

The Interactions of the Traditional and Modern Healthcare Systems in Gujarat

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This exploratory research seeks to understand the interactions and dynamics of the traditional and modern healthcare systems in the West Indian state of Gujarat, including both private and public components. The people of Gujarat make use of both allopathic and traditional medicines, but it remains unclear as to what factors influence these decisions. This study states that age, gender, area of origination, and education play important roles in determining what sort of healthcare is sought after.

In order to obtain this information, 500 surveys were orally administered over the course of three months in three different areas of Gujarat. Each individual was asked general biographical information, opened ended opinion questions, and ailment specific questions. These answers were then coded and statistically analyzed.

The results from this study do indicate that the aforementioned factors affect health system choice. It is also revealed that Gujaratis are not satisfied with any of the healthcare systems they have and would like to see changes. In the future, it is hoped that the results from this study can be used to create a more efficient overlap of the healthcare systems in Gujarat.

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PREFACE

Thank-you to my teachers, friends, and family for supporting my research. Thank-you to the State of Gujarat for allowing me to conduct this research and to the people of Gujarat for giving me their time and thoughts. Special thanks to Dr. Sharma for being my advisor and guiding me, to Jacqueline Schaeffer for being my companion throughout this journey, and to my brother Ravi for being my body guard and best friend.

1.0 INTRODUCTION

This thesis strives to look at the various healthcare systems in the West Indian state of Gujarat, specifically, how Gujaratis utilize traditional and modern medicines and what general perceptions on healthcare are. It is hoped that this research will provide more information on what services are available in Gujarat and how they can be best utilized so that everyone can receive affordable and effective basic healthcare.

As Gujarat is my ancestral home and current location of half my extended family, I am a frequent visitor to the state. Having been to India many times, I have suffered a variety of minor illnesses due to the environmental changes for which I have been subject to some seemingly strange medical practices and rationales, such as being told that eating ketchup and lentils caused my fever or that snorting this yellow-orange powder will cause my stomach upset to go away. From a young age, these home remedies or “desi dawa” have intrigued me. I am curious about their scientific validity and widespread (and often varied) use throughout society. Thus, my research is inspired from my visits to Gujarat.

In addition to these more traditional medicines, I have also noticed a demand for western medicine. Whenever my father, a New York City trained doctor, would visit friends and family, invariably, he would be asked many questions about health. I remember being confused and asking my dad why people did not go see doctors in India if they wanted medical advice. My father’s word as a doctor from America was highly valued because he was an authority from abroad and because not everyone could afford seeing a doctor. Another observation I made was that the only buildings that could rival the sheer number of temples in Gujarat were the pharmaceutical stores. Thus, I found myself facing this interesting question. On the one hand, almost everyone had some sort of belief in traditional medicines, natural ayurvedic solutions, and home remedies, yet on the other hand, there was also a high demand for allopathic, high tech, and chemical solutions to problems.

These previous experiences in Gujarat have led me to conduct this research on healthcare systems. I would like to know what types of medicines are preferred for what types of illnesses and whether this preference is due to actual beliefs or due to other factors, such as time or money. I believe that an individual's age, gender, geographic area, education, and income will affect his or her decision to use traditional or modern medicine. I hypothesize that the groups of urban, higher education, and younger age prefer modern medicine while rural, less educated, elderly groups use traditional medicines. I do not think that issues such as distance and cost are what always prevent people from using modern medicine as there is true belief in the ayurvedic system. Finally, I believe that most people are unhappy with the current health status of Gujarat, but would like to learn what specific elements are good and bad beyond the fact that medical care is too expensive. While this research is exploratory in nature, I hope these results can provide insight into whether or not healthcare is being efficiently administered to the people of Gujarat.

1.1 HEALTHCARE IN INDIA

Before looking at the healthcare status in Gujarat, it is important to consider how healthcare operates in India as a whole. The Indian government promises universal healthcare to its citizens, but directs that responsibility to the state. In Part IV Article 47 of the Indian Constitution, it is stated that it is a “duty of the State to raise the level of nutrition and the standard of living and to improve public health.” The main venue through which legislation is based upon is the National Health Policy (NHP), created in 1983 and updated in 2002. In addition, there have been multiple five-year plans that address issues such as preventive medicine, communicable diseases, and health in rural areas.

There are three main forces in the health industry: government, trust, and private organizations. The government has structured its hospital system along a tiered basis, with primary health centers (PHCs) in rural areas, larger hospitals at the taluka (town) level, and the most extensive government hospitals in the cities. Trust hospitals, created through charitable contributions and private-public partnerships, offer services at a much discounted price as

compared to private hospitals, but are not run by the government. Finally, the private industry makes up most of India's healthcare capacity, being the most likely location of consumer spending. Most of the doctors and hospitals in Gujarat are private, from large high tech Western hospitals to smaller private clinics.

Currently, spending on healthcare in India is about \$80 billion and is expected to rise to \$339 billion in 2023 (Mehta et al 2008). This expenditure is about 6% of India's GDP, with a growth rate of over 16%. Of total health expenditures, the public sector contributes 26.2% with the rest coming from private sources. Indeed, India has the lowest health spending out of the Asian nations and one of the lowest public health expenditures in the world (see Figure 1). With such a small portion of healthcare coming from the government, it comes as no surprise that consumers turn to the private sector for their medical needs. For the average Indian, the established per capita spending for healthcare is about Rs 320 per year. Of this number, 75% comes from individual input, 15.2% from state governments, 5.2% from the central government, 3.3% from third-party insurance groups, and 1.3% from municipal governments and foreign donors (World Health Organization 2005). Though healthcare is universal, Indians pay for it themselves.

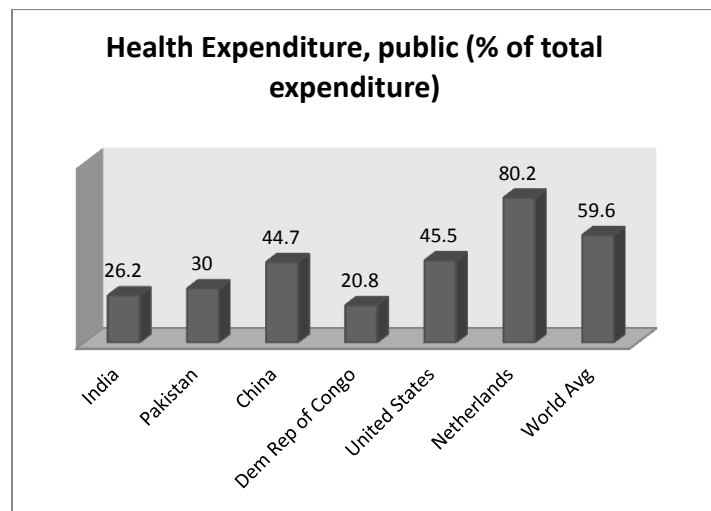


Figure 1. World Development Indicators, 2007

The main administrative body responsible for health and welfare is the Ministry of Health and Family Welfare, with three departments: the Department of Health, Department of Family Welfare, and Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH). The Department of Health is responsible for issues such as healthcare, health education and awareness, immunization, preventive medicine, and public health. The

Department of Family Welfare picks up maternal health issues, childcare, family planning, and works closely with international aid groups and rural populations. Finally, The Department of AYUSH represents the various traditional and alternative medical systems present in India. AYUSH ensures that alternative medical education remains robust and up to national standards. In addition, AYUSH promotes scientific research on traditional medicines.

