



PREVENTIVE CARE IN RURAL AREAS: A CROSS-EXAMINATION OF THE UNITED STATES AND GERMANY

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ABSTRACT

The purpose of the qualitative self-report study is to further explore the perceptions and practices of German and American recipients of healthcare within rural areas in regard to barriers currently faced in accessing healthcare, possible reform of care practices, the current state of utilization of health system, and representative introduction of innovative methods. If studied, these factors allow healthcare directors, local and national governments, and the patients themselves to access information that supports informed planning and decision making. The sample consisted of 135 Americans and 133 Germans living in rural areas (e.g. south-eastern South Dakota and the Black Forest region of Germany). The method of data collection entailed distributing and collecting a self-report survey which was analyzed using a chi square test for independence. Literature at the time of the study depicted serious inequities between urban and rural populations and the rural resident's ability to receive quality healthcare. Providing access to quality and affordable healthcare is delegated to lawmakers and healthcare executives who are encouraged to understand the issues reported by the people who currently use the system. Based on findings in both countries, there were possible reform options and recommendations presented along with topics for future research.

KEYWORDS: Rural Healthcare, Preventive Healthcare, Immunization, Population Health, Germany, United States, National Healthcare System.

CHAPTER ONE: INTRODUCTION

At the time of the U.S. independence, two key documents in the nation's history are drafted and placed into effect. Even though The Constitution and The Bill of Rights are centuries old, these remain two of the most important documents concerning the rights of the citizens in the United States. Health care is not mentioned in either. Germany, on the other hand, has had an official national health system since 1883. In the late 18th century at the time of U.S. independence, healthcare as we know it did not exist, but no new legislation has ever added healthcare to the rights of every U.S. citizen. The German health care system is the first ever universal health system in the world, based on Otto von Bismarck's social legislation (Hoffmann, Zwingmann, & Biermann, 2018). Initially, five to ten percent of Germans were covered by the "sickness fund," but coverage has recently been reported at 89% (Busse, Blümel, Knieps, & Bärnighausen, 2017). Since 1883, many services have been added, and competition among the individual sickness funds has strengthened the market orientation (Mertens, 2017).

Establishing and maintaining a national healthcare system is a complex venture. The United States health care system, like health care systems around the world, is

"faced with the daunting task of systemic system-wide reform driven by a variety of new cost and quality constraints," (South-Winter, George, & Dag, 2018, p. 252). In an attempt to juggle these varied attributes, numerous so-called population health management (PM) initiatives are being developed in an attempt to provide systemic solutions. There is no perfect healthcare system across the globe. Because of circumstances such as "rising costs, new legislation, changing population health care needs, and discrepancies in the quality of care," (South-Winter, et al., 2018, p. 253), it is more important than ever to understand what factors influence the success of healthcare systems and what effects they have on the people that utilize them.

The characteristics of a successful healthcare system requires a balance between cost, access, and quality of health services (Hussey, Wertheimer, & Mehrotra, 2013). Preventive care, is the common thread of all three factors, and if implemented correctly offers hope to improve a nation's system. It is an intuitive notion that a nation's healthcare cost declines when adequate preventive care standards are being met. When preventable services (e.g. screenings, immunizations, education, annual check-ups) are implemented, it acts as an asset for reducing long-term, expensive health

conditions (Scott, 2009). This research project will assess perceptions of preventive care, namely in rural communities, in both the United States and Germany by the patients who currently use each respective system.

The United States and Germany both are developed countries, both have large populations, and both have unique challenges in healthcare. In the United States' healthcare system, private markets and pluralism reign; there is no single nationwide system of health insurance. The government may provide health insurance to specific groups, but, as a rule, health insurance is acquired in the private market. The private market for insurance consists of groups of for-profit insurers or non-profit insurers. Most of the population, nearly 56%, purchase insurance through their employer as part of a group rate that provides savings to policy holders (U.S. Census Bureau, 2016). Private insurance typically allows the policy holder to choose a preferred physician and will reimburse the physician at a standard rate for each service performed. Approximately one-fourth of Americans are also provided coverage from public insurance programs under Medicare and Medicaid (Ridic, Gleason, and Ridic, 2012). Medicare is "a uniform national public health insurance program for aged and disabled individuals," while Medicaid covers "economically disadvantaged groups" (Ridic, et al., 2012, p. 113). Thus, creating a quasi-market system with social fixes.

Finally, there are those who are uninsured. Because individuals are uninsured does not mean that they are not able to access healthcare resources. For example, the uninsured segment could include the very wealthy, who can afford to pay for their procedures through out-of-pocket means. The majority of the uninsured, however, face challenges when seeking medical care. According to Ridic and colleagues (2012), a portion of the uninsured population are recipients of care from subsidized public health clinics and hospitals.

In contrast, the German healthcare system is a socialized medicine program, stemming from the late 1800s that was later refined by Otto von Bismarck (Ridic, et al., 2012). The pillar of the German system is that the government is responsible for providing a range of social benefits for its citizens. These include but are not limited to: medical care, disability funding, unemployment stipends, maternity benefits, and retirement age allowances (Busse, et al., 2017). The 16 provinces in Germany have significant control over each region's healthcare matters, but they each have the same basic structure. Every individual is lawfully obligated to buy health insurance. The portion of the population earning an annual salary of less than 35,000 Euros (currently 40,330 USD) is required to join a sickness fund for coverage. A sickness fund, which nearly 75% of Germans are a part of, is comprised of a not-for-profit, private insurance firm that receives funds from employees and employers (Busse, et al., 2017). The

German population earning above this cut-off has the option to either remain in a sickness fund or opt out and purchase private insurance. Once individuals of this group opt out of the system they cannot opt back in unless their income falls below the 35,000€ margin. Many Germans, from both groups, who opt into the sickness funds purchase supplemental private insurance to lessen the burden of co-payments and for additional benefits.

The healthcare system in each country is highly structured and regulated; each has strengths and weaknesses. One such shared weakness involves healthcare in rural areas. According to Casey, Call, and Klingner (2001), rural areas are markedly underserved, and rural residents do not visit hospitals and clinics as often as do their urban counterparts. Weinhold and Gurtner (2014) indicates that this population is also less likely to receive preventive health care and, therefore, have overall poorer health due to these discrepancies in the level of care. The greater problem of generally poorer health stems from the "scarcity of services, lack of adequately trained physicians, insufficient public transport, poor availability of internet services," along with difficulties "attracting and retaining physicians and maintaining the same health standards on par with urban counterparts," (Douthit, Kiv, Dwolatzky, & Biswas, 2015, p. 614).

