

The Healthcare Beliefs and Trust in Healthcare Providers of Rural Kenyans

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Thesis Proposal for College Scholars

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Abstract

Introduction: While extensive research has been done on the role of trust in western medicine, its role is largely unknown in rural areas of sub-Saharan Africa. This study examined the construct of trust regarding medical providers and factors influencing this trust among rural Kenyans. **Methods:** Participants were 139 adults (53% females and 47% males) who resided in the village of Tawa. They were asked to complete a 19-item survey which measured levels of trust in medical providers as a function of age, gender, education, and nationality. **Results:** In terms of overall trust levels, younger adults (18-35) and more educated individuals (high school or more) were less trusting ($p < .05$) of medical providers compared to their counterparts. Respondents were more likely to trust medical providers who spoke their language ($p < .01$). However, neither the gender ($p = .39$) nor the nationality ($p = .80$) of medical providers were factors. All groups were generally very trusting. Moreover, there were no group differences on interest in receiving healthcare or importance of nutrition. **Conclusion:** Collectively, the results suggest that while trust may vary, Kenyans are very interested in receiving healthcare. These findings will provide additional information for healthcare providers serving in sub-Saharan Africa.

Keywords: trust, Kenya, nationality, healthcare, language, gender, race

Statement of Problem

While several health indicators of Kenya are increasing, they still lag far behind those of the United States, especially in rural regions. For example, the life expectancy in Kenya is 61 and 66 for males and females respectively ([NLIHS Country Profile: Kenya, 2017](#)). Moreover, according to WorldBank estimates, the under-five mortality rate is 53 per 1000 live births, compared with 7 per 1000 live births in the United States (["DataBank," 2017](#)). In regards to nutrition, it is estimated that malnutrition is directly linked to 23,500 deaths per year in Kenya ([Mwaniki, 2009](#)). Due to these disparities, numerous Non-governmental Organizations, including the *Bill and Melinda Gates Foundation* and the *World Health Organization*, have made increasing access to healthcare in nations like Kenya one of their top priorities.

As the world moves towards increased access to healthcare, gauging the attitudes and beliefs of Kenyans about their own healthcare and healthcare providers is a necessary step towards providing more effective care. Questions regarding the importance of gender, language, or nationality of a doctor need to be addressed. How, if at all, does a patient's age, gender, and educational level impact their healthcare preferences? Are people even interested in healthcare? These are all questions that should be answered to better serve rural communities in Kenya. The focus of the present study will be to address these questions regarding rural Kenyans.

Utilization

Providing adequate nutrition and increasing access to healthcare are two frequently used techniques aimed at alleviating poverty in Africa ([Collier, 2007](#)). In 2005, the World Health Assembly—the supreme decision-making body of the World Health Organization—resolved that

universal coverage should be available to all. Universal coverage is defined as "access to key promotive, preventive, curative, and rehabilitative health interventions for all at an affordable cost" ([Chuma, Maina, & Ataguba, 2012](#)). In Kenya, which is part of sub-Saharan Africa, healthcare access is increasing (["2013 Kenya Household Health Expenditure and Utilisation Survey," 2014](#)). According to a 2014 survey by the Kenyan Ministry of Health, access to healthcare increased dramatically among Kenyans between 2003 and 2013 (["2013 Kenya Household Health Expenditure and Utilisation Survey," 2014](#)). For example, in 2003, 22.8% of people who said they had "some sickness" did not seek healthcare. However, in 2013 that number dropped to only 12.7%. Moreover, the number of healthcare visits per person per year has increased from 1.9 to 3.1 between 2003 and 2013. Makueni County, the location of this study, averaged 2.5 visits per person per year. The number of healthcare visits includes public dispensaries, public hospitals, private facilities, pharmacies, and mission groups. It must be noted that income is another contributing factor for healthcare utilization. The wealth divide is present in the utilization of care: the poorest quintile only utilized healthcare 83% as often as the richest quintile (["2013 Kenya Household Health Expenditure and Utilisation Survey," 2014](#)).