While health as a whole has improved in India throughout the years, with radical decreases in ailments such as polio, tuberculosis, small pox, leprosy, and other infectious diseases, there are still many improvements to be made. For example, surprisingly, dengue fever, malaria, viral hepatitis, and pneumonia are returning areas of concern (“Healthcare in India” 2007). In addition, newer to India is AIDS and “lifestyle” diseases. Lifestyle diseases, such as hypertension and diabetes, occur from the emergence of a larger white collar working class that earns more money and spends more time in offices. Diabetes is a particularly significant obstacle that urban India may have to overcome as the new sedentary lifestyle, excess of food, and stresses from work coupled with genetic susceptibility lead to even greater diabetes level than the current 12.1% (Ramachandran). Last but not least, in addition to specific ailments, India also has to deal with issues such as malnutrition, water sanitation, and pollution, factors that contribute to poor health.

Finally, health insurance is an underutilized and inaccessible resource in India. As most of India’s good quality healthcare is private as opposed to public, the promise of universal healthcare remains a shadow of reality. In addition, government hospitals are overworked and unable to meet the high flow of patients at their doors. Therefore, to receive faster, higher quality care, many individuals turn to the more available private resources. However, healthcare insurance is also expensive and a vast majority of the population cannot afford it. Even in the upper-middle class, about 50% are insured (“Healthcare in India” 2008). An initiative to make healthcare affordable is the BPL Card. Introduced by India’s Finance Minister Chidambaram, this health insurance scheme gives smart cards to poor people which allows them to use 750 dollars a year at private and government hospitals (India 2011). The central government is taking up 75% of the costs. While this plan is theoretically sound, its widespread effectiveness is yet to be seen.

While there are certain high level hospitals, both public and private, there remains a great need for infrastructural change. The National Health Policy identifies that “the decentralized Public health service outlets have become dysfunctional over large parts of the country,” and the lack of resources often makes drugs not available at government hospitals, forcing people to purchase drugs from private practitioners. There is not enough money, doctors, or hospitals for the rapidly growing population. To top, poor conditions such as substandard living, densely populated areas, and improper waste disposal only spread the reaches of disease. I hope that through my research, I can help shed more light on these issues, specifically in the state of Gujarat.

1.2 BACKGROUND ON GUJARAT

Gujarat is located in the western portion of India and is composed of a population of over 50 million. There are 26 districts in Gujarat, 18,539 villages, and 62.6% of the population resides in rural areas (RHS, March 2008). Most Gujaratis are Hindu, but there is also a substantial Muslim and Jain population. The largest caste group in Gujarat belongs to the vaniya, or business class. Gujarat is one of the most well off states in India, with a GDP growth of 11%. Gujarat’s economic fortitude can be attributed to high rates of industrialization and the good business abilities of its citizens. Due to its large coastline, Gujarat is easily able to trade with other states in India and other countries. Gujarat’s primary crops include cotton, peanuts, sugar cane, and dates. In addition, dairy, chemical, petrol, and cement industries are highly developed. An up-and-coming business in Gujarat is medical tourism, when individuals from Europe, America, and Canada travel to Gujarat to receive medical care faster and cheaper than they could in their own country.

Table 1. Important Gujarat Statistics

General Stats	Gujarat	India	Source
Total Population (millions)	60.38	1210	Census, 2011
Life Expectancy Male (years)	63.1	67.46	Census, 2001
Life Expectancy Female (years)	64.1	72.61	Census, 2001
Crude Birth Rate	22.6	22.8	SRS, 2008
Total Fertility Rate	2.5	2.6	SRS, 2008
Infant Mortality	50	53	SRS, 2008
Sex Ratio, Female:Male	9.18	9.33	Census, 2011
Population Below Poverty Line (%)	16.75	27.5	Census, 2011
Literacy Rate Male (%)	87.2	75.26	Census, 2011
Literacy Rate Female (%)	70.7	65.46	Census, 2011

While a well-off state, Gujarat must deal with many of the problems mentioned above with healthcare. While stats show higher levels of income and education in Gujarat, life expectancy remains below India's average (see Table 1). As one of the richer states, there are more people who have high stress desk jobs, leading to unhealthy lifestyles; in urban areas, obesity, cardiovascular disease, diabetes, and certain types of cancer are becoming much more prevalent than before. In contrast, rural areas remain underdeveloped further accentuating the disparity between resources and facilities available in large cities like Ahmedabad and Surat in comparison to more distant areas. Rural areas suffer from a lack of proper medical attention. According to recommendations made by the government of India, given its population and area, Gujarat has a shortage of 99 primary health care centers and 20 community health centers. To add to this problem, not every PHC or CHC has a doctor; instead, health assistants play the role of doctor in these rural clinics (see Table 2). While these assistants are trained to deal with general health problems such as flus and fractures, they do not have more specialized training. Having one of the best educated and well-off populations in India, there are many fine doctors and hospitals, but access and availability to these resources are limited.

Table 2. Gujarat Infrastructure Statistics from the Government of Gujarat website

Government	
Health Institutions	Numbers
District Hospitals	23
Referral Hospitals	409
Primary Health Centers	1073
Doctors at PHCs	1019
Community Health Centers	273
Doctors at CHCs	93
Rural Dispensaries	8347
Ayurvedic Hospitals	48
Ayurvedic Dispensaries	493
Homeopathic Hospitals	14
Homeopathic Dispensaries	216

2.0 LITERATURE REVIEW

One of the most intriguing aspects about healthcare in India is its pluralistic nature. In addition to the modern Western conception of medicine, ayurveda and other traditional medicines are used throughout India as a system of primary healthcare (Valiathan 2006). Especially in recent years, there has been a push towards scientific affirmation for the cultural belief in ayurveda through experiments and case studies (Sharma et al 2007). In Gujarat in particular, AYUSH has pushed for testing of traditional health practices to determine their effectiveness and safety.

