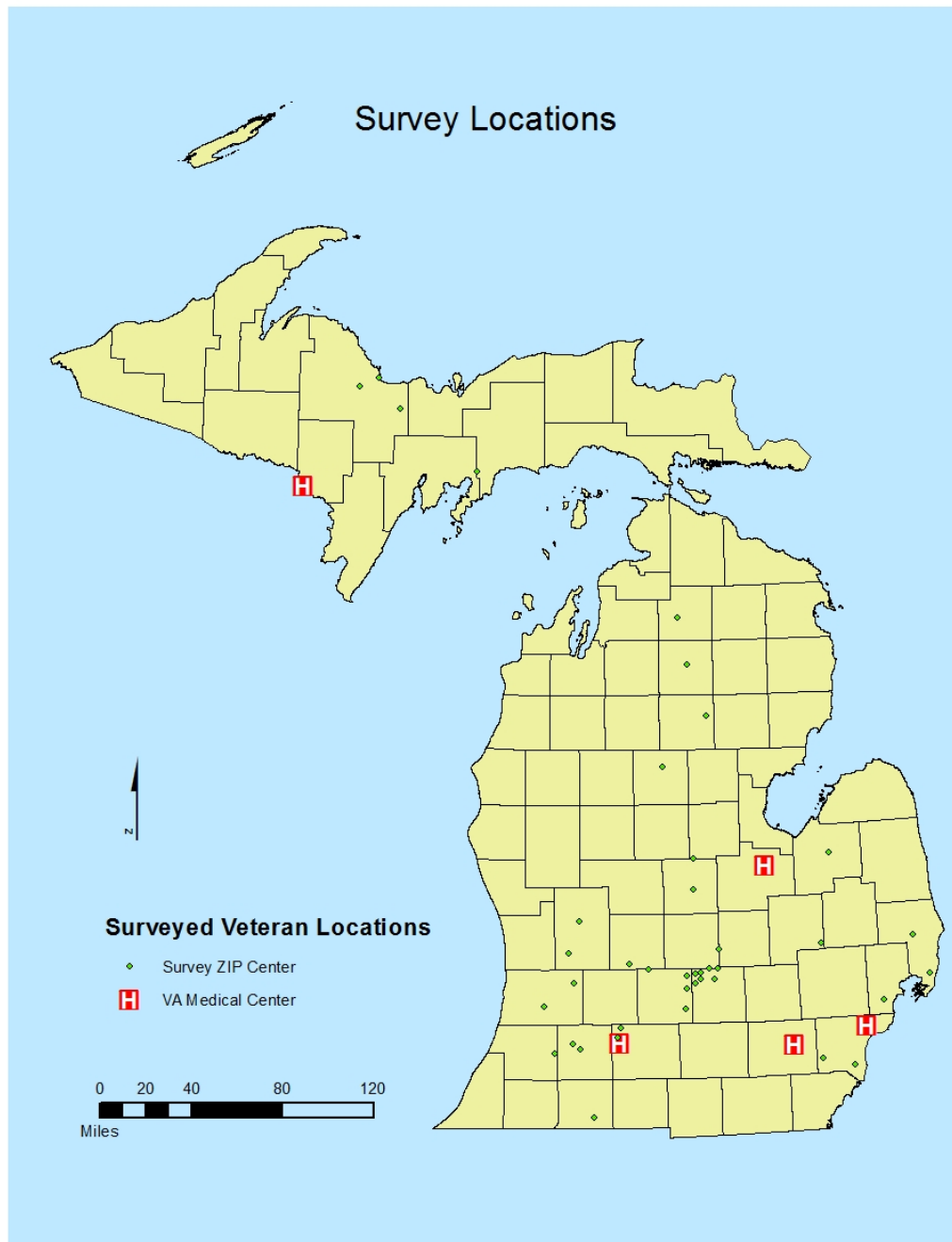


Figure 3.1 Map Showing the ZIP Code Centroids for the Surveys Received
Source: Map Created by Author (2017)

3.4 Data and Analysis

Qualtrics generates summary descriptive statistics for each variable collected. Subsequently, these data were imported into SPSS 24.0 for further analyses. A Geographic Information System (GIS) was used to calculate the distances from the centroid of the respondents' ZIP code to the various VAMCs. This information allowed me to identify which VAMC was closest with certainty. Using the GIS, a Manhattan distance measurement was determined to the different VAMCs using ESRI ArcGIS 10.2. Manhattan distance models better represent travel distance to VA Medical Centers because these measures best represent actual distance traveled for the veteran. However, care must be taken with aggregated data sets composed of veterans living in urban, suburban, and rural areas, as errors in estimating distance to healthcare facilities may effect results (Begg, 1992). Transport models might be a way to improve accessibility to disadvantaged populations (Ksiazkiewicz, 2012; Apparicio et al., 2008), improved perhaps by better transportation grids or by incorporating other means of travel. For example, this might allow for models where veterans actually use hired drivers, or taxi services to assist veterans who are incapable of getting to their appointments on their own. Using Manhattan distances allowed me to sort the participants into three distance groups depending on the natural breaks in the data. A table of these distances can be found in chapter 4.

Data Analysis

Pearson's r product moment correlation analysis was next employed to determine which variables are strongly correlated. This analysis highlights if different distance groups have different self-reported responses to the variables related to respondents' perception

about access to healthcare and can suggest where to look for relationships among the three groups based on the distances traveled to a VAMC and differences in perceptions regarding the quality of healthcare.

Lastly, using the three groups identified by the travel distances to the nearest VAMC, analysis of variance (ANOVA) was used to compare differences in mean responses across groups to see if there was a difference in satisfaction among the three different groups based on the distances travelled to a VAMC. ANOVA analyses offer a robust method to compare the means in any given set of variables as they might vary across multiple groups such as the three distance groups in my research. Also, because the data is of an ordinal nature the non-parametric nature of the ANOVA is preferred as the data is not of an interval nor ratio type. Results of the ANOVA analysis will offer insight as to the variance of perceptions in veterans' satisfaction with healthcare as veterans travel different distances to VAMC healthcare. Tukey's Post-hoc test Comparisons of Means test is used after the ANOVA is completed so as to identify pair-wise relationships between distance groups to reduce possibility of Type-I errors in the analyses. These errors would encourage accepting a "false positive" regarding results of significance. Tukey's also allows me to look at the relationships among the groups to assess interactions within a particular variable, or in this case, across a set of variables.

Taken collectively, these analyses will help explore the role distance to a VAMC may play in reported satisfaction with healthcare. The results of the ANOVA revealing if the distance a person travels is independent of how that veteran feels about the quality of healthcare.

CHAPTER 4

4.0 Interview and Survey Descriptives

This chapter introduces the data that were collected throughout the project including the qualitative information from the interviews and the focus group and the later survey data. The combination of these data will help produce a more complete picture of the perceptions of veterans in Michigan related to their access to healthcare and their opinions regarding accessibility to the state's VAMCs.

The following sections describe in greater detail the type of data collected through the interviews and the focus group, but also provides general descriptive statistics on the survey data (including the distribution of veterans surveyed relative to the VAMCs), and reports on how the analyses of these data provide greater insight into the effect travelled distance may have on veterans' satisfaction with their treatment at the VAMCs.

4.1 Initial Interviews and Focus Groups

Interviews with veterans early in the process identified a strong concern with travelling long distances in Michigan to get to the VAMCs. Particularly, veterans in the northern Lower Peninsula and the eastern Upper Peninsula reported extremely long travel times to get to VAMCs to receive care at these facilities. Sometimes this distance would be as great as four hours' drive time one way to receive care. This distance was also of particular concern as a whole day would have to be assigned to the appointment, often forcing veterans to use vacation time or take work off without pay on these days. All of this planning could sometimes be for naught as at the last minute, staff and doctors at the VAMC might reschedule or cancel appointments leaving veterans who scheduled time off with no appointment. These problems

really concerned the veterans I spoke with. Such events happened frequently enough to be a common concern among those interviewed.

Other key issues brought up by many veterans during interviews and the focus group included traveling to these distant VAMCs only to not understand the diagnoses given by their doctors. Reasons for this misunderstanding were given as not understanding the doctors due to accent/language issues or due to the explanation not being clear enough for the veteran to understand what was said to them. Barriers relating to perceived judgments against the veterans were cited as exacerbating the lack of understanding as the veterans were inclined to not ask questions during appointments or seek follow-up clarification or appointments, preferring instead to terminate the uncomfortable situation.

Notably, many veterans interviewed were pleased with the quality of the medical care they received. These veterans rarely complained about the distance travelled as they were familiar with the reimbursement programs to make up for financial burdens of travelling to the medical centers. Also, it appeared to me that many of the veterans who reported being pleased about the care also reported they were retired so they did not face the burden of scheduling treatment around work schedules.

All in all, my interviews convinced me that while distance to treatment at VAMCs was not an issue for all veterans, it was a particular burden for younger veterans with busier lives and tighter schedules. I will analyze these data at greater length in chapter 5.

4.2 Survey Construction

As stated in chapter 2, the interviews and focus group had two purposes. The first was to acquire first person perspectives of veterans concerns regarding travel to healthcare at the VAMCs. The second was to provide a context for constructing the survey. The majority of concerns regarding the survey were about protecting the privacy of the participants and ensuring sensitivity to questions regarding combat and/or trauma that were asked of survey participants. For example, originally the survey contained questions about participation in direct combat as I was interested in seeing if there were correlations in the perception data in relation to this variable, but due to the strong concern voiced by the interviewed veterans, I ultimately withdrew this question in order to respect the feelings of the veterans who might chose to participate in the survey.

In total, the survey was completed by 67 veterans. All subsequent statistical analyses are based on responses provided by these 67 veterans.

4.3 Statistical Data and Analysis

The primary survey variable collected to compare the role of distance travelled to perceptions of satisfaction with healthcare was the distance to the nearest VAMC variable based on Manhattan distance measured from the ZIP code centroid to the nearest VAMC. This variable needed to have a generally normal distribution so as to adequately test the role distance plays in perceptions of healthcare. Figure 4.1 provides the histogram of those data. These data are relatively normal in distribution if slightly skewed toward longer distances that should be expected given the geographic distribution of VAMCs in Michigan.