Concerning reasons for seeking healthcare, only 3% of visits are reported to be for preventative reasons. The most common reason is "malaria/fever" (33% of visits) followed by respiratory diseases (13%). Nearly 67% of Kenyans who sought care lived within three kilometers of the provider (["2013 Kenya Household Health Expenditure and Utilisation Survey," 2014](#)). This indicates that geography plays a large role in healthcare utilization. It also indicates, due to the lack of doctors, that a lot of care provided comes from pop-up clinics, mission groups, distribution events, and similar non-permanent means. For example, many people in rural Kenya who receive healthcare do so when a group comes to their village to provide vaccinations,

vitamin A supplementation, or routine checkups. These “health fair like events” tend to be few in number over the course of a given year. This is markedly different than the American model in which, to a large extent, the patient has a choice in their provider ([Harris, 2003](#)). Kenyans do not utilize healthcare in the same manner as Americans and therefore the assumptions made about American healthcare preferences regarding patient preferences and interest cannot be extrapolated to Kenya.

Despite the trend of increasing healthcare access, Kenya lags far behind the United States in terms of number of providers. Currently, there are 19.9 physicians and 86.8 nurses and midwives per 100,000 people in Kenya. In comparison, there are 255.4 physicians and 988.4 nurses and midwives per 100,000 people in the United States ([NLIH Country Profile: Kenya, 2017](#)). Taken together, this shows that medical resources are scarce. The question of interest regarding utilization is who will come for medical care and why? It is vitally important that, when given the opportunity to receive care, people take advantage of it. Answering these questions regarding factors which influence the seeking of healthcare could be very beneficial to medical groups serving in Kenya. This study will primarily focus on aspects of trust in medical providers as a function of race/origin, language, and gender among Kenyans.

Trust

One factor that influences one's interest in healthcare, and therefore one's likelihood of utilizing it, is trust ([Safran, Taira, Rogers, Kosinski, Ware, & Tarlov, 1998](#)). A person who does not trust their healthcare provider, or the healthcare system in general, is less likely to seek healthcare. This trust has two components. First, there is the trust in the efficacy of healthcare. Second, there is the trust in the individual provider. If one does not believe that healthcare is beneficial, he or she will not be inclined to seek it—especially when the opportunities are so

slim. If one does not trust his or her provider, he or she will be less likely to follow healthcare directives or take prescribed medicine ([Graham, Shahani, Grimes, Hartman, & Giordano, 2015](#); [Haywood, Lanzkron, Bediako, Strouse, Haythornthwaite, Carroll, Diener-West, Onojobi, & Beach, 2014](#)). Research into the effects of trust on healthcare outcomes indicates that patients' trust in their physician is a leading correlate in adherence to healthcare directives as well as self-reported health improvement ([Safran et al., 1998](#)). Trust, therefore, has a direct effect on healthcare outcomes. It is not enough to simply make care available if nobody trusts the provider.

One factor that may have an influence on trust is the race of the healthcare provider and the patient ([Boulware, Cooper, Ratner, LaVeist, & Powe, 2003](#); ([Pellowski, Price, Allen, Eaton, & Kalichman, 2017](#)). In the United States, individuals are more likely to rate their physicians as excellent when they are of the same race ([Saha, Komaromy, Koepsell, & Bindman, 1999](#)). According to Stryer, Weinick, & Clancy ([2002](#)), racial and ethnic minorities tend to receive lower quality healthcare than non-minorities, in the United States. Therefore, they suggest that one possible solution to this disparity is to increase the number of minority healthcare practitioners. Additionally, socioeconomic status predicts many differences in health outcomes within white populations but is limited in explaining health differences among African Americans and Hispanics, indicating that while wealth is correlated with better health for whites, this is not necessarily the case for African Americans and Hispanics ([National Research Council Panel on Race & Health in Later, 2004](#)). Taken together, it is evident that physician and patient race can directly affect health outcomes in the United States. The nature of this relationship has not been well researched in Kenya.