Clearly, there are extensive complications with the current healthcare system in the U.S. and especially with rural healthcare. One rural factor that stands out from the rest is the inability to attract and retain physicians (Chan, Etienne, Dayrit, & Braichet, 2010). Without adequate retention of the current physicians and acquisition of recent graduates, it is not possible to successfully deliver healthcare services. Attracting additional qualified health professionals is imperative to maintain the deliverance of quality care outcomes to patients. This is a priority for employers and administrators in the field of healthcare, since recruitment and training costs are excessive in workplaces with high turnover rates. Furthermore, the "baby boomer" generation will result in many vacant positions as physicians and specialists are nearing retirement age (Labelle & Shambaugh, 2012). The hiring of recent medical school graduates is vital in maintaining quality of care in order to fill these vacancies. Ideally, new graduates accepting positions in these rural areas will be able to learn from professionals with decades of experience during orientation to their new position (Chan, et al., 2010).

This points to the importance of maintaining quality healthcare and the primary focus of the study; the infrequent use of healthcare services in rural areas. Rural residents are simply not as likely to receive health services as those in urban communities (Labelle & Shanbaugh, 2012) in both Germany and the United States. When focusing strictly on utilization of preventive healthcare measures such as screenings,

immunizations, education, annual check-ups, the rate is even lower (Casey, et al., 2001). This lower utilization of preventive healthcare is cause for alarm for each stakeholder (patients, healthcare providers, government, and insurance companies). If informed, perhaps patients will see value in preventive care, and thus, more likely to visit a physician to receive preventive treatment. When healthcare providers and governments are aware that this discrepancy exists, they might be more likely to advocate for this group or direct initiatives which lessen the impact of late-state diagnosed disease or even the spread of preventable diseases. Finally, the insurance companies may be inclined to provide additional preventive treatment at no extra cost to the patient or at a discounted price. Preventive treatment may help to deter the onset of expensive, chronic illness.

Background of the Problem

Policy makers in both the United States and Germany have been burdened with the task of perfecting their healthcare systems (WHO, 2017). Decades upon decades of reform has not rid either system of a particular problem; it is those who live in rural areas in these countries that continue to suffer the most (Chan, et al., 2010). Rural communities face barriers to accessing healthcare as well as receiving quality healthcare from competent physicians.

The focus of this comparative study are two regions each containing university towns, one in the Baden-Württemberg state, Black Forest (Schwarzwald) region of southwest Germany, and one in the southeast region of South Dakota, United States. Schwarzwald encompasses approximately 2,320 square miles and is home to just over 200,000 residents (DESTATIS: Statistisches Bundesamt, 2016). The southeast region of Germany is sparsely populated in and around the Black Forest (Schwarzwald) and is comprised of small, isolated communities. Such a setting can be particularly difficult to deliver adequate, accessible healthcare for its residents since the residents may live long distances from regional healthcare facilities. Rural communities in South Dakota also have similar difficulties. Southeast South Dakota is similarly composed of a web of communities with a significant distance between communities. Sioux Falls and Vermillion are the cities of focus, and have populations of 174,360 and 10,844, respectively (U.S. Census Bureau, 2010). The populations of the two regions are similar.

The demand from patients for access to healthcare providers is expected to escalate significantly in both of these aging communities. Currently the average age in the Schwarzwald region is 42 years of age, and the average is 37 years of age in South Dakota (DESTATIS: Statistisches Bundesamt, 2016; U.S. Census Bureau, 2010). In 2000, the average age in the Schwarzwald region and South Dakota was 39 and 35, respectively (DESTATIS: Statistisches Bundesamt, 2000; U.S. Census Bureau, 2000). Both areas have shown steady

increases in the average age of its residents as a result of 1) the elderly living longer and 2) a smaller average number of children per household (WHO, 2017). In addition, young people in rural areas are migrating to urban areas in order to utilize their degrees, which is referred to as “rural brain drain,” (Carr & Kefalas, 2009). Because of findings such as these, it is likely that there will be significant changes in the demand and frequent use of health systems in the near future. It is unknown precisely how these changes will present themselves and what the effect will be on rural systems; there is a range of complicating factors, and there is not currently a reliable way to predict these changes. One thing for certain, though, is the increased use of the system by patients with chronic illness who live longer (WHO, 2015). Extending the productive, healthy years of patients is leading to a more demanding workplace for physicians. An imbalance between the number of patients they are able to see in a day and the patients who need care as soon as possible in both countries is occurring (Ridic, et al., 2012).

Without the improved technology that is currently available, many chronically ill patients would have a shorter lifespan, such as those with similar conditions in previous decades (Dorr, Bonner, Cohen, Shoai, Perrin, Chaney, & Young, 2007). Extensive and frequent, long-term care are now necessary for these patients, possibly for the rest of their lives (Brockmann, 2002). This fast-growing demand for these services does not match the slower increasing number of physicians and health professionals qualified to provide it (Carrier, Yee, & Stark, 2011). Furthermore, the baby boomer generation is approaching old age. This population change will require additional services as they begin to encounter health complications associated with increasing age (WHO, 2015).

These two countries are facing similar challenges in providing preventive treatment in rural areas yet each has challenges unique to their own health care environment. In addition, the history of the German and U.S. systems are quite different, as well, resulting in two distinct health care experiences for the people they serve.

Health care in the United States is a critical issue in politics, especially during primary elections (Linn, Nagler, & Morales, 2010). Both of the major U.S. political parties views health care in a different light, and legislation reflecting the party’s views typically is introduced. Depending on which party has the majority in the bicameral system, legislation may be passed to support their views. For example, in 1965, President Lyndon B. Johnson signed the bill that led to Medicare and Medicaid (Blumenthal, & Morone, 2008). Approximately 50 years later, in 2010, the Patient Protection and Affordable Care Act (PPACA) is signed into effect by President Barack Obama (Maruthappu, Ologunde, & Gunarajasingam, 2013). The goal of PPACA is to provide affordable health insurance

coverage to most Americans, improve access to primary care, and lower costs (Doherty, 2010). Both of these major health care legislation are passed under Democratic presidents and Democratic majorities in Congress.

The future for health care in the United States is uncertain, largely due to political factors. Currently, a Republican president is in office, and the Republican Party occupies a majority in the House and Senate. The current administration is attempting to pass new legislation and repeal laws currently in place (e.g. PPACA). The spring after the election attempts to repeal PPACA and introduce a new health plan simultaneously, titled The American Health Care Act, failed, and thusly so has the repeal of PPACA (Rosenbaum, 2017). If the Patient Protection and Affordable Care Act is repealed, nearly 20 million people will lose their insurance coverage in the United States (Maruthappu, et al., 2013). Due to the opposing political influences on the U.S. health care system, it is not clear how the system will operate in the future.