Another important point to keep in mind is that traditional and modern medicines are not mutually exclusive. It is possible for an ayurvedic doctor to prescribe pills and tablets, just as it is common for a MBBS doctor to recommend herbal remedies (Kakar 1988); the two systems are not independent of each other and it is likely that people do not use philosophical principles of synthetic versus natural when making health decisions, but rather choices based upon where they perceive the better health outcome can be received. A study by Rohde and Vishwanathan shows that many healthcare providers were less than fully qualified and provided healthcare from combining various systems (Rohde and Vishwanathan 1995, Bhattacharyya 1983). While providing poor quality services is not a desirable outcome, the collaboration between Western and traditional medicine could potentially assist in giving primary healthcare to needy populations (Benatar 2001). An important idea to keep in mind is that traditional medicines, especially desi home remedies, are so much part of Gujarati lives that they are not even considered part of healthcare. Traditional medicines have been incorporated into everyday treatment, with belief in religion and God influencing the use of desi dava (Hilton et al 2001). In sum, when looking at healthcare in India and Gujarat, it is integral to consider both traditional and allopathic healthcare as they are not independent, but rather interdependent systems.

Beyond just traditional and modern healthcare, another important question to ask is the role of private and government health services. While much literature focuses on how to rectify government health services, another possible solution is to use private programs and create better healthcare overall. India has this long-term national health policy which may not be the most appropriate method to improving healthcare; instead, some scholars say that it would be better to “build upon the opportunities offered by the already extensive nongovernment health care sector” (Berman 1998) and actually fulfill government promises of universal healthcare. As most Indians use private healthcare providers and most of the spending on healthcare is private, including the private sector in government plans may prove beneficial.

When presented with so many choices of medicine, it is interesting to determine how people make choices on health outcomes. Studies have shown that age is an important determinant of what sort of health services are utilized, especially in women (Vissandjee 1997, Keith 1990, Ghadially, 1988). Education has also been indicated as a predictor for the use of modern services in various countries of the world (Vissandjee 1997, Berham 1987, Elo 1992, NFHS Gujarat 1993). Another interesting finding is that in rural areas, lower income populations use private care more than lower income areas in urban areas (Berman 1996), indicating a possible greater use of traditional medicines or government doctors in urban areas. These factors of age, gender, education, income, and area need to be understood in order to tailor health services to health demands.

A question that must be asked then is why and how can so many different medical systems exist in one state when none are adequate to meet the needs of the people? Nancy Waxler argues that pluralistic medicine exists not because of demand from the population but because having different systems of medicines gives power to the doctors. Traditional doctors, who often come from smaller villages and cannot afford medical education, can become respected individuals in their own communities and Western trained physicians can avoid having to go to remote villages by claiming there are already doctors there (Waxler 1984). This argument supports the idea that the medical system is more of a business and not geared towards patient outcomes.

Vissandjee’s study takes a different outlook. Studying specifically Gujarat, it was determined that convenience of treatment, such as travel distance and costs, was actually a more important factor than the direct costs of service. Another study looking at 479 households in

rural Gujarat concluded that while almost everyone knew about primary health centers from the government, people still preferred to go to local traditional doctors because, in addition to having faith in those practices, there were shorter lines, closer to home, better timings, and available drugs and medications (Chandwani et al 2009). The time it takes to visit a PHC and the lack of available treatment makes the alternative of seeing a traditional doctor more lucrative. Based off of these studies, it can be seen that the different healthcare systems are geared to different niche populations.

Regardless of where an individual obtains health services, a major problem in India is the quality of care provided. When looking at the fact that there is private care, public care, and traditional medical options in India, it appears as though the problem is not that populations are underserved, but that care is not always high quality while cost is heavy (Gumber and Berman 1995, Duggal and Amin 1989). An example of such poor care quality can be seen with high levels of unsafe injection practices in Gujarat and the need to create regulations and educate the population about injections (Pandit and Choudhary 2008).

A large problem facing healthcare in developing countries, including India, is the lack of accountability and regulation of health services. While the Indian consumer protection act is supposed to help reduce this problem, many medical providers are still not properly trained, lack full credentials, and have little limitation of prescribing drugs (Bhat 1996). Both private and public health sectors suffer from the problem of under-qualified doctors, but private providers are still preferred over government doctors, in part due to the limited budget and bureaucratic inefficiencies of public health provisions. Corruption within both private and public health sectors needs to be tackled in order for proper healthcare to occur. While Gujarat has great potential, efficient use of its resources is necessary.

3.0 METHODS

As the purpose of this exploratory study was to discover where the Gujarati people currently received medical services and what areas they found lacking, there were many different components involved in this study. My research occurred over the span of the months of May-August 2010 and included both quantitative and qualitative aspects. I conducted 500 oral surveys throughout different areas in Gujarat. In these surveys, I obtained general demographic information and asked about what individuals thought of the health services provided by Gujarat and what types of medicines people used for different illnesses. These questions were asked in hopes of better understanding what different strata of people thought of the health services they were provided with and also to see how different systems of medicines were being utilized in Gujarat. The survey process also included free response questions asking the respondents how they maintain good health, how effective they thought the healthcare system in Gujarat is, what their primary concerns are, and where they would like to see improvement in the future. I personally conducted these surveys in Gujarati, sometimes with the help of relatives to assist with translation of more difficult words and rural accents.

Of these 500 surveys, 150 were conducted in Dhrangadhra, 250 were conducted in Ahmedabad, and 150 were conducted in Rajkot. These three locations were selected as representatives of three different areas of Gujarat. Dhrangadhra is a smaller town with a population of 70,653 (Census 2001) in the Surendranagar district and was the former capital of the former princely state of Zalavad. Dhrangadhra and surrounding areas are part of a desert climate and culture. Ahmedabad is the largest city in Gujarat and has been recently recognized as a megacity. With a metropolitan population of 6.2 million and growing, it is the 7th largest city in India and represents urban lifestyles. Rajkot is a city of 1.43 million and the capital of the former mighty Saurashtra kingdom. Rajkot is an industrial blue collar city with a unique culture.

While only a few individuals were directly surveyed from villages, many people living in the towns and cities were originally from villages and had moved into the cities and towns. To ensure diversity in the sample, surveys were conducted in different areas of each city or town. The sampling procedure for conducting surveys was to simply find individuals who would be willing to answer the questions posed. A great attempt was made to select different types of people to talk to retain a representative and random sample; nevertheless, the type of sampling used is best categorized as convenience sampling.

In addition to talking to common people, special interviews were conducted with doctors, allopathic and ayurvedic alike. These conversations provided perspectives from the delivery end of the healthcare system. However, as only a small number of doctors were spoken to, the information received from them may not be representative of all doctors. Also, as the doctors knew they were being used for a research study, their responses may not be honest. In addition to more in-depth interviews with medical practitioners, I visited private, government, and trust hospitals in these three areas. While some of these visits were cursory, through observation and a few questions, I acquired knowledge on the different hospital types and levels.

After collecting the data from surveys, interviews, and site visits, I coded and scored the quantitative components and what quantitative interpretation of the qualitative data was possible. In addition to frequency distributions, I ran cross tabulations on the various ailments and the four proposed factors, age, gender, area of origination, and education. Income was also supposed to be a factor, but the data collected on this variable was not rigorous and had to be thrown out. These relationships also underwent logit regressions, where the binary choices were traditional and allopathic medicines, but the sample size was unfortunately not large enough to produce significant results.