Another factor of importance is a physician's language. Communication is critical to quality healthcare and without a common language, communication will suffer. Physicians who do not speak the same language as their patients will be forced to use an interpreter. A literature review determined that using a professional interpreter for limited English proficiency patients improves clinical outcomes, communication (errors and comprehension), utilization, and satisfaction with care ([Karliner, Jacobs, Chen, & Mutha, 2007](#)). According to Schyve ([2007](#)), effective communication, which directly impacts patient care, is affected by language differences, cultural differences, and low health literacy. While language differences certainly affect health outcomes, it needs to be determined how it affects a patient's trust in their provider, specifically in undeveloped countries where language differences are more likely to exist.

Finally, a physician's gender impacts patient interactions. It has been shown numerous times that male and female doctors interact with their patients differently ([Franks & Bertakis, 2003](#)). For example, Shin and colleagues ([Shin, Roter, Roh, Hahm, Cho, & Park, 2015](#)) found that female doctors tend to engage in more dialogue with their patients than male doctors. They also found female doctors to be more patient-centered than male doctors. Gender is also an important factor in terms of quality of care. For example, Regitz-Zagrosek ([2012](#)) reported that women with myocardial infarction tend to receive less guideline-based diagnosis and less-invasive treatment than men. Due to these reasons and others, a physician's gender can also impact patient satisfaction and trust ([Derose, Hays, McCaffrey, & Baker, 2001](#)). Within Kenya, there is evidence that women are less likely to seek healthcare for sexually transmitted diseases, although it is not known whether this trend is true for other aspects of healthcare as well ([Voeten, O'Hara H, Kusimba, Otido, Ndinya-Achola, Bwayo, Varkevisser, & Habbema, 2004](#)). What other differences exist between Kenyan men and women regarding healthcare? Are these

potential differences due to trust issues? A closer examination of the impact of gender on healthcare is needed.

While generalizations can be made regarding trust and healthcare, there needs to be more research into the specifics ([Pearson & Raeke, 2000](#)). Additionally, nearly all of the knowledge about trust is in relation to the American system. Trust is widely believed to be a vitally important component of the doctor-patient relationship in the United States, but its role remains largely unexplored in rural Africa ([Blendon, Benson, & Hero, 2014](#); [Lai, Mudri, Chinna, & Othman, 2016](#)).

Nutrition

Nutrition is on the forefront of health-related issues in Kenya. Up to 22% of Kenyans consume less than the minimum level of dietary energy and food shortages are not uncommon ([Namunane, 2017](#)). Vitamin A is an aspect of nutrition that is vitally important in avoiding diseases and infections ([Green & Mellanby, 1928](#); [Mayo-Wilson, Imdad, Herzer, Yakoob, & Bhutta, 2011](#)). Research shows that vitamin A deficiency impairs the immune system, diminishes antibody-mediated responses, and increases all-cause mortality ([Mayo-Wilson et al., 2011](#)). This is especially detrimental given that Vitamin A deficiency decreases one's ability to fight off malaria ([SanJoaquin & Molyneux, 2009](#)). Over 30 million children in Africa are affected by Vitamin A deficiency ([Dalmiya, Palmer, & UNICEF. Division of Communication., 2007](#)). As a result, malnutrition is directly linked to 23,500 deaths per year in Kenya alone ([Mwaniki, 2009](#)). Vitamin A supplementation is one way to fight this, with research showing it can decrease all cause-mortality by up to 23% ([Dalmiya et al., 2007](#)). In sub-Saharan Africa, 73% of targeted children received supplementation, with 190 million children supplemented worldwide. With 73% of targeted children receiving supplementation, it is necessary to determine whether these

communities believe supplementation is beneficial ([Dalmiya et al., 2007](#)). Belief in its efficacy will lead to higher turnout in distribution events.