Initially it seems that the German system is steadily improving. However, this is not necessarily the case since the system is experiencing trouble with financing. The system is based on income, in which the less income you make, the less you pay. Individuals with incomes less than the €35,000 cutoff are required to join the health care system, but if one's income is higher, they may choose to forego paying into the system and, instead, purchase private insurance (approximately 11% of the population), as previously mentioned. The influx of immigrants due to Chancellor Angela Merkel's immigration platform is resulting in thousands of new residents entering the healthcare pool but not the workforce (Rurik, Kolozsvári, Aarendonk, Angelaki, Ajdukovic, Dowrick, & Katz, 2018). Without income, their care is highly subsidized, further contributing to the financial difficulties of the German healthcare system (Rurik, et al., 2018).

In Germany, 11.3% of its GDP is spent on health care costs, which is more than 2% above the Organisation for Economic Cooperation and Development (OECD) average (Papanicolas, Woskie, & Jha, 2018). According to Wilman (2018), the German system encourages overspending. Wilman attributes overspending to the freedom that the patients and physicians have in the system. General physicians do not act as gate keepers, so patients are able to make appointments with specialists right away. Patients are also able to choose the sickness fund they want to join and can visit hospitals more frequently than many of their peers in other universal systems. In addition, Wilman (2018) places blame on physicians, who charge per item, and are thus incentivized to overtreat and overprescribe. Since the German system is experiencing monetary issues, the current structure of the system may give patients and physicians too much freedom in spending.

Among the other stressors, the German healthcare system is facing bankruptcy due to an influx of asylum-seeking immigrants (Rurik, Kolozsvári, Aarendonk, Angelaki, Ajdukovic, Dowrick, & Katz, 2018). In 2015, refugees from Middle Eastern, Asian, and African countries were forced from their homelands due to war and starvation; millions flee to Europe, and the refugee crisis creates significant challenges for all of the national health care systems throughout Europe (Rurik, et al., 2018). The EUR-HUMAN project studies this event, and the associated issues that occur as a result. They find that an influx of refugees increases the workload of general and family physicians who already have a large workload in many of the European countries. This adds to an already stressful work environment. Secondly, there becomes a need for translators. Third, host countries for foreign refugees typically set up shelters and medical facilities. The establishment of these areas is usually aided by non-profits, but the host country makes contributions as well (Rurik, et al., 2018). These three factors weigh heavily on the German system's budget.

Problem Statement

The struggle with delivering healthcare to underserved, rural, or remote communities has been an issue for decades (Chan, et al., 2010). The bigger problem is that patients are not visiting clinics as frequently as they should be because of access issues. Due to the underutilization of the system, chronic illnesses and early-stage disease are not caught in a timely manner. In addition, there is the issue of preventable diseases emerging because of neglect of preventive treatment. According to Chan (et al, 2010), the specific problems include that patients are not motivated to visit clinics, they do not receive necessary preventive healthcare, and they do not receive the necessary education from physicians. Understanding the attitudes of patients about the current system as well as being presented an array of ideas for improvement may help to reform both systems and better deliver quality healthcare in these areas.

Purpose of the Study

The purpose of this study is to further compare the perceptions and practices of rural Germans and rural South Dakotans in regard to 1) the barriers that are faced in accessing healthcare, 2) their current health-related habits and interests, 3) possible reform of care practices, and 4) the current state of utilization of the system. Findings from the study may lead to the introduction of new and innovative methods to deliver healthcare and health education to rural areas and a deeper understanding of the influence of cultural perceptions in directing health care decisions and policy. The self-report survey approach allows each individual to report on their own experiences with the system as well as express their preferences regarding system information. Although this research is quantitative in nature, the data tells a story about each population. This type of study fit the purpose well in that the goal is to use many

individuals' personal experiences in order to draw conclusions to form the 'bigger picture.'

Significance of the Study

The below-average level of healthcare utilization in rural areas does not provide patients with the basic level of medical care that is necessary for healthy living, much less provide them with the innovative and cutting-edge practices these highly developed countries are known for. The importance of this problem is not localized, it is substantially more far-reaching than one assumes. When patients in local areas are not properly treated, especially in terms of preventive care, the chances of experiencing late-stage diagnosis and the lifelong disease burden increases. Instead of focusing on treatment of an illness, providers shall change their focus towards greater efforts of prevention; if the aging population is provided with years that are "healthy, meaningful, and dignified," it will be beneficial for society as a whole (WHO, 2017, p. 3). In this study, patients may give insight to what these systems lack and give opinion feedback on how they can be improved. Healthcare executives, lawmakers, and patient advocacy entities may be able to better serve patients in terms of additional cares provided and avoidance of unnecessary time, money, and discomfort by considering the patient perspective.

Assumptions

Assumptions in research can be a difficult area to navigate but are present in most research. According to Kothari and Garg (2014), assumptions in research are things that are accepted as true, or at least are likely, by researchers and readers. Because of the types of questions on the survey and the anonymous analysis, researchers are able to make several assumptions about the current research. The assumption of this study regarding the attitudes and perceptions about rural healthcare in the United States and Germany include three assumptions.

First, researchers assume that the study's participants provide honest and candid answers to questions on the survey. When participants' answers are dishonest, it can skew the results and, in turn, discredit the study. When participants are given information about the study, researchers assure participants of anonymity to answer honestly without any consequences. The concern of being able to trace the identity of the individual taking the survey is also removed, since all results are deidentified. These precautions reassure participants and allow them to give open and honest answers.

The second assumption made is that the criteria of the sample are inclusive so that the participants have similar experiences with the variables. In this study, the sample populations are taken in public areas from residents of the area who were at least eighteen years or older. By sampling a population living in the rural area, it is more likely that they have similar experiences with healthcare than if compared with their urban counterparts.

Third, it is assumed that participants in the survey had no ulterior motives in completing the survey. Participants are not provided a reward for participation, and not penalized in any way. Even though the information provided may help those in the healthcare field solve some problems associated with the current discrepancies of care, no information is given to coerce individuals into participating.

Scope of the Study

The scope of this study refers to the characteristics of a sample and provides requirements for determining the target sample at hand (Kothari & Garg, 2014). This research project includes 135 individuals from the United States and 133 participants from Germany. These samples are taken in rural areas with assumed similarities of experience in the two countries. Data are collected through surveys distributed in a face-to-face manner by a team of student investigators. Participants are approached in a public place and asked to participate in the survey; the cover letter provides with background and context regarding the study.

Limitations

Kothari and Garg (2014) explains that, at least to some extent, limitations exist in every research project. The limitations outline the "boundaries, exceptions, and reservations" for each study (Kothari & Garg, 2014, p. 37). Limitations are essentially a disclaimer that applies to the research, and it explains why there are possible weaknesses in the findings (Kothari & Garg, 2014).

The scope of the study includes 135 American subjects and 133 German subjects residing in rural areas in their respective country. By having a restricted number of participants, this may not reflect the overall opinion of all of the recipients of rural healthcare both in the two countries and also around the world. This limitation is, however, necessary for researchers to have a substantial yet manageable number for the data analysis.