4.0 RESULTS

The results from the data are broken down into the following sections. Demographic data includes information about the sample such as age, gender, education, income, and area breakdown. General survey questions are those free ended response questions whose answers could sometimes be coded but were otherwise comments and personal experiences of individuals. These questions included opinions on the healthcare system in Gujarat, doctors, and hospitals. Other responses dealt with types of treatments preferred and areas of improvement in the future. Finally, a large portion of the data collected dealt with the ailments chart, a table that organized what types of medicines were used for illnesses. This section presents both quantitative and qualitative aspects of the data.

4.1 DEMOGRAPHICS

There were 500 individuals surveyed in this dataset. The demographic breakdown of the sample is as follows. The gender ratio was approximately 70% male and 30% female. The age of the sample size was fairly evenly spread, though there were fewer respondents for ages 56 and up (see Figure 2). Of the people surveyed, 38% reported being originally from city urban areas, 36% from towns, being defined as a population of 20,000 or more, and 26% from rural areas and villages (see Figure 3). While the surveys were conducted such that 80% were in cities and 20% in towns, a fairly even distribution of areas was found. The population surveyed was 82% Hindu, 14% Jain, and 4% Muslim. There were a variety of castes recorded, though their diversity makes them difficult to report or quantify.

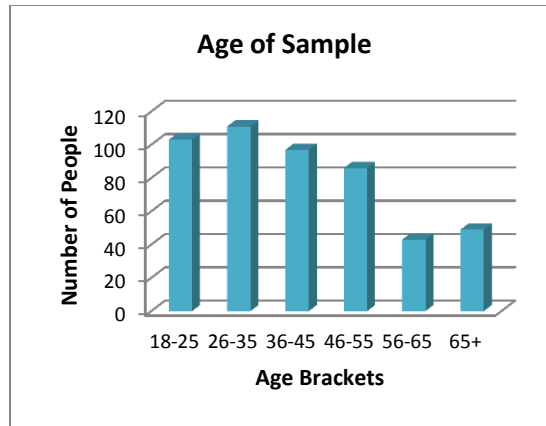


Figure 2. This graph shows how many members age bracket contained. Most people surveyed were between the ages of 18-45.

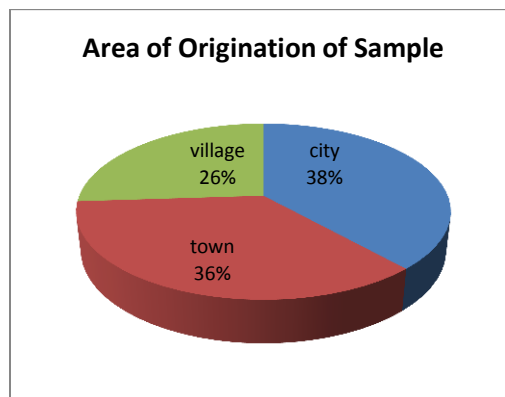


Figure 3. Most people surveyed were born in towns.

Figure 4 shows the frequency of the different education brackets found in the Gujarati people surveyed; roughly 2/3 of the population has completed the western equivalent of high school, “metric pass.” This data is consistent with the statistic that male literacy is around 87% in Gujarat. Family incomes were also recorded and arranged into brackets (see Figure 5). A large majority of the people sampled were in the middle class, which may be disproportionate to actuality. Education and income are both important factors that can affect health making decisions as education shows access to knowledge about health and income shows access to resources.

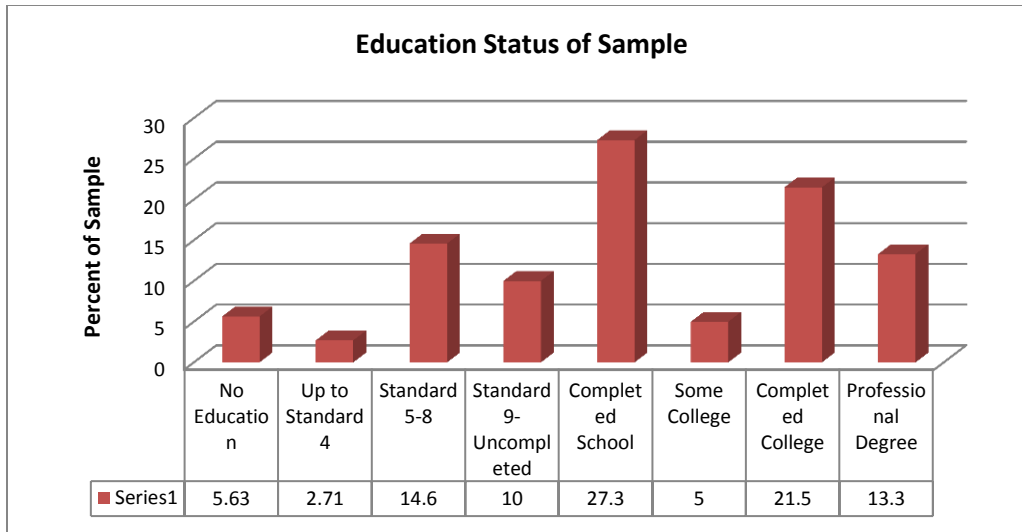


Figure 4.

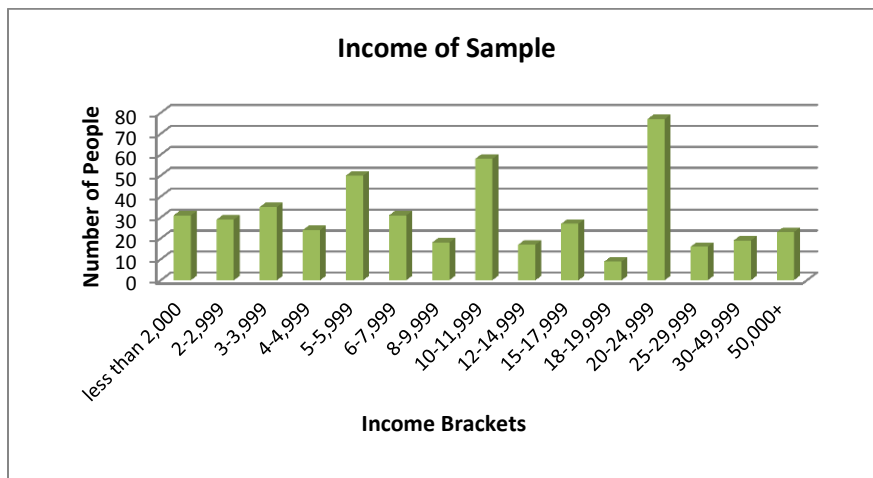


Figure 5. This figure breaks down the sample by income brackets.

4.2 SURVEY QUESTIONS

In addition to demographic information, some general survey questions were asked about health services in Gujarat to gauge attitudes towards private, government, and traditional healthcare. When asked if they believed healthcare in Gujarat was effective, many individuals would say yes, but then proceed to explain that healthcare was too expensive. In fact, 82.7% of the

population found private healthcare to be too expensive and 69.5% of the sample thought that doctors, government and private alike, were more concerned about business as opposed to their practice.