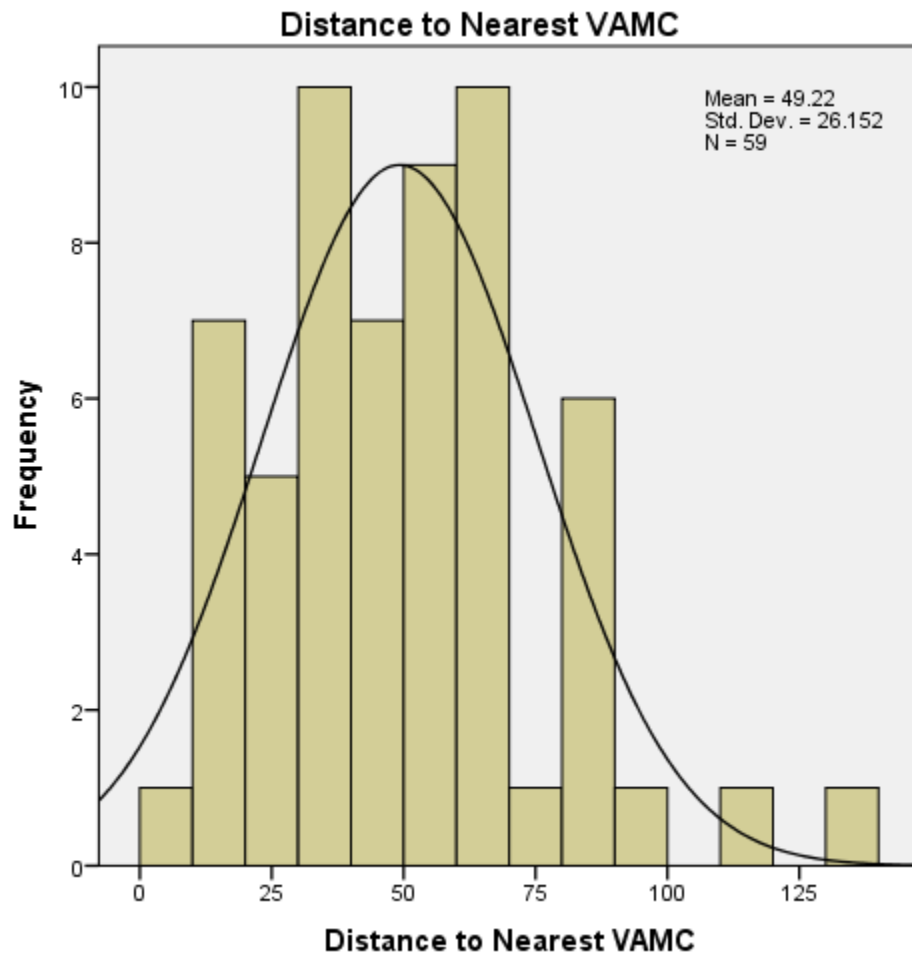


Figure 4.1 Distance to Nearest VAMC
Source: Calculated by Author (2017)

Figure 4.1 indicates that approximately half of veterans are travelling distances further than about 50 miles to receive care at the nearest VAMC and some of those distances are significantly greater than 60 miles. Figure 4.1 also shows the closest VAMC to the home ZIP code centroid of each respondent. Ultimately, this is the best case scenario for veterans surveyed to travel for medical care because in reality veterans are sometimes scheduled to appointments at VAMCs other than the VAMC that is nearest to the respondent's home.

Natural breaks in these data allowed me to identify three groups of veterans based on how far they travel to/from VAMCs. These groups are named near (3-22 miles), intermediate (30-46 miles), and far (64-132 miles). These three groups of respondents will be used in all of the statistical analyses reported later in this chapter.

Demographic data is very useful to understand the composition of the participating group and to ensure that the group is representative of the population as a whole. These data in particular show a very diverse set of veterans that represent all branches of the armed forces.

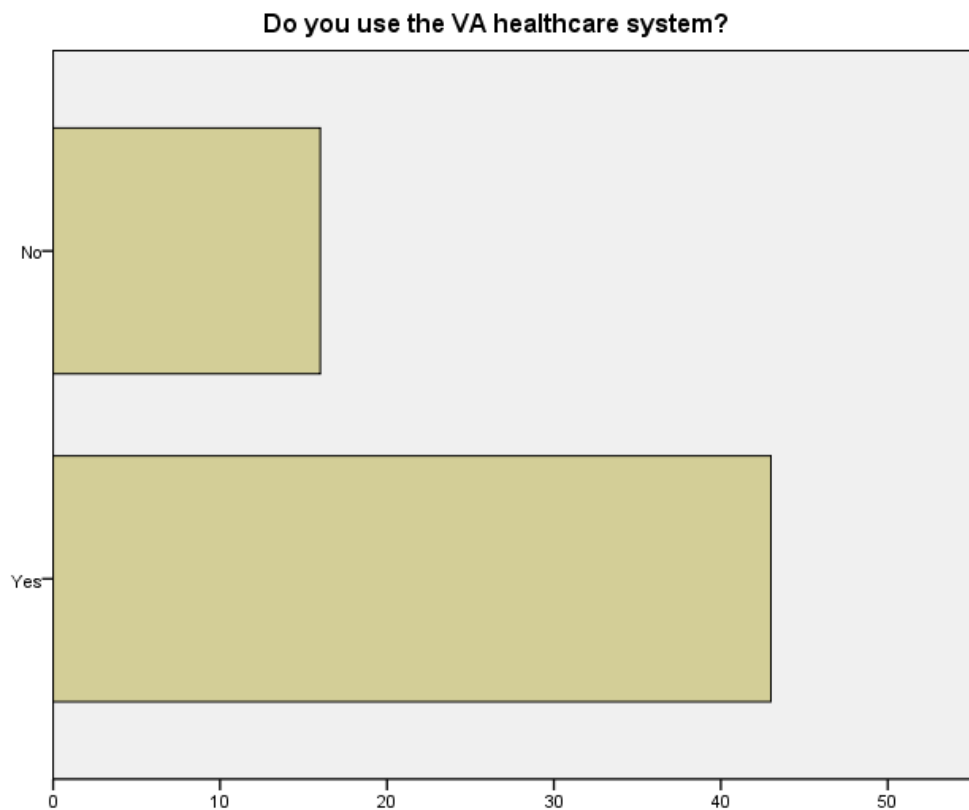


Figure 4.2 Responses to the Question “Do You Use the VA Healthcare System?”
Source: Calculated by Author (2017)

Figure 4.2 shows that over 2/3 of veterans surveyed actively use the VA healthcare system. Those that responded with a “no” result still responded with opinions on barriers associated with VA healthcare, so it may be that these barriers have forced these veterans to seek healthcare options elsewhere.

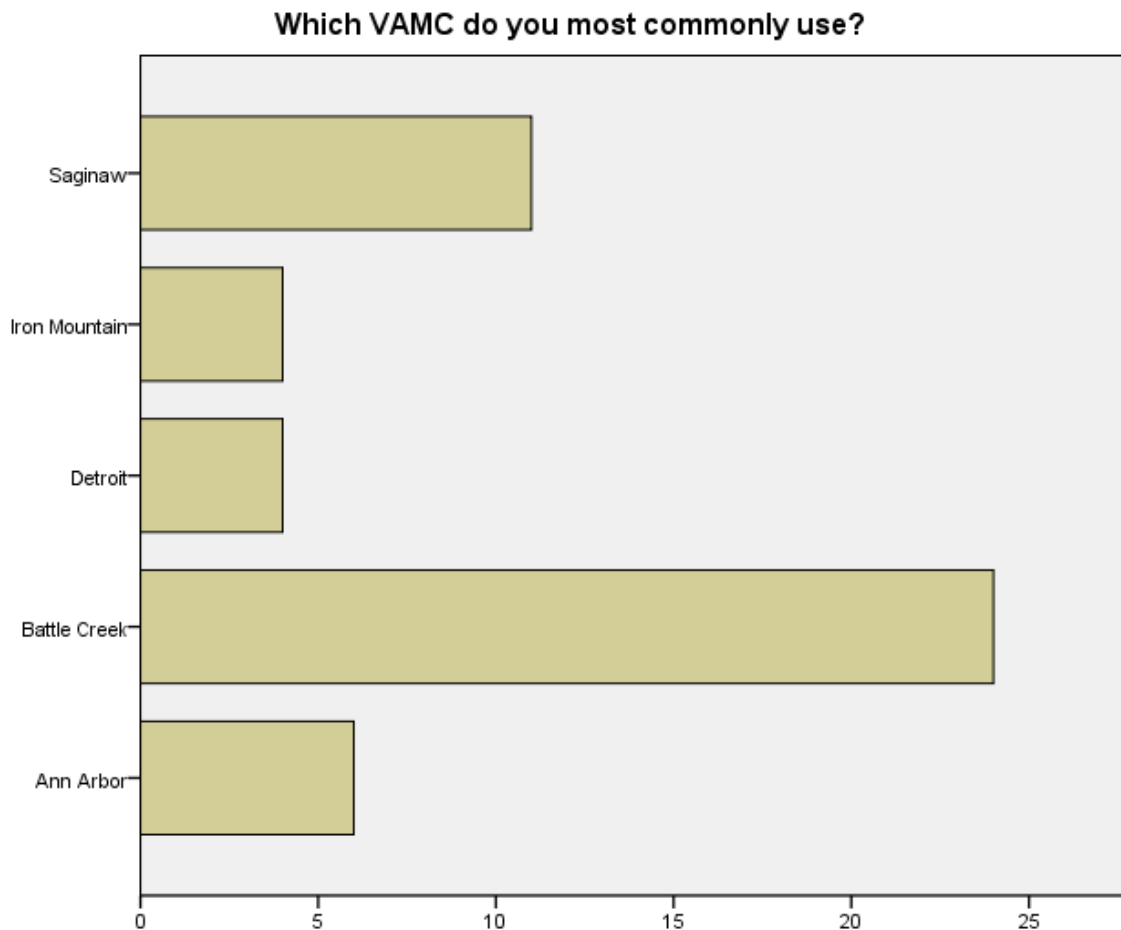


Figure 4.3 Most Commonly Used VAMC
Source: Calculated by Author (2017)

While it seems that the majority of those surveyed used the Battle Creek VAMC, it is worth noting that Ann Arbor, Detroit and to some extent Saginaw share the same patient catchment area (Figure 3.1). These cannot necessarily be combined, but it shows that there is

plenty of need amongst those surveyed for more VAMCs, or a better geographic distribution of operating VAMCs for more equitable spatial accessibility.