Another major limitation is that even though there is previous research to account for a significant difference between rural and urban healthcare settings, there was not a direct comparison completed in this study. It is likely to find discrepancies between urban and rural perceptions of healthcare. However, without surveying both populations, it cannot be determined for certain of how much variation there will be; in order to draw more meaningful conclusions, a study may be conducted in urban areas in both countries to allow for thorough exploration.

The third limitation of the study is that researchers must rely on the honesty of the participants. Even though there are protections in place, there is no guarantee that the participants are being truthful in their answers. Inconsistencies between data and reported measures, however, not be attributed simply to dishonesty. The participant will have at least some degree of personal

experiences, bias, and perceptions that may not seamlessly reflect community views.

Delimitations

Delimitations are limitations that the researcher put in place on purpose in a way that reflects the nature of the study (Kothari & Garg, 2014). The population studied is narrowed to healthcare recipients living in rural areas. The scope is further limited to residents living in southeast South Dakota, United States and in the Baden-Württemberg, Black Forest region of Germany. The samples are taken from communities with similar population, resources, political views, latitudinal position and, uniquely, with many sharing an ancestry lineage (“Germans and Scandinavians are overrepresented in the Midwest” (Berger, & Engzell, 2018, p. 2)). Convenience and availability are also factors in choosing study populations. The method of research entails distribution of a short (17-question) questionnaire for a total of 268 participants in both communities. The areas studied are fairly unique in their characteristics, but do not represent every rural community in the United States and Germany (South-Winter, et al., 2018; South-Winter & Cleveland, 2017).

Because of the many variables that make up a community, generalizability is difficult when it comes to quantitative research. A challenge for researchers, no matter what the subject, is to defend the claims of their project being generalizable. It is difficult to demonstrate that a random sample shares enough characteristics with the general population to be able to project findings from a small trial onto the population as a whole. Because this work stems from previous, peer-reviewed research and builds onto it using valid methods, findings can be expected to be representative (South-Winter, et al., 2018).

Chapter Two: Research Method

There are two major types of research: quantitative and qualitative (Kothari & Garg, 2014). This study employed a quantitative approach. In the research collected, participants are able to answer questions about their lived experiences and opinions with or about a particular event or phenomenon. Quantitative research holds importance on hypothesizing about a specific phenomenon and using objective facts, variables, and analysis to find answers to the question they posed (Kothari & Garg, 2014). This research is preferred when the topic has predetermined variables; it is also a fit when a researcher’s goal is to study one topic in depth or when examining a relationship between two known and studied variables. When conducting the research experiment, the goal is to explore the perceptions and utilization of the nations’ rural healthcare systems and draw conclusions from the findings. Participants from each respective country that are at least eighteen years of age and receive healthcare from the rural sample area are the target population. Understanding how the users of a system perceive the services and utilize what is available to them allows for

policymakers and healthcare executives to strategically plan for the future, improve the current state of the system, and have a direct comparison to another rural system. Chapter 3 will include further details of the research method and its appropriateness, details of the population, sampling procedure, and geographic location. Informed consent, confidentiality, the process of how data is collected, survey questions, validity, reliability, and data analysis are also main topics in this chapter.

Research Design

Since the goal is to further understand the perceptions and attitudes about preventive care in rural areas, of the United States and Germany, researchers identify 1) barriers to access, 2) complications with current practices, and 3) future system improvements. A quantitative survey is designed in which participants report experiences with the healthcare system, current health habits, interests and preferences regarding healthy practices, and opinions on possible reform of the healthcare system (e.g. whether it was plausible, favorable, or realistic). This is based on participants’ answers, a narrative emerges that may provide framework for readers to gather the chief inferences from the data in a more meaningful way. A closed-ended questionnaire is employed over other possible designs. This allows for researchers to analyze the sample with more precision and ease of statistical data compilation. Furthermore, the responses are clear and easily understood since they have been predetermined, data comparison is direct and provides better insight as it is the same survey (translated), and gathering the data is quicker and more straight-forward for both participants and researchers. Closed-ended design is also favored since translating more than 100 open-ended surveys is a lengthy process.

Research Questions

In this study, there are certain points of key focus. The research question is: “How do recipients of rural healthcare services perceive the preventive care in terms of cost, access, and quality?” Building from this topic, researchers determine the best ways to study the current affairs in preventive care to be from examining patient feedback. Related questions that are more precise further guided the compilation of survey questions.

1. What are the current practices in rural healthcare? Are they effective, evidence-based, and truly utilized by the consumers? How can it be improved?
2. What are the interests of patients? Are caregivers providing them education and treatment options that appeal to their values and interests?
3. What are the current habits of patients? Do they take part in unhealthy behavior? If so, how often? Are they advised by physicians on these behaviors?
4. Do patients incorporate healthy activities into their lifestyle? Are they rewarded for this behavior? Does cost play a factor in incorporating healthy daily habits?

Based on these supplemental groups of questions, researchers are able to determine if there are barriers to access, motivating factors to take part in healthy behaviors, and what unhealthy behaviors are most common and need to be advised against. Answers to these questions may provide valuable insight into the problem. The various stakeholders in healthcare may be able to use this information on how to better serve these disadvantaged populations.

The research questions are further honed in to target specific topics of interest for researchers. The topics focus on how the system can improve, patients' interests, patient-focused reform, patient education, and the behaviors of the patients in the system. Questions on the survey appear as follows.

1. For daily travel, which of the following do you usually do?
2. During your free time, what activities are you most likely to do?
3. Which educational class or health-related activity would interest you most?
4. Would you be more likely to participate in a class if it were free?
5. How often do you smoke?
6. On average, from the time you are feeling ill, how long would you wait to see a physician?
7. Alternative ways to provide health care from different locations is called telemedicine (telephone, skype, video conferencing) Would this always be a suitable option for you?
8. How would you describe the community you live in?
9. How often do you use wellness (medical) spa services?
10. Are you up to date on your immunizations?
11. How often do you consume alcoholic beverages? (beer, wine, liquor)
12. When you drink alcohol, how many glasses do you have?
13. How often do you exercise for 30 minutes or more?
14. Would you be more likely to attend the gym if it was covered in an insurance plan?
15. Does your physician encourage you to perform activities that promote a healthy lifestyle?
16. Does your physician advise you to give up unhealthy habits?
17. How old are you?

At the beginning of the process, the original English-version questions are translated to the German equivalent while preserving the original meaning by a native German speaker with fluent English abilities. Furthermore, the research questions stem from current scholarly literature about preventive health as well as population health. The survey can be found in appendix A.

Survey Population

When researching a topic, a researcher must decide on a set of individuals that share common traits. These traits

distinguish the group from other populations and will be chosen depending on the focus of the research. This research project includes 135 individuals from the United States and 133 participants from Germany. Originally, 200 surveys are taken in each area. However, to account for population differences, only the age ranges from 18-29 is used in data analysis. These samples are taken in rural areas with perceived similarities of experience between the two countries. Participant populations are chosen because they have direct experience with the topic and are able to aid with understanding. The research team has selected these populations to share their experiences and perceptions of the health care system they utilize.