The most common comment stated was that medical care is too costly in India, especially in Gujarat. Doctors are thought of as “professional,” or too much business oriented. People described incidents where either they themselves or family members had been sent to doctor after doctor getting medicines and tests that were not needed. Another common complaint was of doctors charging different prices for the same treatment to different customers. Before being treated, patients need to state if they have insurance and if they do, they are charged a different rate for treatment. Others have complained of duplicate and fake medicines in pharmaceutical stores and of money making collaboration schemes between doctors and drug stores. More alarming, a few people complained of steroids being mixed into herbal medicines. While some of these claims cannot be proven true or false, they attest to the fears of the Gujarati people.

While there are concerns about the honesty of the medical field, there is a general consensus that private hospitals are much better than government ones, even though private hospitals are too expensive for most people to use. Government hospitals fail in that they are always understaffed either because doctors are not present or there are too many patients. While the allopathic system is perceived to be expensive and corrupt, over half of the population surveyed would still like to see more hospitals in Gujarat (see Figure 6). Many of those who responded specifically indicated that good cheap specialized hospitals needed to be made in rural areas. For those who wished for improvements, the most common requests were for doctors to always be present in hospitals and for more technology to be available in rural areas, such as respirators for babies and defibrillators for heart attacks. In sum, private healthcare was found to be too expensive, not enough high quality hospitals are available, especially in rural areas, and doctors need to be more concerned with their patients as opposed to their purses.

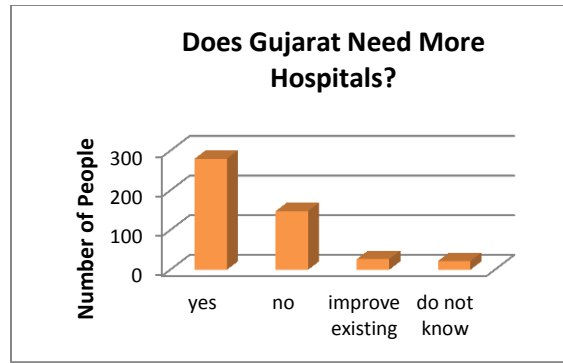


Figure 6.

Owning health insurance was rather uncommon in Gujarat, with only 33 of the 150 individuals in Dhrangadhra owning health insurance, 73 of the 250 in Ahmedabad, and 37 of the 150 in Rajkot. Most people are making medical choices outside of an insured system. The three most common reasons for not having medical insurance were not being able to afford it, not going to the doctor enough to require insurance, and not knowing what medical insurance was. For individuals who do not see doctors for regular checkups, incentive to purchase health insurance remains very low given the cost of insurance.

Another important assessment that was made was medical system preference (see Figure 7). This question posed what system would be preferable given that money and time were not factors. While most people favored allopathic medicines, there was a significant portion of the sample that would rather use traditional and homeopathic medicines over allopathic. These individuals explained that while traditional medicines take longer to use, they have no adverse side effects and are preventive as well as curative. There were also about 50 individuals who simply wanted to use medicine to get better, regardless of what type of medicine was used.

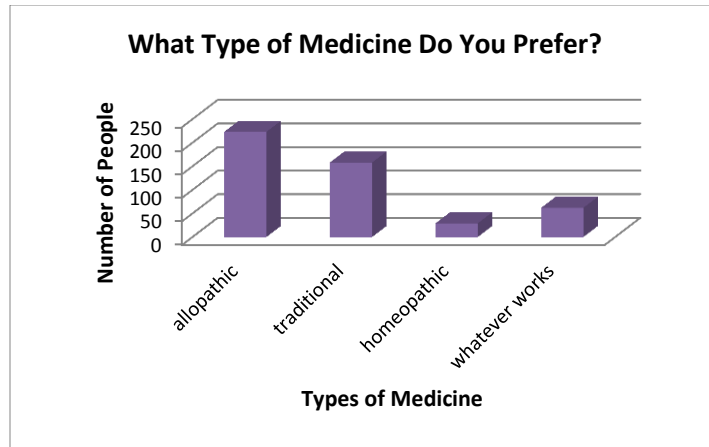


Figure 7.

Another question posed was who should bear the responsibility for providing health services to the Gujarati people, the national government, state government, or some other institution (see Figure 8). A majority of people held the Gujarati government responsible for its healthcare system, with many people explaining that the Indian government cannot oversee all areas and that the state levels are better equipped to understand area specific issues. Other individuals stated that they believed that doctors should be responsible or some sort of board should be created.

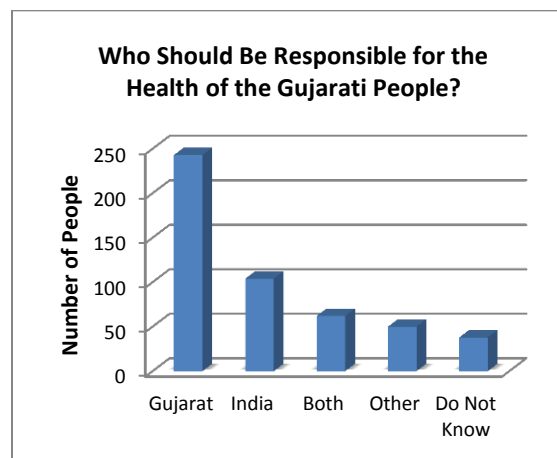


Figure 8.

One last question attempted to gauge health education by asking, “What do you do to maintain your health?” Many people simply stated that their hardworking lives provide them

with exercise to keep them healthy. Others report taking daily walks to stay in shape and active. Only three people reported going to the gym, one from Rajkot and two from Ahmedabad. There appears to be a general awareness that exercise is important to maintaining health, though actually exercising does not seem to occur that often. Instead, most Gujaratis focus on food when it comes to health issues. There are countless different explanations for illnesses based upon food, from avoiding certain foods in certain seasons to limiting foods to recover from illness. One common theme among Gujaratis is the idea that fast food and outside food adversely affect health, so it is better to eat only from home. People believe that eating two meals a day at a regular time will keep your body in balance and healthy. The bharvad (shepherd) community I visited emphasized the importance of drinking fresh water buffalo milk for health, explaining that no one from their family ever gets sick. For everyday illnesses, such as colds, fevers, headaches, and stomach pains, fasting is supposed to help restore the balance and clear the system of any negative components.

Going along with physical balance, maintaining mental equanimity is also cited as an important way to maintain health. It is a commonly held belief that behaving properly and not doing bad things will help maintain good health. To add, almost everyone surveyed stated that praying to God and believing in God contributed to good health. Thus, in addition to physical aspects of health, there is a strong belief in a more spiritual component to health as well.