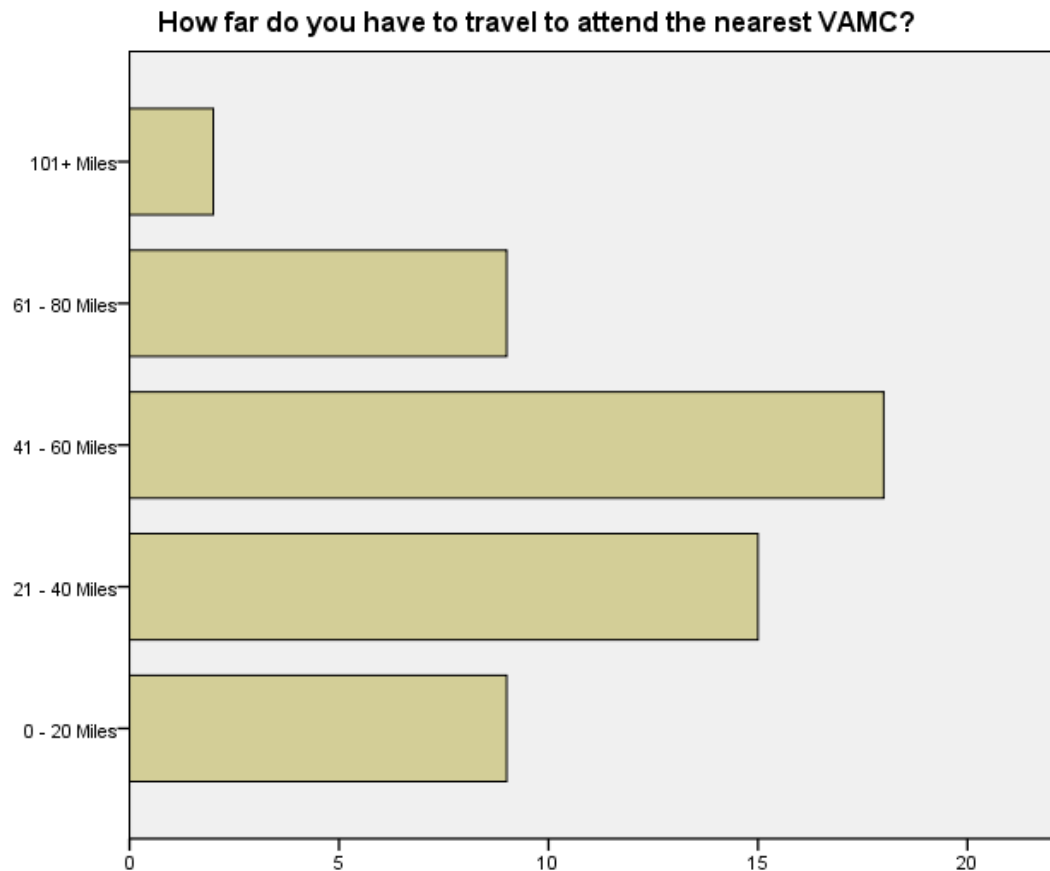


Figure 4.4 Estimated Distance Travelled to Nearest VAMC
Source: Calculated by Author (2017)

Figure 4.4 shows participant's estimates of the distances they travel (miles) to the nearest VAMC to receive healthcare. This data is actually independently confirmed by the analysis for Figure 4.1 which uses actual GIS measurements of Manhattan distance from ZIP code centroids to the VAMC street addresses.

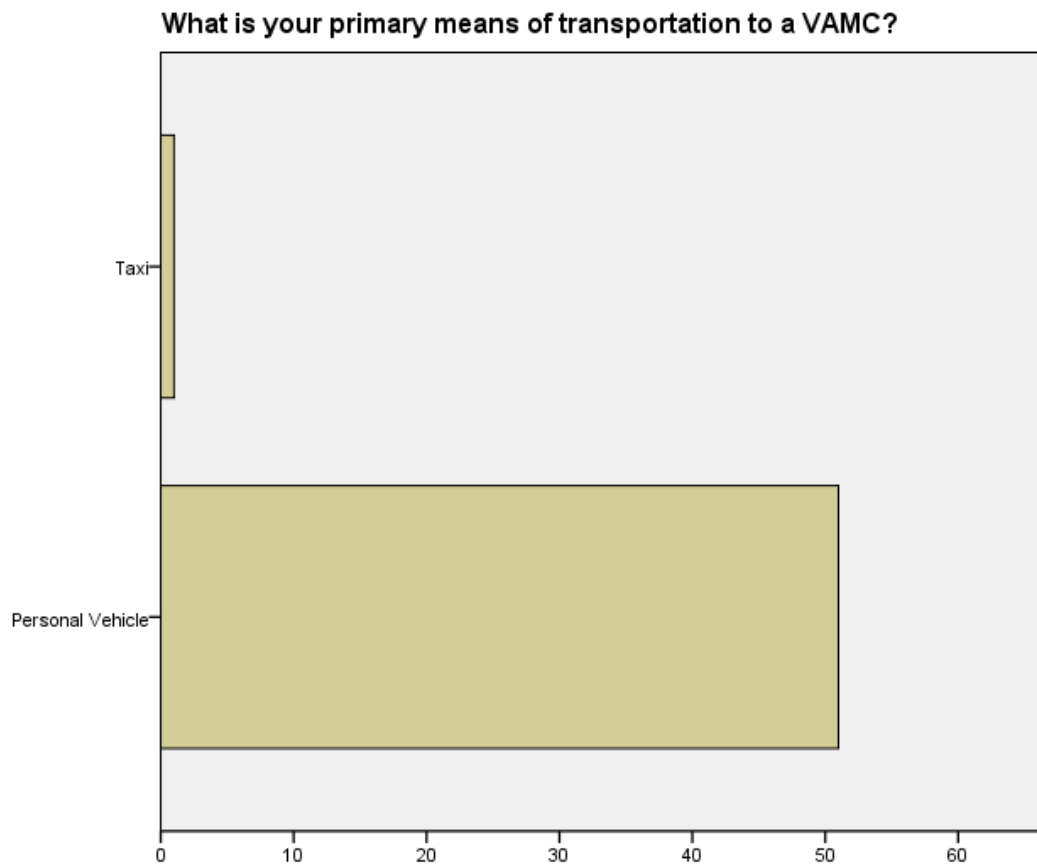


Figure 4.5 Primary Means of Transportation
Source: Calculated by Author (2017)

Veterans almost exclusively use personal vehicles to visit VAMC healthcare facilities (Figure 4.5). This graph does not include other options in the survey that provided for the other possible conveyances as no respondents reported using anything other than personal vehicles or taxi.

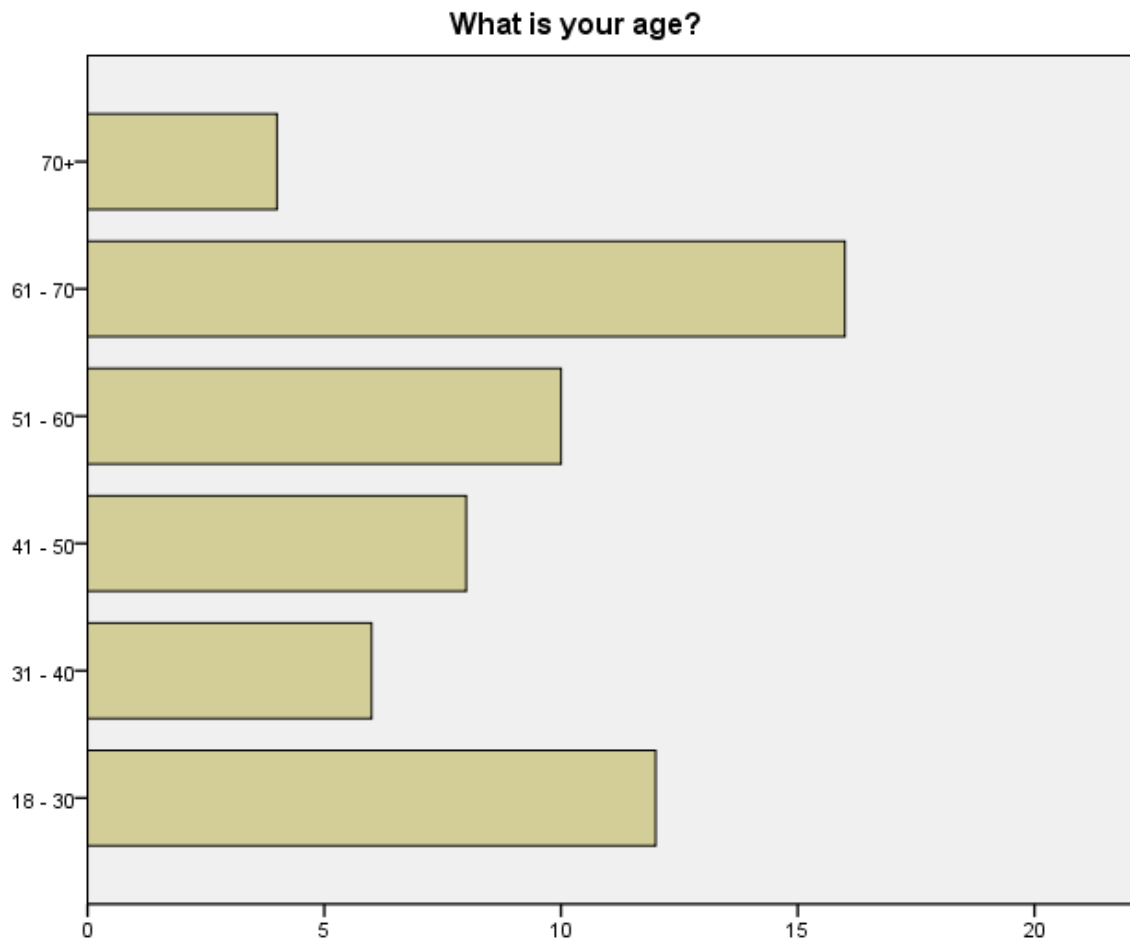


Figure 4.6 Age Groups
Source: Calculated by Author (2017)

The age group distribution of respondents is very interesting as it shows very clearly that the proportion of Michigan's total veterans who are most elderly served in the Korean War and earlier wars is in severe decline. The largest demand for treatment at the VAMCs is from Vietnam era veterans. There is a tapering of veteran respondents for the younger age groups. Lastly, however, for the youngest age group, there is a significant increase in VAMC use given an increase of veterans who have served during the era of the current Global Wars on Terror.