Ethical Assurances Informed Consent

In order to meet ethical guidelines, permission to conduct the research study is obtained before surveys are administered. The research proposal is approved by the University of South Dakota Institutional Review Board (I.R.B.). Upon the receipt of approval from the I.R.B. (found in appendix B), research is initiated. Informed consent is an ethical guideline for research that ensures participants "have adequate information regarding the research, are capable of comprehending the information, and have the power of free choice, enabling them to consent voluntarily to participate in the research or decline participation" (Polit and Hungler, 1997, p. 134). Before the participant is given the survey, they are provided with written and verbal information about the survey, assured the information is confidential, and informed that the survey is voluntary, allowing them to withdraw at any point without penalty. Written information is more in-depth than the verbal instruction including details about the research process, the nature and purpose of the study, the role of the participant in the study, and confidentiality assurances. When participants agree to complete the survey, it implies informed consent and that they are of the population being surveyed.

Confidentiality

Researchers are responsible for being aware of potential harm their research may cause to participants. Because of this, protecting the participant's privacy and confidentiality is imperative. The survey makes inquiries about personal health information and habits, so it can be used to analyze the health care system. Since it is personal health information, (PHI), it must be protected. Confidentiality ensures that the participants cannot be identified and penalized for participation in the study. Because the identity is unknown, results and conclusions made from the study may be publicized.

Reliability

In terms of research, reliability refers to the degree to which a study can be replicated and thusly supported or contradicted (Polit & Hungler, 1997). Reliability in the qualitative research addresses the consistency of results (e.g. can one depend on the findings?). In the study,

measures are taken to provide consistent results. All surveys are administered face-to-face by a member of the research team with CITI training. Each participant is given an identical copy of the survey (one side English, one side German), and they choose whether to complete it in English or German. These measures allow for the minimization of errors. Even though individual results may differ, the systematic method of data collection allows for accurate replication.

Validity

Validity in a study describes the credibility and can be either internal or external; this means the research attempts to give an accurate, honest, representation of the topic from the respondent's point of view (Kothari & Garg, 2014). Essentially, the validity relies on the participants' feedback being truthful and representative. The goal of the research is to explore the rural health care in these areas through the viewpoint of the recipients. There are protections in place for participants giving candid answers, so the validity of the study is expected to be sufficient. In addition, validity is prioritized by limiting the length of the survey as well as the number of individuals responsible for compiling data; the length is deemed acceptable to gather sufficient information while not exposing participants to fatigue effects. The data compilation is conducted by one person, but the efforts are supplemented by consultations from two, qualified statisticians. Further risks for internal validity include researchers providing personal opinions, selection bias, and unfairly bending results to the expectations of the researcher; there are measures put in place to control for each of these.

Data Collection Procedures

Main Study

Participants for the study are chosen in a variety of public locations in the areas of interest. In both the United States and Germany, sampling locations included public transportation hubs, university campuses, and other accessible, public spaces. Data is collected through surveys distributed in a face-to-face manner by a team of student researchers from a U.S. university participating in a short-term faculty-led study abroad program to Germany. Instructions for student researchers outline that participants are to be approached in a public place and asked to participate after being provided with some background and context. If they agree to participate, the researcher provides them with a survey and further instructions, if needed. The survey takes less than five minutes to complete.

DATA ANALYSIS

The final steps in the process include data analysis and writing about the findings before sharing the results. The data must be analyzed in a sufficient way in order to interpret the data in a correct manner. The goal of data analysis is to provide proper interpretation of the results and present in a meaningful way. This will result in addition to the current literature focusing on preventive

care in rural areas. Revealing new and useful information to other researchers, policymakers, and leaders in the field is the desired outcome.

In quantitative analysis, researchers assess information gathered in order to draw conclusions about the population studied. Sometimes, this entails the quantitative compilation of data. For this project, quantitative data analysis methods are employed, and conclusions are drawn from the findings. A chi squared test for independence is employed to analyze the age range of the most respondents in each country, the 18-29-year-old group. The reason only one age range is chosen as opposed to analysis on the entire surveyed population is to minimize effects between different generations; the difference in age provides recipients of health care with a different experience than those in other age ranges. In addition, only answers with valid responses are counted. If a participant chooses more than one option or chooses not to select an option, the question is removed from analysis. The remaining data given in a correct manner is used by researchers.

First, the data are counted and separated into the two groups: the U.S. and Germany. Then, as before stated, only the 18-29-year-old group is included. For each question, responses are separated into the correct category. Then, expected values are calculated by dividing the number of total participants in the row by the total in the cell, followed by multiplication of the total number in the column. Once actual values and expected values are calculated, the difference of the actual value and the expected value is squared. The squared number is then divided by the expected value, and the process is repeated for each condition. Finally, the sum of these values is compared with the cut-off value. The cut-off value is taken from a table matching the degrees of freedom for a particular question and using the standard 0.05 significance level. If the calculated value exceeds the cut-off value taken from the table, the null hypothesis is rejected. Rejecting the null hypothesis suggests a significant difference. The data analysis of the survey responses provides insight to some of the factors affecting preventive care in rural areas in the U.S and Germany.

Chapter Three: Presentation of Data

Once all data is collected and analyzed, researchers focus on the results of the analysis. Data sets with significant results, where the null hypothesis is rejected, are typically treated with priority. Data sets with insignificant results, however, are similarly important, especially if the result deviates from what is expected.

The survey begins with the researcher inquiring about daily travel methods. Statistical analysis finds the data set to be significantly different. The majority of Germans tend to bike, while the U.S. tends to drive. This difference will be further explored in the discussion section of this work.

Table 1: Results of Survey Question 1.

| 1. For daily travel, which of the following do you usually do? | | |
|---|----------------|----------------------|
| Response | Germany | United States |
| Drive | 5 | 62 |
| Bike | 67 | 6 |
| Walk | 12 | 29 |
| Bus or Train | 34 | 0 |
| | n = 118 | n = 97 |
| $\chi^2(3, N = 215) = 140.66 p < 0.05$ | | |

The next question aims to study the participant's habits in their free time. The majority of Germans choose the "sports" option, while the majority of U.S. respondents choose "TV." Statistical analysis declares the responses from the sample population to be significant. This result is discussed further in the discussion section.