4.3 AILMENTS CHART

The final set of questions pertained to what medicines were used for various common ailments, including the common cold, fever, headaches, stomach pains, bodily aches and pains, diabetes, and heart problems. This response referred to the first method chosen for the particular illness. I also asked if that individual had ever been entered into a hospital. The responses were coded and grouped into following categories: desi dava/home remedies, pills from the medical store, medicinal packets from the ayurvedic store, homeopathic treatments, visit to a private doctor, visit to a government doctor, or no treatment. Those individuals who did not have the affliction,

no response was recorded. For treating a cold, more individuals made use of home remedies than any other treatment (see Figure 9). For fever, the most commonly used treatment was the medical store or private doctor (see Figure 10). Headaches were commonly treated with pills from the medical store (see Figure 11) while stomach issues utilized desi dava (see Figure 12). Aches and pains saw a fairly even use of desi dava, medical store, ayurvedic store, and private doctor usage (see Figure 13). While the sample for diabetes (see Figure 14) and heart problems (see Figure 15) was not large, it was clear that seeing the doctor and taking the prescribed medication was the treatment of choice.

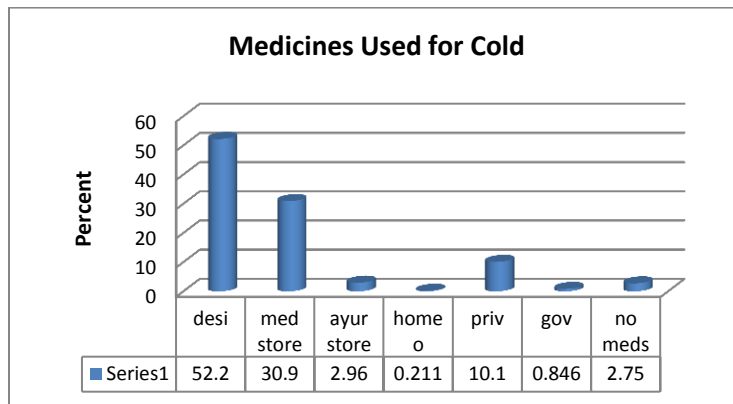


Figure 9. 473 responses

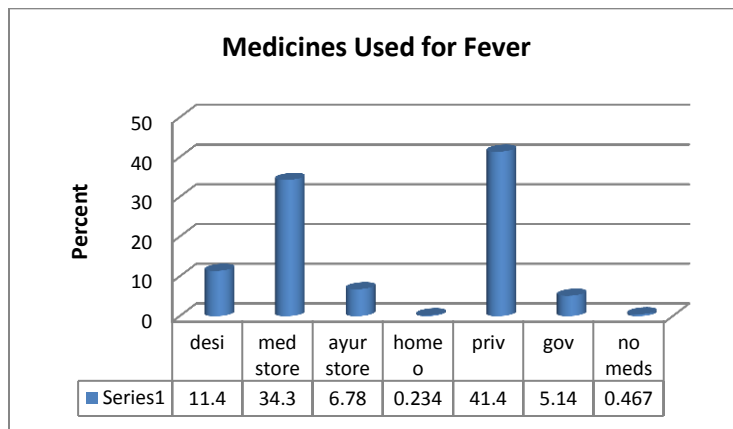


Figure 10. 427 responses

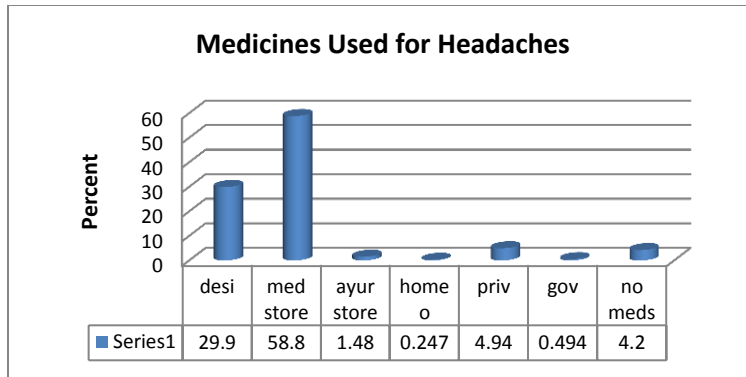


Figure 11. 405 responses

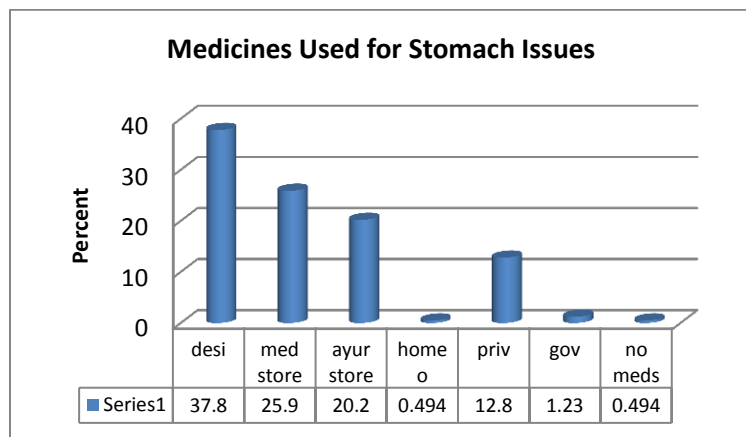


Figure 12. 405 responses

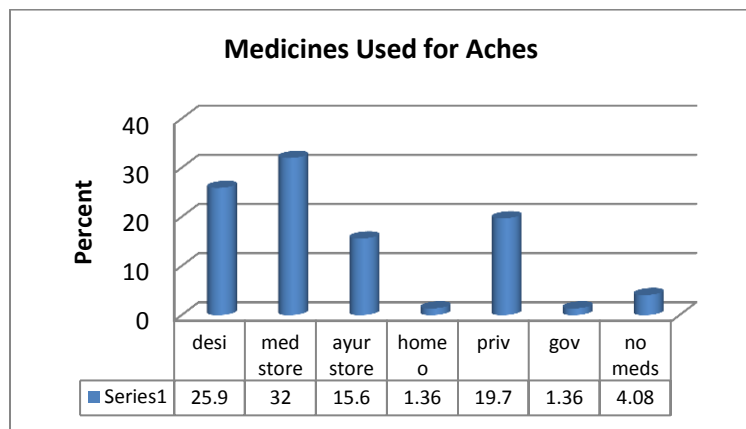


Figure 13. 147 responses

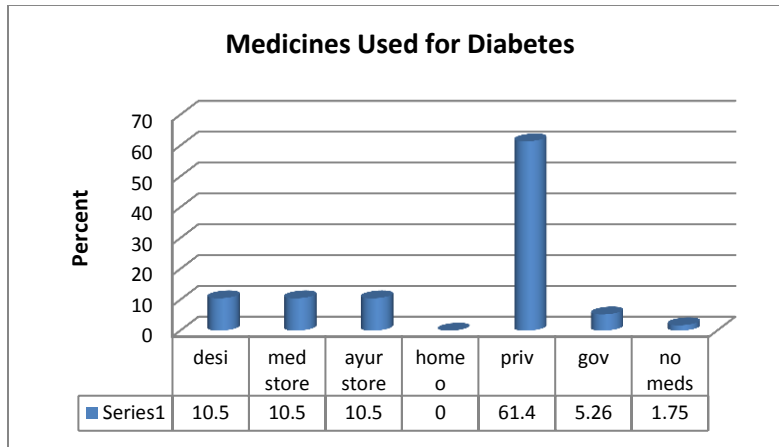


Figure 14. 57 responses

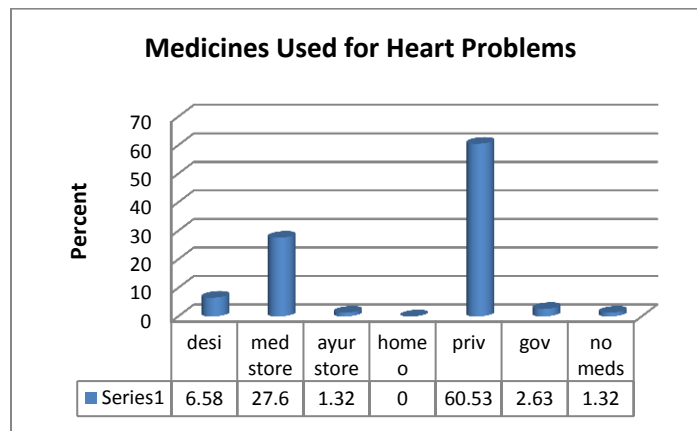


Figure 15. 76 responses

In addition to learning about types of medicines were used for what illnesses, a tally was kept of the number of people who have ever been entered into the hospital, who have had family entered into the hospital, and those that have never gone. Over half of the sample has never gone to the hospital for either themselves or for family members.

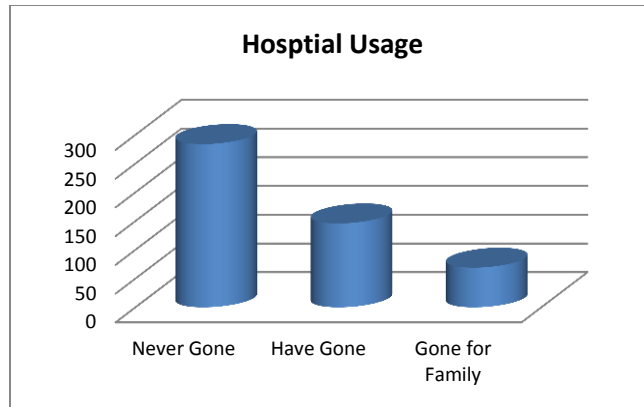


Figure 16.

Table 3 shows the percentages of people that use traditional medicines. In this tabulation, the answers for desi dava, ayurvedic store, and homeopathic medicines are coded as traditional while the medical store, private doctor, and government doctor are coded as modern. From this table, a few comments can be made. Those who have tertiary education seem less inclined to use traditional medicines. With age groupings, 18-25 almost always prefers allopathic treatments while 56-65 prefer traditional treatments. In general, colds and stomach issues are treated by traditional medicines while fevers and headaches use allopathic medicines. Diabetes and heart problems are also almost exclusively treated through allopathic treatments, though some interesting exceptions to the norm exist as well.

Table 3. Percentages of various populations that used traditional medicines.

	cold	fever	head	stomach	aches	diabetes	heart
ages 18-25	45.45	9.78	31.87	46.59	27.27	25	0
ages 26-35	55.05	12.77	34.09	58.7	54.84	14.29	22.22
ages 36-45	56.25	19.78	25.29	64.71	36.67	12.5	28.57
ages 46-55	63.41	23.94	34.29	59.15	70.59	16.67	0
ages 56-65	58.35	57.89	63.64	77.42	62.5	45.45	0
ages 65 +	70.21	26.19	52.78	60.53	48.39	20	5
male	55.49	16.56	34.3	57.55	58.43	26.83	12.24
female	64.58	26.19	39.06	62.2	32.76	12.5	3.7
city	56.28	16.48	38.79	56.88	39.71	25	3.03
town	58.93	19.72	39.71	69.01	58.7	21.05	4.17