Purpose and Hypotheses

The objective of this study was to assess the general state of patient trust in healthcare providers in rural Kenya. Issues such as trust based on gender, language, and origin are addressed. Data was controlled for sex, age, and educational status to evaluate whether certain demographics have increased or decreased levels of trust. Trust was also related to likelihood of receiving care (or interest in care). Additionally, beliefs related to nutrition and Vitamin A supplementation were evaluated. My hypotheses were the following:

- Kenyans are more trusting of medical providers who speak their language.
- Kenyans are more trusting of medical providers from Kenya.
- Kenyans are more trusting of medical providers who are male.
- Being less educated is correlated with lower levels of trust.
- Older Kenyans tend to be less trusting of healthcare providers than younger Kenyans.
- Men tend to be less trusting of healthcare providers than women.
- Kenyans prefer providers of their same gender.
- Kenyans who are less trusting are less likely to seek out care.
- Most Kenyans are unaware of Vitamin A supplementation and its benefits.

Methods

Participants

Participants were 139 Kenyans 18 years of age or older. All participants were located in Tawa, Kenya at the time of the study. There were an approximately equal number of males and females. For recruitment, everyone encountered while walking around Tawa was approached and asked if he or she would like to participate. The majority of people agreed to participate, and all participants formed the sample. Inclusion criteria consisted of Kenyan men and women 18 years and above who agree to answer the anonymous questionnaire. The study protocol was approved by the University of Tennessee Institutional Review Board, the Kenyan Embassy, and the research was supported by the chief of Tawa.

Measures

A questionnaire was developed to gauge the attitudes and beliefs of rural Kenyans towards medical providers and nutrition. The questionnaire was exploratory in nature. The format of the questions was based off previous studies, but due to the specific nature of the area of interest and the small amount of previous research in the topic area, the measures were newly developed. The 3-page questionnaire consisted of 4 sections (see appendix for full survey). Section 1 (Trust - 6-items) was designed to analyze the effects of medical provider language, origin, and gender on trust. The six questions were on a 5-point Likert scale with options of “Very Unlikely, Unlikely, Neutral, Likely, and Very Likely.” Section 2 (Interest - 4-items) analyzed interest in medical care. One of the four questions related to interest in healthcare in a general sense. Three of the four questions asked about whether one would utilize care from a team of hypothetical American doctors and consisted of three Likert scale questions that make up

the interest subscale. These questions were asked in the same manner as Section 1 with options ranging from “Very Unlikely” to “Very Likely.” Section 3 (Nutrition - 6-items) examined beliefs about nutrition and Vitamin A supplementation. It included a two-question nutrition subscale to determine the importance of nutrition. Section 4 involved demographic items such as age, sex, and education. The Cronbach reliabilities were as follows: .772 for the trust subscale (6-items), .726 for the interest subscale (3-items), and .582 for the nutrition subscale (2-items).

The questionnaire was translated into Kamba – the local language in Tawa – by a native Kenyan who speaks English and Kamba fluently. It was then evaluated by two separate individuals from Tawa for cultural appropriateness and accuracy of translation.

Procedures

A recruitment script was used to ask individuals if they were interested in filling out the questionnaire. Those who were interested were given a consent cover statement and allowed to ask any questions regarding the nature of the questionnaire. Participants were then asked if they wanted the questionnaire in English or Kamba. Literacy varied greatly among the population. Therefore, two methods of completing the questionnaire were offered. Participants could: 1) fill out a paper copy themselves, or 2) answer the questions verbally as read by an interpreter. The research team answered any clarification questions.