These young veterans will be using VAMC healthcare for decades to come. So there is an urgency to make these centers more accessible for all.



Figure 4.7 Gender Distribution
Source: Calculated by Author (2017)

The surveyed population was overwhelmingly male (Figure 4.7). This may be because of the fact that the surveys were distributed mostly via service organizations and convenience samples of veterans snowballing from those the author knows.

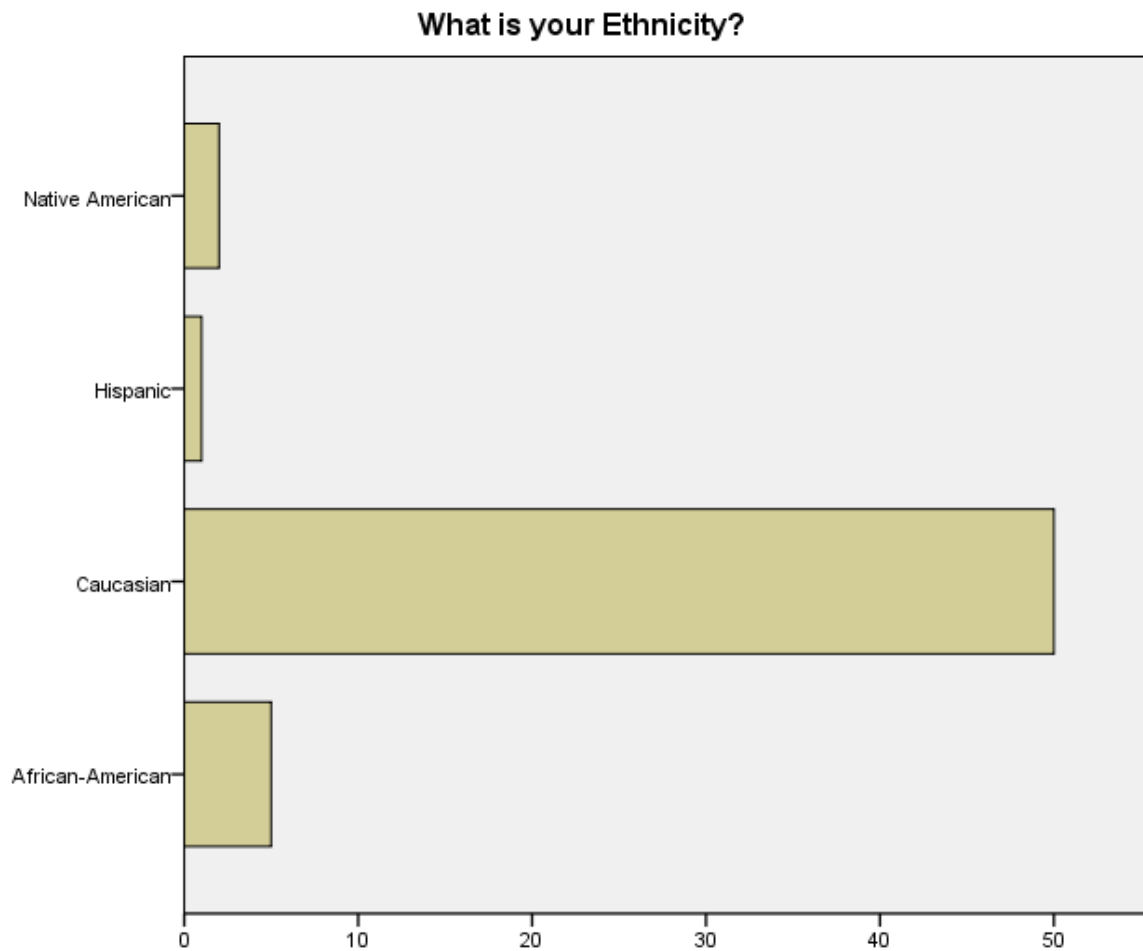


Figure 4.8 Ethnic Distribution
Source: Calculated by Author (2017)

Another characteristic of the data is the overwhelming share of respondents who self-reported Caucasian. This may be a result of collecting surveys from more rural locations to ensure there was a geographically diverse set of respondents.

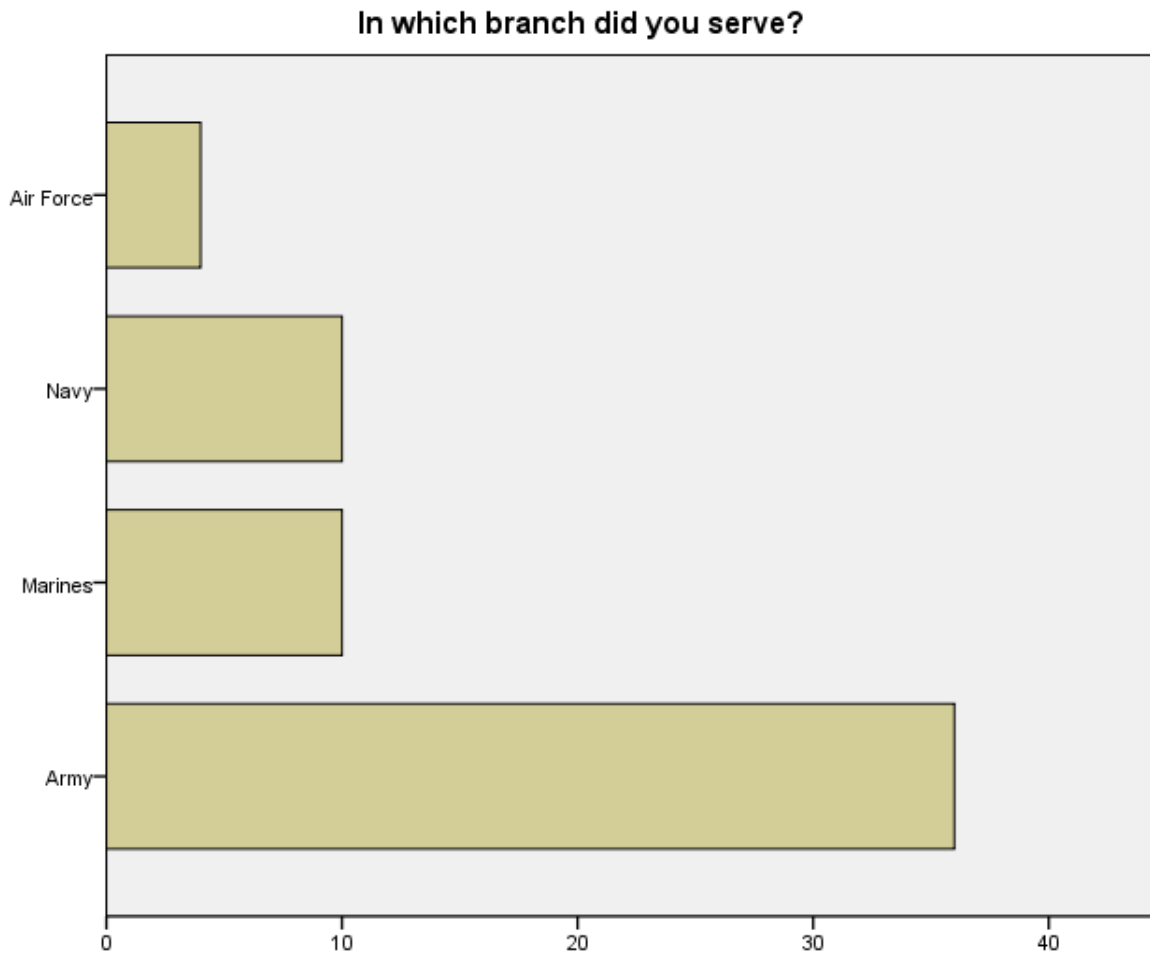


Figure 4.9 Branch of Service
Source: Calculated by Author (2017)

Figure 4.9 shows a relatively reasonable distribution among respondents of the branches of service (with the notable exclusion of any Coast Guard participants). As the Army is by far the largest branch in terms of number of personnel, the sample seems to be relatively representative of the over-all veteran population.