village	61.16	23.85	25.96	49.02	51.52	22.73	26.32
primary	53.85	15.38	25	55.56	33.33	50	16.67
secondary	62.5	25	25	71.43	0	0	0
college	72.73	18.18	18.48	37.5	60	0	0
professional	25	0	0	25	100	50	0
sample size	473	428	405	405	147	57	76

For treating everyday colds, desi dawa recommendations included: warm milk with hardar (turmeric) and ginger, facial steam with spices, and water with tulsi (Holy Basil). Home remedies for fever were similar to a cold, except with the use of pills from the medical store or sudarshan from the ayurvedic store. Headaches, when not treated with a stopic, metasin, or crossin, were cured with chai, balm, warm oil massages, and fasting. The pills for headaches are relatively inexpensive and accessible. Stomach issues were commonly treated with limbu pani (lemon water, sugar, salt) and sudarshan, a special ayurvedic mix of powders. Almost everyone

surveyed cited the use of limbu pani for some sort of treatment. Aches were treated using herbal balm or painkillers if the pain became worse. Finally, for the most part, diabetes and heart problems were treated through modern allopathic measures. An interesting side note is that individuals placed a huge emphasis on dietary restrictions when dealing with chronic illnesses, though some individuals had interesting ideas on what the proper diet should be (for example, one man claimed that eating ice cream once a week would help remove the “hot substances” causing illness in the body).

5.0 DISCUSSION

This study on the interactions of the healthcare systems in Gujarat provided interesting and relevant data. Most significantly, factors such as that age, area, gender, and education do affect people's healthcare outcomes. Going into more detail, it appears as though younger generations prefer allopathic treatments while older ones use traditional. This result not only matches with literature, but makes sense given that the older generation has a stronger belief in the customs of Hindu life, including ayurvedic medicine. The data also indicates that females are more likely to use traditional medicine than males. This result is interesting in that it may be possible that the men surveyed are not even aware of the traditional medicine use that goes on in their households. Many men surveyed responded that the women take care of the treatment in their homes, suggesting that traditional medicines are practiced by women, but men handle the allopathic medical treatments. Again, women have traditionally been the population that looks after the sick and use the knowledge that was passed down to them from generation to generation.

The area from which one originates from, city, town, or village, also seems to play a significant role in treatment selection. To some surprise, those who were from towns seemed most likely to use traditional medicines. However, this result has an explanation that may be attributed to poor experimental design. Many of these people who originated from a village currently live in cities and towns. When looking at the descriptive statistics on careers, it can be seen that most of those who were originally from villages now work in cities as security guards, on food carts, or other small time business. These jobs do not typically pay well and require hours of hard work. Therefore, when it comes to ailments, it is easier to pay a small sum of money for the more fast acting pills and tablets from the medical store as opposed to the longer process of desi healing. On the job, these individuals can take a combiflam or stopic and feel less hindered by their symptoms so they can continue to work to support their families.