A convenience sample was used with emphasis given towards reaching all types of people in Tawa. We asked every person we encountered if they would like to participate so that no one eighteen years or older was excluded. This procedure reduced selection bias that may have occurred by only approaching friendly looking people. To speak to as diverse a group of people as possible, the questionnaire was administered at various times of the day between 9:00 am and 9:00 pm. The questionnaire was administered in seven different locations within Tawa:

two markets, a construction site, the river, the main road, the fields, and a backroad. While the questionnaire was not randomized, the small, homogenous population of Tawa and large (n=139) sample size as well as intentional sampling techniques gives trustworthy results for the informative purposes of this study.

Data Analyses

All the questionnaire data was exported into SPSS Statistics 23.0 and checked for accurate input. Dichotomous variables were scored as either 1 or 2. Responses were coded on a 5-point Likert scale: very likely (5), likely (4), neutral (3), unlikely (2), and very unlikely (1). The agreement questions were reverse coded and input as strongly agree (5), agree (4), neither agree or disagree (3), disagree (2), and strongly disagree (1). For analysis purposes, age and education were split into two groups via a median split. To determine the differences between groups, an independent samples t-test was performed. A dependent samples t-test was conducted to compare questions within the trust subscale. To determine the relationship between variables, a correlational analysis was performed. To test the influence of respondent demographics, a repeated measures ANOVA was utilized. The significance level for all analysis was $p < 0.05$.

The mean age was 37.76 (SD= 14.00). For testing, age was split into two groups: those 35 and under (N=76) and those 36 and above (N=60). The mean educational level was 10th grade (SD= 2.827). For testing, education was split into two groups: those having completed high school (N=55) and those who had not (N=79). Seventy-two females and sixty-five males completed the survey. Every participant did not complete every question and participants were excluded pairwise for analysis.

Results

General Trust

This section concerns individuals' differing levels of trust for various categories of medical providers and whether this trust varied with respect to demographics. The population generally displayed high levels of trust towards medical providers: the mean of the six trust items was 4.52 (SD= .519) on a 5-point scale. At least 87% were likely or very likely to trust medical providers for each of the six questions in Section 1 (see Table 1 for questions).

Despite this high level of overall trust, some preferences emerged. Taking the six trust items together, the mean trust score for high school graduates was 4.41 (SD=.533), and the mean score for those who had not graduated high school was 4.62 (SD=.398). To test our hypothesis that being less educated is correlated with lower trust, an independent samples t-test was conducted comparing overall trust based on education level. Those who had not graduated high school reported slightly higher trust ($M=4.62$, $SD=.533$) than those who had graduated high school ($M=4.41$, $SD=.398$), $t(130)=2.413$, $p<.05$. Therefore, our hypothesis was not supported. Additionally, participants aged thirty-six and older were more trusting ($M=4.70$, $SD=.331$) than those age thirty-five and under ($M=4.39$, $SD=.602$), $t(119)=-3.533$, $p<.001$. Therefore, our hypothesis was not supported. Moreover, our hypothesis that respondent gender influenced trust was also not supported. Gender had no impact on overall trust levels, $t(133)=-.739$, $p>.05$.

Despite these lower trust scores for younger and more educated participants, the difference is very small.

Trust and Language

To test the hypothesis that trust differs between medical providers who "speak your language" and "medical providers who do not speak your language", a paired samples t-test was run comparing the means of Q1 and Q2 (see Table 1 for questions). Trust was significantly higher for providers speaking one's own language ($M=4.68$, $SD=.650$) than those who do not ($M=4.26$, $SD=4.26$), $t(137)=5.198$, $p<.001$. This shows that people are less trusting in providers who do not speak their language, supporting our hypothesis.

To determine whether these results hold regardless of participant gender, age, or education, a repeated measures ANOVA was run. It found that providers who speak one's own language are trusted equally regardless of respondent age, gender, or education ($p>.05$). However, differences emerged in the degree of trust in providers who do not speak one's own language. While both age groups trusted providers who do not speak their language less, this difference was even greater in the younger group ($p<.01$) (see table 2). Similarly, while both education groups trusted providers who do not speak their language less, the difference was even greater in those who had graduated high school ($p<.05$) (see table 3). There were no differences based on respondent gender ($p<.05$). These results show that people are generally less trusting of providers who do not speak their language, and that this mistrust is greater in the more educated and younger participants.