Table 2: Results of Survey Question 2.

| 2. During your free time, what activities are you most likely to do? | | |
|---|----------------|----------------------|
| Response | Germany | United States |
| Hike | 4 | 4 |
| Sports | 29 | 0 |
| TV | 8 | 39 |
| Shop | 7 | 0 |
| Bike | 9 | 0 |
| Read | 23 | 22 |
| Videogames | 4 | 14 |
| | n = 84 | n = 79 |
| $\chi^2(6, N = 163) = 70.93 p < 0.05$ | | |

Question three asks participants to choose the most appealing health-related activity. The option that is most favored by Germans is yoga, and the U.S. favor weight loss. This result is discussed further in the discussion section.

Table 3: Results of Survey Question 3.

| 3. Which educational class or health-related activity would interest you most? | | |
|---|----------------|----------------------|
| Response | Germany | United States |
| Homeopathic | 4 | 1 |
| Acupuncture | 8 | 12 |
| Yoga | 32 | 21 |
| Nutritional Cooking | 29 | 6 |
| Massage | 26 | 18 |
| Smoking Cessation | 1 | 0 |
| Weight Loss | 4 | 29 |
| | n = 104 | n = 87 |
| $\chi^2(6, N = 191) = 40.21 p < 0.05$ | | |

Question four is tied to the previous question; it asks if participants would be more likely to attend a class if it were free. The data is not found to be significant; both U.S. participants and German participants tend to choose "yes." Since the analysis is a chi squared test for independence, the result is do not reject the null hypothesis.

Table 4: Results of Survey Question 4.

| 4. Would you be more likely to participate in a class if it were free? | | |
|---|----------------|----------------------|
| Response | Germany | United States |
| Yes | 119 | 118 |
| No | 10 | 13 |
| | n = 129 | n = 131 |
| $\chi^2(1, N = 260) = 0.38 p > 0.05$ | | |

The fifth question asks about smoking habits. The analysis finds the distribution to be significant. It seems both groups had distributions that were statistically different.

Table 5: Results of Survey Question 5.

| 5. How often do you smoke? | | |
|---------------------------------------|----------------|----------------------|
| Response | Germany | United States |
| Never | 92 | 71 |
| Occasionally | 10 | 15 |
| Daily | 29 | 11 |
| Hourly | 2 | 0 |
| | n = 133 | n = 97 |
| $\chi^2(3, N = 230) = 10.32 p < 0.05$ | | |

Question six focuses on how long the participant waits to visit a physician once they begin to feel ill. Analysis gives a significant result; it seems participants from the United States are most likely to see the physician one to four days after symptoms start, while Germans have nearly an equal distribution between the "1 to 4 days" option and the "5 to 10 days" option.

Table 6: Results of Survey Question 6.

| 6. On average, from the time you feel ill, how long would you wait to you see a physician? | | |
|---|----------------|----------------------|
| Response | Germany | United States |
| Less than one day | 6 | 10 |
| 1-4 days | 59 | 72 |
| 5-10 days | 51 | 27 |
| 11 days to 3 weeks | 10 | 13 |
| More than 3 weeks | 7 | 5 |
| | n = 133 | n = 127 |
| $\chi^2(4, N = 260) = 10.27 p < 0.05$ | | |

The seventh question asks participants about alternative options to healthcare. Telemedicine is the focus of this question, and studying the feasibility of the option is of importance to researchers. Results of this question are found to be significant; participants from the U.S. seem more optimistic with use and Germans are less optimistic in implementing telemedicine practices.

Table 7: Results of Survey Question 7.

| 7. Alternative ways to provide health care from different locations is called telemedicine (telephone, skype, video conferencing) Would this be a suitable option for you? | | |
|--|---------|---------------|
| Response | Germany | United States |
| Always | 2 | 17 |
| Sometimes | 43 | 69 |
| Rarely | 50 | 33 |
| Never | 38 | 15 |
| | n = 133 | n = 134 |
| $\chi^2(3, N = 267) = 31.32$ p < 0.05 | | |

The eighth question is used to verify if the population believed the area to be urban or rural. This is an interesting result; with similar population and resources, one country considers the area urban, and the other largely considers the area to be rural.

Table 8: Results of Survey Question 8.

| 8. How would you describe the community you live in? | | |
|--|---------|---------------|
| Response | Germany | United States |
| Urban | 110 | 30 |
| Rural | 20 | 105 |
| | n = 130 | n = 135 |
| $\chi^2(2, N = 265) = 103.45$ p < 0.05 | | |

Question nine asks participants about their use of medical spas. Both groups have one hundred thirty-two responses. The results of this question are found to be significant.

Table 9: Results of Survey Question 9.

| 9. How often do you use wellness (medical) spa services? | | |
|--|---------|---------------|
| Response | Germany | United States |
| Never | 107 | 108 |
| Once per year | 14 | 7 |
| Once per 6 months | 5 | 12 |
| Once per 3 months | 5 | 0 |
| Monthly | 1 | 5 |
| | n = 132 | n = 132 |
| $\chi^2(4, N = 264) = 12.88$ p < 0.05 | | |

The tenth question asks participants to give their status regarding immunizations. The analysis presents significant differences in responses between the two countries. The majority of Germans surveyed in the area state they did not receive immunizations, while the overwhelming majority of Americans report being up to date.

Table 10: Results of Survey Question 10.

| 10. Are you up to date on your immunizations? | | |
|---|---------|---------------|
| Response | Germany | United States |
| I do not receive immunizations | 61 | 0 |
| I have received them, but I am not up to date | 30 | 18 |
| I am up to date | 40 | 117 |
| | n = 131 | n = 135 |
| $\chi^2(2, N = 266) = 101.73$ p < 0.05 | | |

The next two questions inquire about participants' behaviors concerning alcohol. Question eleven asks how often participants consume alcoholic beverages. The data is statistically significant. The majority of Germans consume weekly, as do Americans.

Table 11: Results of Survey Question 11.

| 11. How often do you consume alcoholic beverages? (beer, wine, liquor) | | |
|--|---------|---------------|
| Response | Germany | United States |
| Daily | 8 | 31 |
| 2 to 3 days | 36 | 9 |
| Weekly | 61 | 54 |
| Monthly | 24 | 32 |
| Never | 4 | 27 |
| | n = 133 | n = 125 |
| $\chi^2(4, N = 257) = 36.91$ p < 0.05 | | |

Question twelve is asked in relation to question eleven. "When you drink alcohol, how many glasses do you have?" There is a significant difference. Germans and Americans are both most-likely to have "three to four" drinks per sitting, while Germans chose "one to two" for the second-highest and Americans chose "I do not drink alcohol" as the second option.

Table 12: Results of Survey Question 12.

| 12. When you drink alcohol, how many glasses do you have? | | |
|---|---------|---------------|
| Response | Germany | United States |
| One to two | 52 | 18 |
| Three to four | 60 | 48 |
| Five to six | 9 | 24 |
| Seven or more | 6 | 12 |
| I do not drink alcohol | 4 | 30 |
| | n = 131 | n = 132 |
| $\chi^2(4, N = 263) = 50.09$ p < 0.05 | | |

The next two questions ask participants about their gym use and likeliness to attend. Question thirteen asks participants if they are more likely to go to the gym if it is covered in an insurance plan. The responses are not statistically significant.