Finally, education does not seem to play too big of a role in treatment choice. This result was also surprising as it was thought that with increasing education, less traditional medicine would be used. While this result seems to hold for professional degrees with acute ailments, otherwise, traditional medicine and allopathic medicine usage does not follow any significant pattern. This result may be explained by the fact that people who are more educated are also older, so they prefer the traditional medicines that they grew up using and trusting. In addition, those who are less educated are more likely to have jobs that require long hours and hard physical work, requiring them to recover quickly from illnesses by using drugs. What this result indicates is that education is not that strong of a factor in treatment choice. The other explanations for choice outweigh any influence education may have had. In addition, unlike in America, non-allopathic treatments are not viewed with suspicion and under inspection for being quackery, but are accepted as part of daily life. Thus, even becoming more educated would not result in a realization that traditional medicines are ineffective because these medicines reflect the wisdom of many generations of Indians. In sum, education does not sway people's belief in traditional medicines; education does not really affect treatment choice as other more practical factors weigh in.

Going from explanations given about treatment preferences, certain key ideas should be emphasized. From the populations surveyed, access to health facilities is not so much of an issue as is access to adequate facilities at affordable rates. While a large number of government hospitals do exist, not very many of the lower class populations try to make use of them. Their complaint is that the line at government hospitals is hours long and often, the doctors are not even present. Given that missing work for a day would mean not being able to obtain money for food, it comes as no surprise that government hospitals are not the preferred choice. Government hospitals are understaffed and overworked. Even with many people avoiding government hospitals, they still have this problem. I experienced this situation in Dhrangadhra when I spent three days trying to get an appointment with a government doctor. The waiting room was filled beyond capacity; in fact, patients were spilling out into the waiting room. The room was dirty and unsanitized. There were people bleeding onto the floor and children running around naked. Most horrific, the secretary, in attempts to help with the situation, began to treat some patients. He used the same needle to draw blood on multiple patients. These situations are a cause for alarm.

On the other hand, while private hospitals are nicer, they are too expensive and supposedly full of corrupt doctors. Doctors will prescribe medicine when not needed and force patients to buy from their attached pharmaceutical dispensary by prescribing company names that only their store carries. Average people will not be willing to disregard the advice of their doctor and end up paying more for a medicine they did not even need in the first place. Therefore, first and foremost, the private medical industry needs to be tightly regulated. Any suspicious behavior between pharmaceuticals, medical stores, and doctors needs to be eradicated. Most importantly, doctors need to set prices on their treatments that are clearly accessible and visible to all patients. This is not to say that all doctors are bad people and only concerned about making money, but more of a comment upon the fact that some doctors can get away with unethical conduct because no system exists to catch errors. There is no such thing as medical malpractice in Gujarat because there is no medical or judicial code that people adhere to. A strict system of regulations needs to exist so people receive fair treatment at a fair price and so that misbehaving doctors can be properly dealt with.

On the same hand, service at government hospitals needs to be enforced as well. Doctors must come to work and not promote their private practices. Government doctors do not have as much a reputation of being corrupt, but more that they are never present. In addition, more hospitals need to be built with the type of population that frequents government hospitals. These medical facilities clearly have too much of a burden given the lack of properly trained doctors, nurses, and assistants.

One possible solution to this shortage of government hospitals and lack of trust in private medicine is the further use of traditional medicines. Traditional medicines have been used for thousands of years in Gujarat, so the population trusts ayurvedic medicines to work and not be harmful. For low level ailments, such as colds, fevers, headaches, stomach pains, and minor bodily pains, it may be beneficial to consider investing more into traditional care. If people went to traditional hospitals before making use of allopathic centers, it could reduce the burden of the government and private hospitals.

5.1 SOURCES OF ERROR

While this study attempted to be as rigorous and scientifically accurate as possible, there are some important sources of error that must be mentioned. First of all, while I am a “native” Gujarati speaker in the sense that I learned Gujarati and English simultaneously when growing up, my English surpasses my Gujarati by a significant amount. The ideas that I mentally prepared in English in my brain most likely did not always get properly translated into Gujarati. I know during my first few surveys, there was much confusion when I tried to explain what I meant by healthcare, the funniest example being when the person I was interviewing asked me why I came all the way from America to talk about fruits and vegetables. Another example of where I feel as though miscommunication has occurred was when I asked, “Do you feel healthcare in Gujarat is effective?” and people would say yes, but a few questions later, exclaim that hospitals were too expensive, doctors corrupt, and government facilities inadequate. While I tried my best to convey my thoughts in Gujarati, I am not certain that the most efficient two-way communication occurred.

In addition to potential miscommunication, another area of concern is in the sample I collected. There is an issue of sample size for heart problems and diabetes; I did not have enough results to compare different treatments with. In addition, my sample did not reflect the make-up of Gujarat. While I did get to talk to people originally from villages, towns, and cities, I surveyed people from one town and two cities (except for a handful of people from one village). I did not really have the chance to talk to people from villages that live in more isolated rural areas with poor access to healthcare. Not talking to rural population changes my results on access to healthcare and alters the usage of traditional medicines.

6.0 CONCLUSION

After what can only be described as the most incredible experience of my life, my transition back to America was so fast that sometimes those three months in India seem only like a memory. However, the knowledge, ideas, and lessons learned from Gujarat are not easily forgotten. From my research, I see a clear need to change how healthcare functions in Gujarat. As one of the richest states in India, Gujarat has the capacity to provide healthcare to all of its citizens and serve as a good example for the rest of the country.

My research has shown that age, gender, area of origination, and education affect the healthcare choices of an individual. I believe this is useful information because healthcare can then be tailored to fit the demands of various populations and reduce the strain of providing healthcare to such a large diverse population. Most importantly, healthcare needs to be regulated in Gujarat, both private and government alike. If populations chose to use traditional over modern because it is their preference, that is one matter. But as Gujaratis feel like they cannot use modern medicine because it is too expensive or corrupt, changes need to be made.

There are still further studies that need to be conducted on healthcare in Gujarat, including a larger and more diverse sample. This research intended to be exploratory in nature to help identify and narrow possible areas of further research. More research needs to be done on how effective ayurvedic medicines are and if they are cost effective. There is a need to identify if populations that are not satisfied with modern healthcare would turn to ayurvedic practices if they were more established or if they would prefer to see allopathic reform. These questions and many more are some of which I hope to go back to India and answer in the near future.

In conclusion, Gujarat, like many other states in developing countries, is full of potential and deserving individuals who need better healthcare. Without resolving these fundamental problems in life, Gujaratis cannot live as happy and successful lives. I hope to be able to resolve these problems and create a happy healthy Gujarat for all. Thank-you very much!

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