Trust and Origin

To test our hypothesis that Kenyans would trust providers from Kenya more than from other countries, a paired samples t-test comparing the means of Q3 and Q4 was run. This

analysis revealed no significant difference in trust as a function of physician origin, $t(137) = -.846$, $p > .05$. A repeated measures ANOVA confirmed that neither gender, age, nor education of respondents reveal any differences that may not have initially been present ($p > .05$). Therefore, our hypothesis was not supported.

Trust and Gender

The means of Q5 and Q6 were compared to test our hypothesis that male providers would be trusted more than females. Overall, participants reported that they trust their provider equally, regardless of the provider's gender, indicating no significant difference in trust as a function of provider gender $t(136) = -.242$, $p > .05$. This finding did not support our hypothesis.

Interest

The interest subscale in section 2 determined the interest in medical care if a hypothetical team of American doctors "came to your community offering free medical care and advice" (See Table 4 for individual items). On the 5-point scale, the mean of the three items was 4.78 ($SD = .523$). The overall interest in medical care was also determined by asking to what degree respondents agreed with the statement "I am interested in receiving healthcare." The mean was 4.81 ($SD = .522$). To determine whether respondent age, gender, or education was correlated with interest, independent sample t-tests were run, all of which showed no significant correlations ($p > .05$). Taken together, these results show that people are very interested in receiving healthcare, regardless of their demographics.

To determine whether individuals with lower trust scores in Section 1 reported lower levels of interest, a new variable was calculated by splitting the overall trust score into two groups: those below the mean represented low trust ($n = 65$) and those above the mean represented

high trust ($n=72$). An independent samples t-test confirms that the lower trust group ($M=4.66$, $SD=.651$) was significantly less interested in healthcare than the higher trust group ($M=4.90$, $SD=.351$), $t(91.15) = -2.573$, $p < .05$. While this confirms our hypothesis that less trusting individuals were less interested in healthcare, it is important to note that both interest scores are very high. Therefore, while trust influences interest, it may not be clinically significant.

Nutrition

Questions 1 and 2 examined beliefs related to nutrition. Ninety-nine percent of participants agreed or strongly agreed that "adequate nutrition is important to the health of children" and ninety-seven percent agreed or strongly agreed that "what I consume is important to my health." The means were 4.93 ($SD=.395$) and 4.68 ($SD=.658$), respectively.

Section 4 asked about Vitamin A supplementation and any history of visiting medical teams (see table 7). Seventy-three of participants said they had heard of Vitamin A supplementation before and eighty three percent said a medical team has come to their community before. Ninety one percent said they were likely or very likely to allow their child to receive Vitamin A supplementation "if a medical team came to [their] community and offered it" ($M=4.80$, $SD=.616$).

Discussion

General Trust

Trust is a vital component of healthcare that is known to directly affect patient adherence and health outcomes ([Haywood et al., 2014](#)). Despite this established importance, there are large gaps in knowledge that should be further researched to better assist medical providers in their

respective communities ([Pearson et al., 2000](#)). One such community where the trust dynamic is not well understood is sub-Saharan Africa, wherein the massive healthcare shortage is filled with a patchwork of government programs, foreign organizations like *Doctors Without Borders*, and everything in between. Health-related aid to Africa has increased by 21.6% from 2012 to 2015, with Kenya alone receiving 1.224 billion USD in health-related aid in 2015 (["Development Aid at a Glance Statistics by Region: Africa," 2017](#)). It is this increase in health-related aid and the complex nature of healthcare in Kenya that makes understanding the role of trust even more critical.