Table 13: Results of Survey Question 13.

| 13. Would you be more likely to attend the gym if it was covered in an insurance plan? | | |
|---|----------------|----------------------|
| Response | Germany | United States |
| Yes | 88 | 90 |
| No | 17 | 18 |
| Unsure | 28 | 27 |
| | n = 133 | n = 135 |
| $\chi^2(2, N = 268) = 0.06$ $p > 0.05$ | | |

The following question asks about participants' level of activity. Participants are asked to indicate how often they exercise for 30 minutes or more. The data is statistically significant. Germans and Americans alike are most likely to exercise two to three times per week, but the next highest categories are "weekly" and "four or more times per week" for Germans and Americans, respectively.

Table 14: Results of Survey Question 14.

| 14. How often do you exercise for 30 minutes or more? | | |
|--|----------------|----------------------|
| Response | Germany | United States |
| Never | 4 | 18 |
| Monthly | 19 | 15 |
| Weekly | 38 | 21 |
| 2-3 times per week | 52 | 51 |
| Four or more days per week | 18 | 27 |
| | n = 131 | n = 132 |
| $\chi^2(4, N = 263) = 16.13$ $p < 0.05$ | | |

Question fifteen and sixteen ask about the behavior of the participant's physician. Question fifteen asks if the physician encourages the patient to perform activities promoting a healthy lifestyle. The data is significant. Germans who respond in each category were almost even. Americans, on the other hand, mostly agree that physicians counsel them to perform healthy behaviors.

Table 15: Results of Survey Question 15.

| 15. Does your physician encourage you to perform activities that promote a healthy lifestyle? | | |
|--|----------------|----------------------|
| Response | Germany | United States |
| No, does not encourage or encourage enough | 67 | 15 |
| Yes, encourages healthy activities | 61 | 118 |
| | n = 128 | n = 133 |
| $\chi^2(1, N = 261) = 56.06$ $p < 0.05$ | | |

The sixteenth question is an inquiry about the tendencies of the area's physicians to advise patients against unhealthy behavior. The results of this question are significant. The data suggests that German physicians are less likely to counsel patients in comparison with the U.S. counterparts.

Table 16: Results of Survey Question 16.

| 16. Does your physician advise you to give up unhealthy habits? | | |
|--|----------------|----------------------|
| Response | Germany | United States |
| Never | 50 | 12 |
| Rarely | 31 | 21 |
| Sometimes | 25 | 42 |
| Usually | 21 | 36 |
| Always | 25 | 24 |
| | n = 132 | n = 135 |
| $\chi^2(4, N = 267) = 45.91$ $p < 0.05$ | | |

Finally, question seventeen asks participants to indicate their age range. Age ranges include 18-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80-89, and 90 and over. As previously mentioned, the age range of 18-29 years is selected to minimize error across a population. This group makes up the majority of each sample population (133 Germans, 135 Americans), and the sample has a similar number of participants in each group.

Chapter Four: Interpretation of Findings

The priority of the current quantitative research study is to explore and understand the perceived barriers of preventive health care in rural areas. In order to complete the task, researchers target the major problem with a subset of questions. The results give detailed information, allowing for identification of the key complications hindering the adequate utilization of preventive care. The data provided insight in several areas, but those of most importance include results from survey questions one, two, three, ten, fifteen, sixteen.

Although it is expected to have some differences among the countries to account for cultural differences and norms, it is important to look at why the differences are occurring. Can it truly be attributed to the differences of the population, or is it a finding that should be studied more thoroughly? Even if it is a cultural difference, would the system benefit by adopting other regions' practices? Some results are ambiguous and do not offer any definite answers, but there are also results that may be explained with current literature.

Question one asks participants to identify which method of transportation they are the most likely to use. Initially, it may seem insignificant and a matter of preference, but research has shown that walking or biking short distances from the home has a beneficial effect on overall health. In the article by Forrest, Bunker, Kriska, Ukoli, Huston, and Markovic (2001), the link between developed countries and prevalence of noncommunicable diseases is highlighted. In the study, a sample of nearly 800 participants is used and compares the activity levels of participants. Walking and biking to the workplace is a major factor considered. The individuals who report higher activity levels (e.g. exercising on the way to work) are also found to have lower BMI, blood pressure, weight, and cholesterol levels, all of which are contributors to disease. In the current study, German

participants are significantly more likely to bike or walk to work. Although BMI and other levels are not measured, literature suggests this is a beneficial health practice. The difference between German and American participants can partially be attributed to the sustainability of the sample area in Germany. Freiburg is globally recognized for being a model city of sustainability. In order to lower carbon emissions, many residents have begun to utilize the city's infrastructure for travel by bicycle (Fastenrath and Braun, 2016). In the United States, such habits are encouraged by workplaces and government organizations. Bicycle paths can be constructed and maintained, workplaces or city infrastructure can allow for bicycle parking, and programming can be set in place to offer incentives for such practices.

In question two participants indicate which of the hobbies listed consumes most of their free time. For German subjects, the most common answer is "sports," and for participants from the United States, "watch television" is the most popular response. For both countries, the second choice was "reading." Results indicate that Germans in the area may be getting more physical activity during their time for leisure activities. Leisure-time activity levels have been studied extensively and various research shows the benefits of increased physical activity. When physical activity is implemented in leisure-time, it may work to decrease BMI (Hallal, Andersen, Bull, Guthold, Haskell, Ekelund, & Lancet, 2012), coronary heart disease (Sofi, Capalbo, Cesari, Abbate, & Gensini, 2008), depression (Kremer, Elshaug, Leslie, Toumbourou, Patton, & Williams, 2014), and mid-life Alzheimer's disease (Rovio, K  reholt, Helkala, Viitanen, Winblad, Tuomilehto, & Kivipelto, 2005). If the survey results are indicative of the larger population, individuals in the United States would benefit from increased leisure-time physical activity.

Question three asks subjects to indicate the most appealing health-related activity listed. German subjects choose yoga as their primary option, and subjects in the U.S. sample select weight loss. As a whole, the participants in Germany are more likely to choose complementary and alternative medicine (CAM) options. Perhaps this is because two-thirds of Germans in the Joos, Musselmann, and Szecsenyi (2011) study report using alternative methods as a treatment or in addition to evidence-based medicinal techniques. In Germany, the most common CAM methods employed include acupuncture, phytotherapy (herbal medicine), and utilizing health spas (therapeutic baths, massage, etc.). Many German sickness funds cover one visit to the health spa per month. It seems this statistical difference can be accounted for by cultural influences, and use of evidence-based medicine versus alternative methods is preferential.