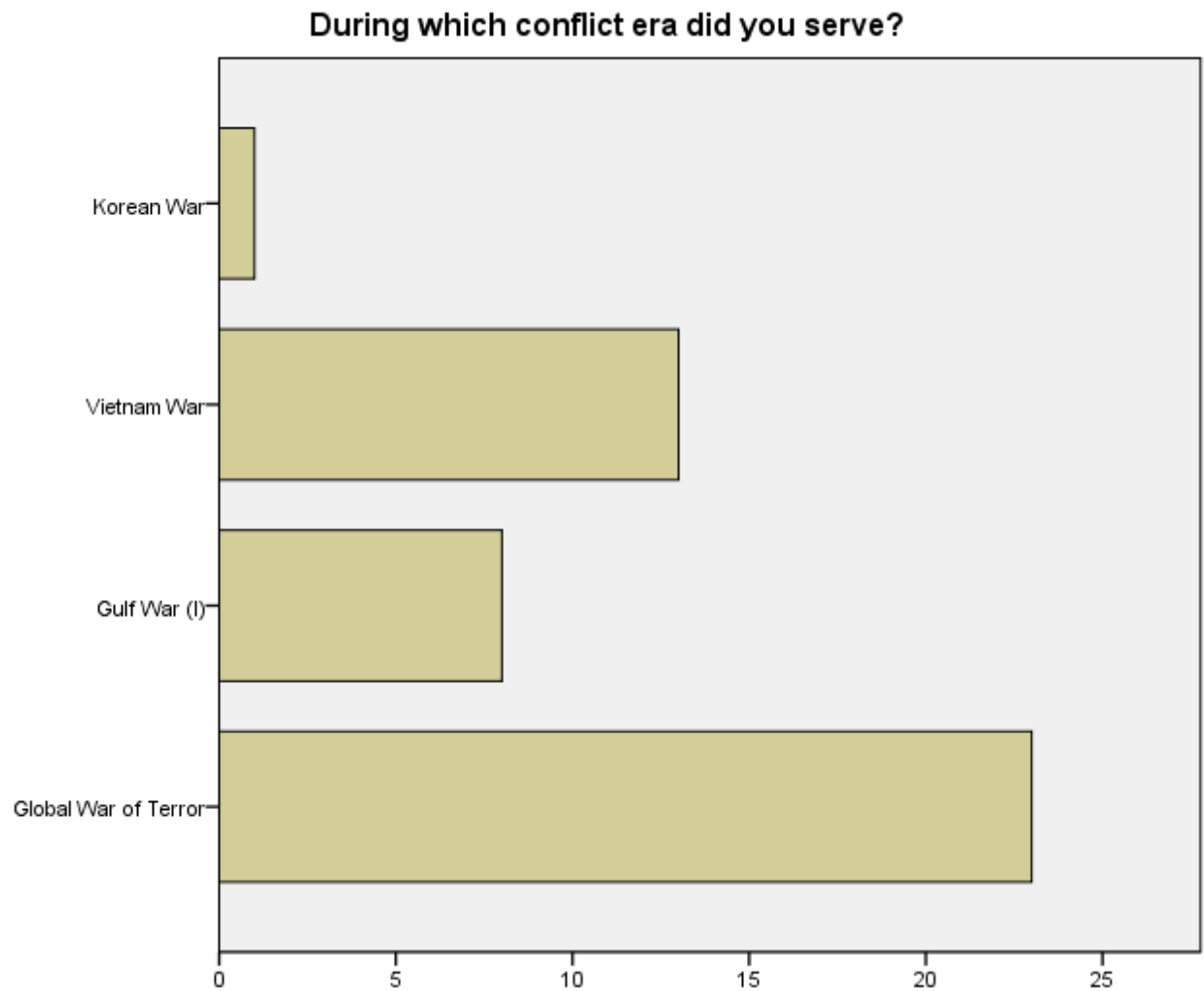


Figure 4.10 Conflicts Served
Source: Calculated by Author (2017)

The distribution of respondents is skewed slightly to the more modern conflicts with major spikes in the two largest conflicts amongst veterans still living (Figure 4.10). As aging Korean War veterans continue to die, service personnel from the Vietnam era and the current conflicts will provide the greatest burden in terms of patients at VAMCs for the next several decades.

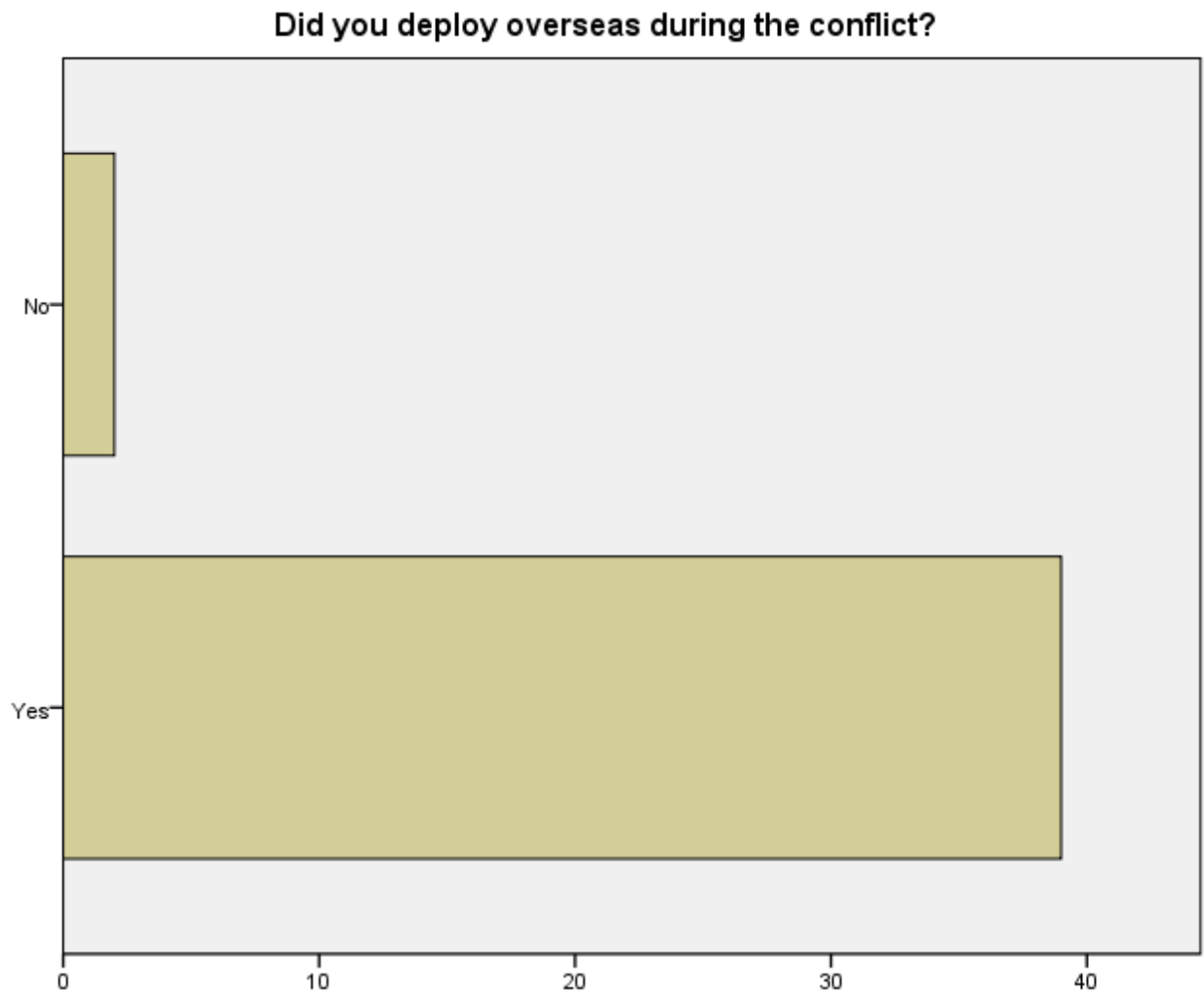


Figure 4.11 Overseas Deployment
Source: Calculated by Author (2017)

Figure 4.11 shows the proportion of veterans surveyed that actually deployed overseas during their respective conflicts. The high share of such veterans suggests that those deployed overseas typically require more medical treatment and possibly were more interested in completing the survey.

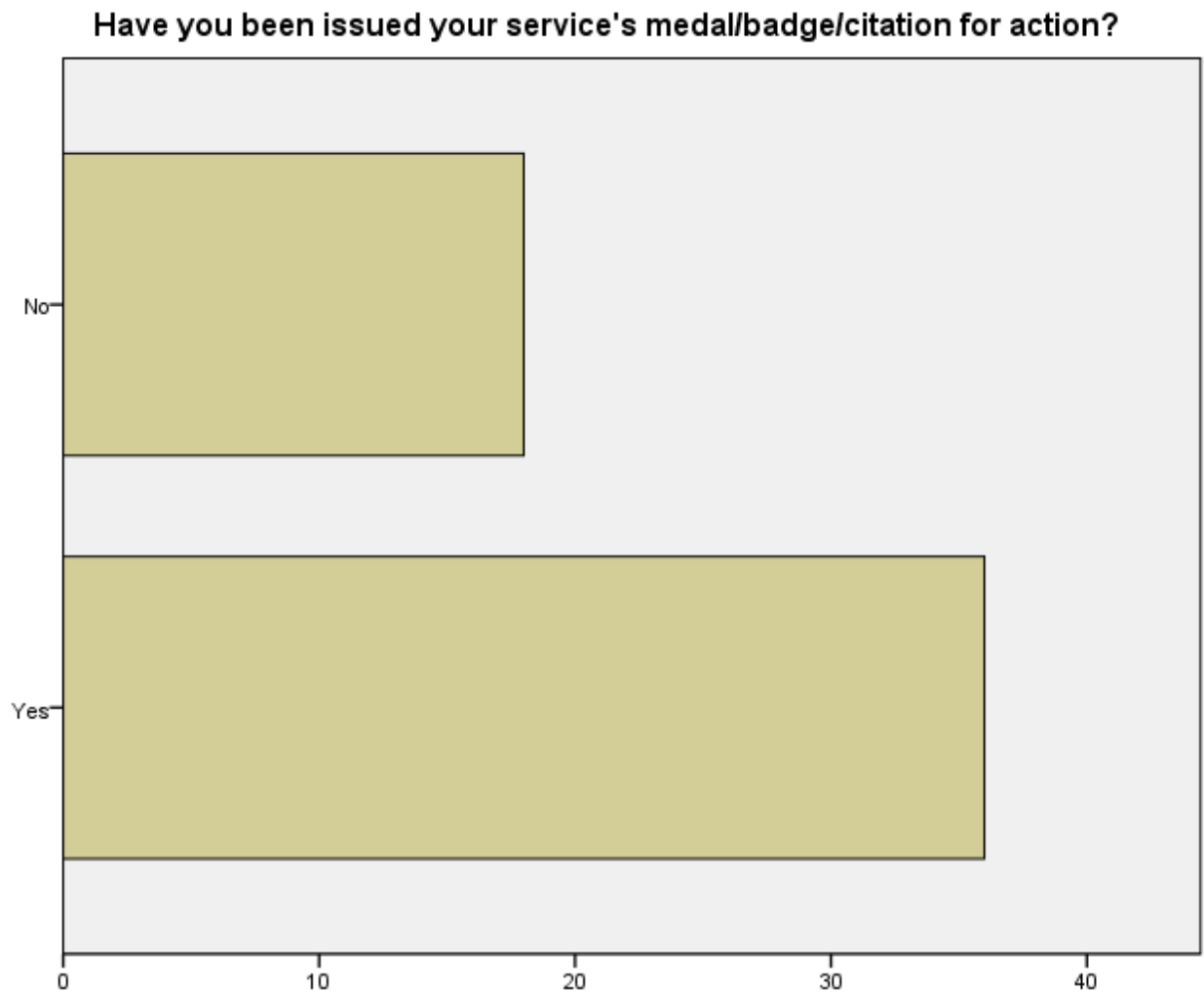


Figure 4.12 Have You Been Awarded Your Service’s Badge for Combat?
Source: Calculated by Author (2017)

Figure 4.12 provides further information on the surveyed veterans who were at the most risk of exposure to enemy contact. While this variable isn’t a guarantee nor a requirement for injuries and extended medical care, this might also suggest a higher incidence of injuries that could require long-term care among respondents who completed the survey.