We found that Kenyans trust providers who are foreign and from Kenya, male or female, who speak their language and even those who do not. The lowest trust score came from those with at least a high school degree in which 76.4% were either “likely” or “very likely” to trust a medical provider who did not speak their language. This is significant because, while certain demographics influenced trust, the differences were never large and each combination still resulted in very high overall trust scores. As a point of comparison, a similar study surveyed trust in doctors in twenty-nine industrialized countries across the world ([Blendon et al., 2014](#)). The survey asked whether "all things considered, doctors in your country can be trusted." The highest score was from Switzerland with 83% of participants agreeing or strongly agreeing with the statement. The lowest score was Poland with only 43% of participants agreeing or strongly agreeing. Compared to the industrial world, Kenyans are at least as trusting as the average country. This is good news for all types of medical providers in Kenya; especially foreign medical teams worried about trust related issues and the subsequent impacts they desire to have within the communities.

Regarding overall trust, those under age thirty-five are generally less trusting in healthcare providers. This finding confirms our hypothesis. Additionally, this trend is consistent with a 28-country study which found that younger people have lower interpersonal trust ([Li & Fung, 2013](#)). However, the means are 4.39 and 4.70, both of which represent high-levels of trust. There may be a difference in trust based on age, but because both groups are still very trusting, this finding may not have any practical relevance.

Those who had finished high school were also less trusting than those who had not finished high school. This finding was surprising and invalidates our hypothesis. This result was especially unexpected because those that were more educated were suspected to also have more knowledge on the importance of healthcare and therefore be more likely to trust healthcare providers. One possible explanation of this is that the more educated individuals will be more likely to know the history of abuse and corruption within Kenya by its own government and colonial powers ([Gakuo Mwangi, 2008](#)). It is likely that the knowledge of internal corruption might have led to lower levels of trust in government sponsored healthcare centers, and the knowledge of external abuses might have led to less trust in foreign medical teams, resulting in less overall trust. Finally, as with the other measures, the difference is significant, but small – even the highly educated were still generally very trusting.

Trust and Language

Our hypothesis regarding trust and language was supported; it was found that respondents trust providers who speak their language more than providers who do not. This was expected and is consistent with previous studies ([Karliner et al., 2007](#); [Schryve, 2007](#)). The difference based on language is not very large, however. While a statistically significant difference existed, medical

providers speaking a foreign language still received a trust score of 4.26 out of 5.00. Even though respondents did not indicate a very large drop in trust due to medical providers not speaking their language, there are many other adverse effects due to language barriers. Language barriers lead to a lack of communication which can lead to misinformation and failure to conform to healthcare directives ([Schyve, 2007](#)). While this is dangerous in any healthcare setting, it is especially sensitive in the settings often found in Sub-Saharan Africa. There are thirteen times as many physicians per capita in the United States as in Kenya, meaning that, especially in rural areas, every physician visit is critical ([NLIIS Country Profile: Kenya, 2017](#)). If patients misunderstand the physician's orders, they may not be able to correct an error, and they are likely limited as to when they will get the chance to see a physician again. Therefore, medical teams should continue putting great effort into successfully communicating with their patients, even if language barriers do not create a trust problem.

Trust and Country of Origin

There was no difference in trust related to a provider's country of origin. Therefore, our hypothesis was not supported. This finding implies that there is no trust difference based on a provider's ethnicity or nationality. Related studies in the United States stand in contrast to this, indicating that patient-physician ethnicity concordance is related to higher trust and satisfaction ([Boulware, Cooper, Ratner, LaVeist, & Powe, 2003](#)) ([Saha et al., 1999](#)). One explanation for these seemingly contradictory findings is that these studies were conducted in the United States and the participants were subject to a distinct set of cultural norms and historical incidences that have shaped their views. Events such as the Tuskegee syphilis trials, which drastically shaped the dynamic between race and trust in the healthcare system in the United States, are unknown in Kenya. Accordingly, a physician's race or nationality may not have as large of a role in Kenyan