Question ten asks participants to give their status regarding immunizations. Of the subjects from the Freiburg area 46.6% indicate they do not receive immunizations, and 22.9% claim they receive immunizations but are not up to date. Only 30.5% of the German sample indicate they receive vaccinations, and they are up to date. Individuals completing the survey from the United States report receiving vaccinations but not be up to date at 13.3%, and 86.7% of individuals indicate they are up to date on vaccinations. No U.S. participants report not receiving immunizations. Since the difference well exceeds the cut-off value, it is important to look further into the findings. In a study by Siedler and Rieck (2018), regional vaccination rates are examined and in the European Union, Germany has the worst vaccination rates. By 2020, WHO has the goal of eradicating measles, but some countries (including Germany) are falling far below the minimum of 95% immunization rate (Siedler and Rieck, 2018). Of the regions with the lowest immunization rates, Southwest Germany (containing cities such as Freiburg and Stuttgart) takes the lead (Siedler & Rieck, 2018). Immunizing children has been a common practice for decades, and research has supported its efficacy. Some individuals, however, do not believe in its safety or necessity, which can be highlighted in the Heininger (2006) study. In the study, the major contributor to unimmunized children is parental misconceptions. Of the common childhood immunizations, measles, mumps, and rubella; pertussis; and Hib vaccinations receive the most scrutiny. The primary reasons parents indicated for not immunizing their children are: "immunizations are administered 'too early' in life," "immunizations overload the child's immune and allergy systems," and that there are "side effects from immunizations," (Heininger, 2006, p. 6351). The survey provides some important data regarding the issue. Strategies that contradict the prominent arguments against vaccination must be used to educate and counteract misconceptions.

Question fifteen and sixteen ask about the behavior of the participant's physician. Question fifteen asks if the physician encourages the patient to perform activities promoting a healthy lifestyle, while the sixteenth question asks about the tendencies of the area's physicians to advise patients against unhealthy behavior. The results of the survey show that doctors in the U.S. are more likely to encourage healthy activities as well as advise against unhealthy behaviors. In studies that focus on population and community health, the evidence suggests that when doctors prioritize communication with their patients, there are positive outcomes. A study by Kreuter, Chheda, and Bull (2000) examines the role the physician plays in successfully conveying information to patients. If a physician speaks directly to patients about smoking cessation, changes in diet, or physical activity levels, it has a priming effect for when patients are exposed to information later. Patients who receive advice from their physician are more likely to "remember educational materials [on the topic], show

them to others, and perceive the materials as applying to them [directly],” (Kreuter, et al., 2000, p. 430).

In the United States, it seems physicians are more likely to counsel their patients and speak openly with them. This does not stem from physicians simply wishing to know more about their patients. The Joint Commission on Accreditation of Healthcare Organizations (JHACO) and the U.S. Preventive Services Task Force require physicians to ask patients about their personal life, especially if the physician suspects abuse or neglect (Nelson, Nygren, McInerney, & Klein, 2004). Even though the questions may seem probing, it is important for physicians to keep asking these kinds of questions. Communication and transparency between patients and physicians can always get better, and both parties should strive to improve; evidence suggests it is beneficial for both parties (Fitz, 2012).

Implications

The results of the study have practical value for physicians, healthcare leaders, policy makers, insurance companies and patients themselves. In order to provide quality healthcare, a provider must focus on prevention, treatment and follow-up measures. In this chain, preventive healthcare plays an important role – focusing on preventive care can allow patients to bypass the other two steps: treatment and follow-ups. The implications of the research study may be important to physicians wanting to increase the health of a population by reducing preventable diseases and unneeded treatment. Healthcare leaders and policy makers may prioritize these cares in coming years. Insurance companies may be inclined to provide additional preventive treatment at a discounted rate. Finally, patients themselves may place more importance on preventive measures if they perceive value in taking part in them; patients may be persuaded to utilize preventive care if they are convinced it can deter the onset of expensive, chronic or life-threatening illnesses.

It is imperative that healthcare leaders supplement current policies to promote and prioritize preventive care. If healthcare leaders fail to adequately address the issue, the consequences may include the emergence of preventable disease and abundance of late-stage diagnoses. Improving preventive measures is necessary if it is a priority to give patients competent, quality, care. The study may be of use to healthcare leaders since data collected was from patients themselves; it allows direct insight into patient rationale concerning the topic.

Patient feedback is vital to understanding the perceived quality of a system as well as perceived importance of preventive care measures. A successful preventive health care system should directly address patient concerns as well as educate patients on the importance of preventive care (i.e. screenings, immunizations, continued education, annual check-ups). Insurance companies and policy makers take part in this process. Through

programs put in place by these entities, patients should be offered affordable preventive care options. In addition, there should be measures motivating patients to actually participate in them. When patients perceive importance, they are more likely to follow through with the recommendations.

Future Research

Since there is not an abundance of research available for these areas, recommendations for future research include honing in on a specific topic further. Rural health care, primarily in rural and remote areas, is understudied. Duplicating studies that have already been performed with a larger group would also be helpful. In addition, some of the findings of this study are vague or ambiguous. If these findings can be further studied, it might provide more valuable insight into perceptions of preventive care.

First, the future research should focus on whether or not the current findings are generalizable across rural United States and rural Germany. If so, can the findings be expanded to other developed countries or neighboring, such as Canada? The scope of the study is relatively small, and further research will be needed to validate the key implications. For validation, additional research is needed in other rural areas.

Secondly, if researchers want to explore a topic more in-depth, they may decide to use open-ended survey questions. It may be more difficult to analyze in some respects, but themes should make themselves apparent. The open-ended response should prompt participants to give more details, and they will not be forced to choose the “best option,” even if the responses do not properly convey their opinion; it will allow participants to expound upon the topic.

Thirdly, an additional survey question should be added if using the current set of questions. Researchers can look at the gender differences in the population, but there was not a question on this survey prompting participants to indicate their gender. In future research, it could be helpful to add that factor when analyzing the results. The results may be statistically different between the population’s men and women.

Summary

This quantitative research project uncovers perceptions of preventive care currently in practice in rural communities in both the United States and Germany. Although the two systems may be facing similar problems with delivering quality care to these hard-to-reach places, each system is quite unique in terms of history, culture, and current political events. The study highlights each system’s trouble areas, but there is not a one-size-fits-all solution for delivering adequate preventive health care due to these unique factors.

Recommendations have been made based on the current research study as well as a review of the literature. Developing strategies to target poor performance areas in each country's system relies on understanding the underlying factors affecting the delivery of preventive treatment in rural areas. Health care policymakers must listen to patients to understand what their current practices regarding preventive measures are and where their interests lie. If policymakers, physicians, and other stakeholders in population health can appeal to patients' interests and convince them of the value in preventive cares, patients will be more likely to follow through with these measures. Once adequate preventive cares are being implemented, perhaps the population's perception of their health care system will improve further.

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