The previous graphs provided information on the demographic characteristics and service aspects of survey respondents. The next section will provide summary data on veterans' opinions about the healthcare they receive and related issues.

Table 4.1 Descriptives for the Satisfaction Questions

	N	Minimum (Disagree)	Maximum (Agree)	Mean	Standard Deviation
The distance to the nearest VAMC is a concern for me.	55	1	7	4.38	1.790
Wait times when I get to a VAMC is a concern for me.	52	1	7	4.23	1.767
The judgment I feel while waiting in the waiting rooms at a VAMC is a concern for me.	52	1	7	3.54	1.475
The judgment I feel when interacting with the staff at a VAMC is a concern for me.	53	1	7	3.43	1.647
I have difficulty understanding my doctor and/or nursing staff due to language/accent issues and this is a concern for me.	53	1	7	3.53	1.601
I have difficulty understanding my doctor or nursing staff because they do not adequately explain my issues.	53	1	7	3.57	1.551
Repeated schedule conflicts with my work obligations and my appointment times is a concern for me.	53	1	7	3.98	1.956
Waiting rooms are too crowded and I am uncomfortable in that environment.	52	1	7	4.00	1.826
Behavior of and/or interactions with other veterans in the waiting room is a concern to me.	52	1	7	3.25	1.507
Accommodations for those with disabilities are adequate.	52	2	7	4.58	1.377
The scheduling of my appointments at a VAMC more distant than the VAMC closest to home is a problem that I encounter.	52	1	7	4.21	1.840

Source: Calculated by Author (2017)

Table 4.1 shows the descriptive statistics for the questions related to perception of respondents regarding healthcare that were asked in the surveys. Again, these questions were

Likert-type scale format questions where a response of 1 indicated very strong disagreement and a 7 indicated very strong agreement. While these scales are relative, any mean score that is above “4.0” suggests overall agreement with a particular statement. Conversely mean scores under “4.0” suggests overall disagreement.

An initial assessment suggests that distances and wait-times are generally the biggest concerns for veterans surveyed. The other perception questions recorded lower mean scores indicating these other issues were of lesser concern for those veterans who completed the survey.

Respondents indicate overall agreement with the following statements: “The distance to the nearest VAMC is a concern for me.”, “Wait times when I get to a VAMC is a concern for me.”, “Accommodations for those with disabilities are adequate.”, and “The scheduling of my appointments at a VAMC that is more distant than the VAMC closest to home is a problem that I encounter.” These findings indicate that overall, veterans agree with statements that reflect a dissatisfaction with the long distances to their VAMCs. The notable exception here is “Accommodations for those with disabilities is adequate.” This is particularly interesting as this is one of the variables that varies the most amongst respondents placed in the three distance based groups as detailed in the next chapter.

Respondents also report low mean scores associated with: “The judgment I feel while waiting in the waiting rooms at a VAMC is a concern for me.”, “The judgment I feel when interacting with the staff at a VAMC is a concern for me.”, “I have difficulty understanding my doctor and/or nursing staff due to language/accents issues and this is a concern for me.”, “I have difficulty understanding my doctor or nursing staff because they do not adequately explain my

issues.”, and “Repeated schedule conflicts with my work obligations and my appointment times is a concern for me.” Responses to these variables also show indicate concern but not to the degree of the statements noted above. There is again a notable instance with the variable “I have difficulty understanding my doctor and/or nursing staff due to language/accent issues and this is a concern for me.” that will be discussed in greater detail in chapter 5.

CHAPTER 5

5.0 Interview and Survey Analysis

This chapter will focus on both the qualitative and quantitative results introduced in the last chapter. The qualitative information gathered during the interviews and the focus group stages of the project and the quantitative results reflect analyses of survey data via Pearson's r product moment correlations and the one-way ANOVA analyses. Evaluation of these results will provide a clearer picture of the barriers veterans face accessing VA healthcare facilities.

The following sections describe in greater detail the results of my analyses of the data collected in the interviews and the focus group, as well as the exploration of the relationships between the socio-demographic variables and the Likert-type scale format variables related to veterans' perceptions of satisfaction with healthcare services at the five Michigan VAMCs.

5.1 Qualitative Analysis

Interviews with the various veteran groups and with individual veterans reflect an overwhelming sense of frustration with the overall inaccessibility of the VAMC system in Michigan. Even veterans who were generally satisfied often mentioned that while they could accept how the VA scheduled appointments, if improvements were made they would greatly help overall quality and increase satisfaction to the users.

Another key observation that I noticed amongst almost every veteran with whom I met was the overall concerns related to privacy for every aspect of this research and the survey. The paramount importance placed on privacy issues might well contribute to some of the findings regarding satisfaction as the veterans were generally reticent to divulge any information without encouragement and staunch and repeated assurances that the interviews

were totally anonymous. This likely influences their self-reported satisfaction with the VA Medical System as veterans have a tendency to withhold information if, in fact, they had a less-than-satisfactory experience with the VAMC.

5.2 Quantitative Analysis

The survey data allowed for a quantitative systematic analysis of veterans participating in the survey to create generalizations about overall assessments of the VAMC system. More importantly the survey allows the classification of the veterans into three distance groups as measured from the ZIP code centroid associated with their homes to the nearest VAMC to see if there are any variations within levels of satisfaction of those groups so as to see if distance to the VAMC has an effect on the level of self-reported satisfaction of those surveyed.

Analysis of variance was used to determine if there was any variation between the group means of the different variables based on the three travel distance classifications determined in chapter 4.

Analysis of variance (ANOVA) is a procedure that determines the proportion of variability attributed to each of several components. It is one of the most useful and adaptable statistical techniques available. The one-way ANOVA compares the means of two or more groups of participants that vary on a single independent variable (thus, the one-way designation). (Cronk, 2008)

A Tukey's HSD post-hoc test was used to see after noting the variances between groups if these differences changed based on travel distances of respondents from their homes to the nearest VAMCs. Tables 5.1 and 5.2 show the results of the ANOVA (Table 5.1) and the Tukey's HSD post-hoc (Table 5.2).

Table 5.1 Analyses of Variance (ANOVA)

		Sum of Squares	df	Mean Square	F	Sig.
The distance to the nearest VAMC is a concern for me.	Between Groups	9.602	2	4.801	1.528	.227
	Within Groups	163.380	52	3.142		
	Total	172.982	54			
Wait times when I get to a VAMC is a concern for me.	Between Groups	4.041	2	2.020	.638	.533
	Within Groups	155.190	49	3.167		
	Total	159.231	51			
The judgement I feel while waiting in the waiting rooms at a VAMC is a concern for me.	Between Groups	4.514	2	2.257	1.039	.361
	Within Groups	106.410	49	2.172		
	Total	110.923	51			
The judgement I feel when interacting with the staff at a VAMC is a concern for me.	Between Groups	1.703	2	.851	.306	.738
	Within Groups	139.316	50	2.786		
	Total	141.019	52			
I have difficulty understanding my doctor and/or nursing staff due to language/accent issues and...	Between Groups	16.364	2	8.182	3.501	.038
	Within Groups	116.844	50	2.337		
	Total	133.208	52			
I have difficulty understanding my doctor or nursing staff because they do not adequately explain...	Between Groups	2.592	2	1.296	.529	.592
	Within Groups	122.427	50	2.449		
	Total	125.019	52			
Repeated schedule conflicts with my work obligations and my appointment times is a concern for me.	Between Groups	.213	2	.106	.027	.974
	Within Groups	198.769	50	3.975		
	Total	198.981	52			
Waiting rooms are too crowded and I am uncomfortable in that environment.	Between Groups	9.796	2	4.898	1.498	.234
	Within Groups	160.204	49	3.269		
	Total	170.000	51			
Behavior of and/or interactions with other veterans in the waiting room is a concern to me.	Between Groups	6.001	2	3.000	1.340	.271
	Within Groups	109.749	49	2.240		
	Total	115.750	51			
Accommodations for those with disabilities are adequate.	Between Groups	10.385	2	5.192	2.948	.062
	Within Groups	86.308	49	1.761		
	Total	96.692	51			
The scheduling of my appointments at a VAMC that is more distant than the VAMC closest to home is...	Between Groups	9.291	2	4.646	1.393	.258
	Within Groups	163.382	49	3.334		
	Total	172.673	51			

Source: Calculated by Author (2017)

Table 5.2 Tukey's HSD (post-hoc) for Relevant Variables with Significantly Different Responses Due to Distance from Home to Nearest VAMC

			Mean Difference	Std. Error	Sig.
I have difficulty understanding my doctor and/or nursing staff due to language/accents issues and...	Near	Intermediate	-0.630	0.530	0.466
		Far	-1.320*	0.503	0.031
	Intermediate	Near	0.630	0.530	0.466
		Far	-0.690	0.601	0.489
	Far	Near	1.320*	0.503	0.031
		Intermediate	0.690	0.601	0.489
Accommodations for those with disabilities are adequate.	Near	Intermediate	1.000	0.460	0.086
		Far	0.769	0.448	0.209
	Intermediate	Near	-1.000	0.460	0.086
		Far	-0.231	0.531	0.901
	Far	Near	-0.769	0.448	0.209
		Intermediate	0.231	0.531	0.901

Source: Calculated by Author (2017)

Table 5.3 Means Table for the ANOVA Distance Groups

		N	Mean	Std. Deviation	Std. Error
The distance to the nearest VAMC is a concern for me.	Near	27	3.96	1.808	0.348
	Intermediate	12	4.67	1.614	0.466
	Far	16	4.88	1.821	0.455
	Total	55	4.38	1.790	0.241
Wait times when I get to a VAMC is a concern for me.	Near	27	3.96	1.951	0.375
	Intermediate	11	4.55	1.695	0.511
	Far	14	4.50	1.454	0.389
	Total	52	4.23	1.767	0.245
The judgement I feel while waiting in the waiting rooms at a VAMC is a concern for me.	Near	27	3.26	1.678	0.323
	Intermediate	12	3.92	0.900	0.260
	Far	13	3.77	1.423	0.395
	Total	52	3.54	1.475	0.205
The judgement I feel when interacting with the staff at a VAMC is a concern for me.	Near	27	3.26	1.933	0.372
	Intermediate	12	3.58	1.240	0.358
	Far	14	3.64	1.393	0.372
	Total	53	3.43	1.647	0.226
I have difficulty understanding my doctor and/or nursing staff due to language/accent issues and...	Near	27	3.04	1.605	0.309
	Intermediate	12	3.67	1.371	0.396
	Far	14	4.36	1.499	0.401
	Total	53	3.53	1.601	0.220
I have difficulty understanding my doctor or nursing staff because they do not adequately explain...	Near	27	3.37	1.822	0.351
	Intermediate	12	3.92	1.379	0.398
	Far	14	3.64	1.082	0.289
	Total	53	3.57	1.551	0.213
Repeated schedule conflicts with my work obligations and my appointment times is a concern for me.	Near	27	3.93	2.037	0.392
	Intermediate	12	4.08	2.234	0.645
	Far	14	4.00	1.664	0.445
	Total	53	3.98	1.956	0.269
Waiting rooms are too crowded and I am uncomfortable in that environment.	Near	27	3.59	2.005	0.386
	Intermediate	12	4.58	1.676	0.484
	Far	13	4.31	1.437	0.398
	Total	52	4.00	1.826	0.253

Behavior of and/or interactions with other veterans in the waiting room is a concern to me.	Near	27	2.93	1.567	0.302
	Intermediate	12	3.67	1.303	0.376
	Far	13	3.54	1.506	0.418
	Total	52	3.25	1.507	0.209
Accommodations for those with disabilities are adequate.	Near	27	5.00	1.441	0.277
	Intermediate	12	4.00	1.128	0.326
	Far	13	4.23	1.235	0.343
	Total	52	4.58	1.377	0.191
The scheduling of my appointments at a VAMC that is more distant than the VAMC closest to home is...	Near	27	3.81	1.962	0.378
	Intermediate	12	4.50	1.624	0.469
	Far	13	4.77	1.691	0.469
	Total	52	4.21	1.840	0.255

Source: Calculated by Author (2017)

Results for both the qualitative and quantitative data showed an overall dissatisfaction with the distances the VAMCs are from veterans. However, in terms of the three distance group to VAMCs, the only variables that are statistically significant among the groups are: the difficulty communicating with the medical staff due to language and/or accent barriers and problems related to accommodations for veterans with disabilities at the closest VAMC.

Analyses of Tukey's Post-hoc test shows that as distances increase, dissatisfaction related to those two variables also increases. This suggests, with distance, there is an increase in overall dissatisfaction, reflected in the differences in means for these variables. My qualitative data also supports this result, although in a much more general fashion.

All of these results, taken together, suggest an overall dissatisfaction with the distances veterans must travel to receive the care they are entitled to from the VAMC. This is particularly true in terms of traveling long distances and then, upon arrival, encountering barriers due to language issues or disability accessibility to the VAMC or the staff.

CHAPTER 6

6.0 Conclusions

This chapter will quickly review the results from the entire project that were discussed in the previous two chapters and use these findings to generate general conclusions for the research. This chapter will also highlight some of the methodological weaknesses associated with this research project and identify ways I could improve the next iteration of this research. Lastly, this chapter will highlight the importance of this research to possible future improvements of veterans' healthcare at VAMCs while identifying areas that should receive continued focus in the future.

As discussed in chapter 5, ANOVA analyses and Tukey's HSD post-hoc test results suggest that as travel distance to any given VAMC in Michigan increases, communication misunderstandings and disability inaccessibility become more and more intolerable. While these were the only variables that were found to be statistically significant across the three groups in terms of travel distance, there were a plethora of both qualitative and quantitative data that supports the argument that these variables are important causes of concern but also indicate that long distances to and from the VAMCs and the veterans' homes is a very significant area of concern as well.

Michigan's unique peninsular layout plays a pivotal role in the geographic distances some must travel to receive VAMC healthcare. The Mackinaw Bridge is the only crossing point at the Straights of Mackinaw. This significantly increases travel-times for those who must cross the bridge to go to the nearest VAMC particularly if they need some center specific treatments and must travel to yet another VAMC even farther from their home. There is only one VAMC

in the Upper Peninsula, a region which is notorious, in the winter, for having, at times, travel-halting levels of snow. All of these factors conspire to increase frustration at the lack of choice when nearby facilities are completely inadequate for veterans.

Most importantly, five comprehensive medical campuses is simply woefully inadequate to service Michigan's large and growing veteran community. Even if you placed the VAMCs in the most ideal locations, there would be places that are unacceptably far for regular appointments. But, the simple fact is that currently the VAMCs are not well located to serve all the veterans in Michigan. Three (perhaps four) have overlapping catchment areas. This assures the state's most populous area has adequate coverage, but with limited resources this only exacerbates the distance problem faced by veterans who choose not to live near these particular VAMCs.

6.1 Improvements

The survey was certainly the portion of my project that would require the most significant adjustments to make it more representative. As briefly discussed in chapter 4, the completed surveys were overwhelmingly from Army veterans who were Caucasian and male. While this doesn't invalidate the results of the survey, a major improvement would be to expand the sample size and adopt a sampling stratification method to include a greater number of female veterans and veterans from non-white racial and ethnic groups. Expanding on this, targeting veteran groups that cater to different minority groups might increase the response rates among these groups. Also, there is a focus on the role that combat plays in these studies. While combat experience is certainly a factor in how a veteran might respond to the survey, historically, combat experience excludes female veterans. This might even be seen by the

readers of this thesis and possibly even veterans as a lack of interest in identifying a female perspective on this issue. This must be addressed for future research as every veteran has earned the right to representation and needs to be heard to make improvements to the system. The Army is the largest branch of the military, but it would be nice to see all branches represented as well. In this research, none of the respondents reported Coast Guard service.

Second, the locations where the surveys were conducted in person largely influenced where the mail-in responses to the survey came from as well. While this not necessarily a problem, the locations selected were chosen for convenience according to which service organizations were holding meetings that were in the region of the state where I was travelling. This unfortunately had the consequence of clustering some of the survey responses in those locations where I actually met veterans. The online survey did not reflect this trend, but there was a much more limited response rate online.

Lastly, the survey would be much more robust statistically if there would have been many more respondents. It was a good idea to diversify the types of methods by which a survey could be conducted by making available online, mail-in, and in-person versions. But, this would possibly have been much more effective if there was more outreach and a more concerted effort, perhaps with many teams collecting surveys in many more areas. After the collection period ended, it was very clear that veterans were also much more likely to respond to a survey if given the invitation to participate in person. Meeting the researcher and understanding the research goals was likely a catalyst to veterans completing the survey. Without this contact, a fewer than expected number of veterans filled out the survey. Likely,

this is due to veterans getting inundated with fraudulent offers via the internet so that most veterans have a higher level of skepticism than previous non-veteran research might suggest. **6.2 Where to Go Next**

Research building upon this study could be of paramount importance as the wounded and injured veteran community continues to grow larger, and probably will for the foreseeable future. Accessibility to healthcare is vital, not only for the treatment and recovery for the injuries sustained, but also to the long-term care and rehabilitation that many of these life-long injuries require. There is currently an epidemic of suicides within the veteran community that could certainly be mitigated by greater accessibility to Michigan VAMCs and those throughout the nation.

Follow on research that might highlight specific areas that are currently particularly underserved would help direct where new facilities might be built to assure all veterans receive more comprehensive care. Also, of importance if beyond the scope of this thesis, would be studies targeting the impact of the many regional outpatient clinics that support the VAMCs throughout the state. It would be interesting to know if distance is associated with varying levels of satisfaction in these institutions as well. It is currently unknown what role the current model of regional clinics plays to mediate these barriers.

This thesis was focused on the state of Michigan. Further research might be directed at determining how this question concerns veterans of other states and regions of the U.S. This method may also be of use to the veteran health systems or general health systems of other nations.

Lastly, I think the mixed method of analysis can be used to ascertain the level of satisfaction for any demographic of people in particularly remote locations or in areas of geographic peculiarity that cause people to be more isolated than they may otherwise be. Regions such as the Texas or Oklahoma panhandles far from major cities or isolated rural places such as northern Alaska should be locations where veterans could live while still receiving needed treatment.

This thesis serves as a baseline for identifying perceptions of inadequacies in healthcare provisions for veterans in the state of Michigan in terms of their satisfaction with the healthcare they are entitled to receive. Hopefully, more can be done in the future to help ensure these veterans will both receive the care they need but in a fashion that is not overly burdensome so they may live lives with greater levels of personal satisfaction. There are many more aspects to this problem that further research may uncover, and this thesis serves as a basis upon which subsequent research can stand.

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APPENDIX 1

FOCUS GROUP SCRIPT

Good evening and welcome. Thank you for taking the time to contribute to this group that will help develop the questions on barriers to accessibility to healthcare for veterans at Veterans' Administration medical centers in Michigan. My name is Dale Arnold. I am a graduate student in the department of geography at WMU and I am a veteran of both the wars in Afghanistan and Iraq. I would like to talk with you for no longer than two hours about your experience with the Veterans' Administration medical centers and any barriers that you may have encountered during your time using them. (Distribute informed consent forms)

During our discussion I would like to hear about your experiences with using the VA medical system, particularly with the medical centers. There are no right or wrong contributions to this discussion and I am interested in hearing all of your experiences that pertain to the medical centers even if you have had flawless experiences. I am also interested in hearing what types of obstacles you may or may not have encountered in your time dealing with VA healthcare. Further, I have a draft of my proposed survey that I wish to send out to a sample of 300 – 800 veterans. I hope we can work through the survey during our one to two hours together.

Before we begin, let me suggest some guidelines that will help make this experience more productive.

- 1) Please speak loudly and clearly enough for all to hear.
- 2) Please only speak one person at a time.

- 3) Providing personal information will not be required at any time during this group. So, please feel free to refer to yourself and other parties involved using pronouns. What you say will remain anonymous and confidential.
- 4) My role is to ask questions and listen. I want you to feel comfortable and free to expand upon and have conversations amongst yourselves. I am here to ask a few questions and to guide the conversation from one question to the next.
- 5) Sometimes there is a tendency for one person to talk quite a bit and others to not participate as much. I may ask some to try to cut their story a little short and encourage others to participate. All of your experiences are different, unique, and important to the outcome.
- 6) Thank you so much for your assistance.

FOCUS GROUP QUESTIONS

- 1) Which VA medical centers have you been required to go to for care, and have you had to go to multiple?
- 2) How far do you believe that you have to travel to get to the nearest VAMC?
- 3) Do you believe that there is different treatment for different branches of service at VAMCs?
- 4) What barriers have you encountered accessing healthcare through the VA system?
- 5) How have these barriers affected your use (or non-use) of the VA medical system?

- 6) Are there alternative means for you to access VA healthcare in case you lose access to your primary means of transportation?
- 7) Are any disabilities catered to more or less? If so, how?
- 8) How would you improve the VA system to better suit your needs?
- 9) Are there questions that you would feel uncomfortable being asked on an anonymous survey able to be taken in the privacy of your own home pertaining to your service?
- 10) Are there questions that you would feel uncomfortable being asked on an anonymous survey able to be taken in the privacy of your own home pertaining to your disability?
- 11) Does it matter to you if the researcher is prior service or not when completing surveys of this nature?
- 12) If you were given an anonymous survey that only provided a home address for the purpose of doing a distance analysis, would you be willing to give that information?
- 13) If no, is there a way you might be incentivized to provide that information?
- 14) Lastly, is there anything anyone might feel would contribute to this line of research that hasn't been asked as of yet?
- 15) Looking at the survey, could you suggest any improvements now that you are more familiar with my research goals?

Thank you everyone for participating, I will collect the information needed to enter you into the raffle if you wish to participate. Also, here are the gift cards (distribute the gift cards) for participating in this tonight. You have been an immense help with the progress of this research.

APPENDIX 2
ONLINE CONSENT DOCUMENT

You are invited to participate in a research project entitled “Veterans’ Satisfaction with Veterans’ Affairs Healthcare Services” designed to analyze veterans’ satisfaction with the VA health system paying particular attention to the distances traveled to receive care in Michigan. Only veterans from the State of Michigan should participate. This study is being conducted by Dale Arnold from Western Michigan University, Department of Geography.

After the survey, you may provide your phone number to be entered into a drawing to win a \$250 Pre-paid gift card or one of two \$100 pre-paid gift cards. This drawing will be conducted at the conclusion of the survey. The phone numbers will be given to another member of the faculty (not related to this research) to contact the winners for more information on where to send the prize. This will not be linked, in any way, to this survey.

This survey is comprised of 26 questions and will take approximately 15 minutes to complete. Your replies will be completely anonymous, so do not put your name anywhere on the form. You may choose not to answer any question and simply leave it blank. If you choose not to participate in this survey, you may either return the blank survey or simply not submit the form. Returning the survey indicates your consent for anonymous use of the answers you supply. If you have any questions, you may contact Dale Arnold at (269) 491-0648, the Western Michigan University Human Subjects

Institutional Review Board (269) 387-8293 or the Western Michigan University Office of the Vice President for Research (269) 387-8298.

This survey has been approved by the Western Michigan University Human Subjects Institutional Review Board (HSIRB) on 15 October, 2015. Do not participate after 1 July 2016. Participating in this survey online indicates your consent for use of the answers you supply.

APPENDIX 3

SURVEY

Are you a veteran of the United States Armed Forces? (Have you served in any branch of the Armed Forces)

- ☐ Yes
- ☐ No

Please give your ZIP code so that we may plot your responses on a map showing how far you have to travel to receive medical care at a VAMC.

Do you use the VA healthcare system?

- ☐ Yes
- ☐ No

Do you use healthcare systems other than the VA?

- ☐ Yes
- ☐ No

If so, what other healthcare systems do you use?

Which VAMC do you most commonly use?

- ☐ Ann Arbor
- ☐ Battle Creek
- ☐ Detroit
- ☐ Iron Mountain
- ☐ Saginaw

How far do you have to travel to attend the nearest VAMC?

- ☐ 0 - 20 Miles
- ☐ 21 - 40 Miles
- ☐ 41 - 60 Miles
- ☐ 61 - 80 Miles
- ☐ 81 - 100 Miles
- ☐ 101+ Miles

What is your primary means of transportation to a VAMC?

- ☐ Personal Vehicle
- ☐ Ride from relative and/or friends
- ☐ Bus
- ☐ Taxi
- ☐ Train
- ☐ Bicycle

What is your age?

- ☐ 18 - 30
- ☐ 31 - 40
- ☐ 41 - 50
- ☐ 51 - 60
- ☐ 61 - 70
- ☐ 70+

What is your gender?

- ☐ Male
- ☐ Female

What is your ethnicity?

- ☐ African - American
- ☐ Asian
- ☐ Caucasian
- ☐ Hispanic
- ☐ Native American
- ☐ Other _____

What branch of service did you serve in?

- ☐ Air Force
- ☐ Army
- ☐ Coast Guard
- ☐ Marines
- ☐ Navy

What was your component?

- ☐ Active
- ☐ Reserve
- ☐ National Guard

Did you serve in an armed conflict?

- ☐ Yes
- ☐ No

If so, in which conflict era(s) did you serve? (Check all that apply)

- ☐ World War II
- ☐ Korean War
- ☐ Vietnam
- ☐ Gulf War
- ☐ Global War on Terror
- ☐ Other _____

Did you deploy overseas during the conflict?

- ☐ Yes
- ☐ No

Have you been issued your service's medal/badge/citation for action?

- ☐ Yes
- ☐ No

The following questions are Likert scale questions with ranked categories from strongly disagree to strongly agree regarding your satisfaction with various barriers to healthcare at the VAMC in Michigan.

The distance to the nearest VAMC is a concern for me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

The judgment I feel when interacting with the staff at a VAMC is a concern for me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Wait times when I get to a VAMC is a concern for me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

I have difficulty understanding my doctor and/or nursing staff due to language/accent issues and this is a concern for me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

The judgment I feel while waiting in the waiting rooms at a VAMC is a concern for me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

I have difficulty understanding my doctor or nursing staff because they do not adequately explain my issues.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Repeated schedule conflicts with my work obligations and my appointment times is a concern for me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Waiting rooms are too crowded and I am uncomfortable in that environment.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Behavior of and/or interactions with other veterans in the waiting room is a concern to me.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Accommodations for those with disabilities are adequate.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

The scheduling of my appointments at a VAMC that is more distant than the VAMC closest to home is a problem that I encounter.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neither Agree nor Disagree
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Please mark the qualities that you most associate with your experience with the VA Medical Centers in Michigan in the appropriate box. The box(es) will expand to allow for multiple items to be dropped into each box. (You may choose not to put a descriptor in either box if neither positive nor negative or if you have no feelings either way.)

Positive Characteristics of VAMCs	Negative Characteristics of VAMCs
<input type="checkbox"/> Wait time for appointments	<input type="checkbox"/> Wait time for appointments
<input type="checkbox"/> Treat patients with respect	<input type="checkbox"/> Treat patients with respect
<input type="checkbox"/> Judgement (or lack thereof) from staff	<input type="checkbox"/> Judgement (or lack thereof) from staff
<input type="checkbox"/> Scheduling around my work	<input type="checkbox"/> Scheduling around my work
<input type="checkbox"/> Rescheduling appointments	<input type="checkbox"/> Rescheduling appointments
<input type="checkbox"/> Sending me to the nearest available Medical Center	<input type="checkbox"/> Sending me to the nearest available Medical Center
<input type="checkbox"/> Waiting room wait times	<input type="checkbox"/> Waiting room wait times
<input type="checkbox"/> Travel Distances	<input type="checkbox"/> Travel Distances
<input type="checkbox"/> Patient back-up management	<input type="checkbox"/> Patient back-up management
<input type="checkbox"/> Communication (Language based)	<input type="checkbox"/> Communication (Language based)
<input type="checkbox"/> Communication (Explaining)	<input type="checkbox"/> Communication (Explaining)
<input type="checkbox"/> Frequency of appointments	<input type="checkbox"/> Frequency of appointments
<input type="checkbox"/> Location	<input type="checkbox"/> Location
<input type="checkbox"/> Accommodation of disability	<input type="checkbox"/> Accommodation of disability
<input type="checkbox"/> Privacy	<input type="checkbox"/> Privacy
<input type="checkbox"/> Service provided (quality of care)	<input type="checkbox"/> Service provided (quality of care)
<input type="checkbox"/> Options for care	<input type="checkbox"/> Options for care

The survey is complete. Thank you very much for your participation in my survey. I hope this information may be used to improve services provided to veterans at Michigan VAMCs. If you would like to be considered for the drawing at the completion of this survey please include your phone number in the space provided below. (Only Michigan Veterans will be entered into this drawing.)

APPENDIX 4

MAILER FOR SOLICITING SURVEY PARTICIPATION

Healthcare for Veterans in Michigan at VA Medical Centers

You are invited to participate in a research project entitled “Veterans’ Satisfaction with Veterans’ Affairs Healthcare Services” designed to analyze veterans’ satisfaction with the VA health system at VA Medical Centers (VAMCs) paying particular attention to the distances traveled to receive care in Michigan. Only veterans from the State of Michigan should participate.

This study is being conducted by Dale Arnold from Western Michigan University, Department of Geography. After the survey, you may provide your phone number to be entered into a drawing to win a \$250 Pre-paid gift card or one of two \$100 pre-paid gift cards. This drawing will be conducted at the conclusion of the survey. The phone numbers will be given to another member of the faculty (not related to this research) to contact the winners for more information on where to send the prize. This will not be linked, in any way, to this survey.

If you can, please fill out the electronic version at: <http://tiny.cc/qsjo6x>

If you desire a paper copy, email Dale Arnold at dale.e.arnold@wmich.edu or call at (269) 491-0648 and we will send you a postage-paid copy.

APPENDIX 5

HSIRB APPROVAL

Date: March 4, 2015

To: Gregory Veeck, Principal Investigator
Dale Arnold, Student Investigator for thesis

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 15-02-36

This letter will serve as confirmation that your research project titled “Veterans’ Satisfaction with Veterans’ Affairs Healthcare Services as a Function of Geographic Distance” has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may **only** be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., ***you must request a post approval change to enroll subjects beyond the number stated in your application under “Number of subjects you want to complete the study.”*** Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 3, 2016