as in the United States. Another possibility is that the high degree of corruption in Kenya leads to a mistrust in Kenyan physicians, setting them on equal ground with foreign healthcare providers who are naturally less trusted. Corruption has, after all, been shown to negatively affect healthcare in Kenya ([Kagotho, Bungler, & Wagner, 2016](#)). This possibility seems unlikely given the high degree of trust in both groups – it is not that both foreign and Kenyan healthcare providers are not trusted, but that they are both trusted greatly. Regardless of the reasons, Kenyans of all ages, genders, and educational levels seem equally likely to trust an American or European physician as a Kenyan physician.

Trust and Gender

There was also no difference in trust based on a provider's gender, rejecting our hypothesis that male doctors would be trusted more. Given Kenya's patriarchal society, this result is surprising. Kenya has high levels of domestic abuse, and females face many unique hardships ([Kimuna & Djamba, 2008](#)) ([Varga, 2003](#)). Kenya's gender dynamics make the high level of trust in female doctors a surprising, but very encouraging result. At least in Tawa, medical teams can be confident that gender will not directly inhibit their ability to practice medicine.

The trust based questions demonstrated that Kenyans trust medical providers to a high degree. There are slight differences based on certain provider characteristics and patient demographics, but in general, people are very trusting. Trust is not necessarily correlated with interest in care, however. The results have shown that respondents were not less trusting of female or foreign doctors, but this does not mean that they are equally likely to seek care from these doctors.

Interest

The interest metric serves to predict how likely individuals would be to go get healthcare if it were available; it revealed that people are very interested in receiving healthcare, regardless of their gender, age, or educational level. Those who were less trusting, however, had lower levels of interest. The mean interest in the low-trust group was 4.66 and the mean interest in the high-trust group was 4.90. It is very significant that the group with the lowest interest in receiving healthcare (the low trust group) is still extremely interested in receiving care. The results indicated how people are extremely interested in receiving healthcare, and while some are slightly less trusting of providers and correspondingly less interested in receiving healthcare, this difference is small and may not be meaningful. This shows that medical teams do not need to spend significant resources convincing people that they should receive care. The interest is there, the opportunity is not. It also implies that while there are certain preferences for who the medical provider should be, these preferences are small and do not deter people from accepting care when it is offered to them.

Of the 139 respondents, 82.0% said a medical team had been to their community before. This implies that most respondents formed their opinions on healthcare based on some degree of previous knowledge. If no one had ever seen a doctor before, our results would need to be interpreted differently because attitudes may change once the first-hand experience of seeing a medical provider comes. Furthermore, there were no correlations between interest in healthcare and whether or not medical team had been to one's community before, indicating that the respondents who have not seen a medical team in their community before did not believe differently in regard to interest or trust than those who had.

Nutrition

One of the most encouraging findings of the study is related to nutrition. When asked about whether nutrition is important to the health of children, nearly every participant agreed. Additionally, most people agreed that what they consume is important to their health. While malnutrition has been linked to over 23,500 deaths per year ([Mwaniki, 2009](#)), and consumer choice in food consumption is not the same issue as in the United States, it is still vital to understand the importance of nutrition. These findings indicate that people are not uneducated about the importance of nutrition; parents understand the influence nutrition has on their children. Vitamin A supplementation is very prevalent throughout Africa ([Dalmiya et al., 2007](#)), and a strong belief in the importance of nutrition broadly and Vitamin A supplementation specifically should make people more likely to take their children to supplementation events when the opportunity arises. If people did not believe in the importance of nutrition, they would be less inclined to bring their children to Vitamin A supplement distribution events.

Regarding Vitamin A supplementation, 73% of respondents indicated that they had heard of it before and 57% believed that either themselves or any of their children had received Vitamin A supplementation in the past (22% were not sure). Moreover, most people would allow their children to receive Vitamin A supplementation (90.8% said they were likely or very likely). The World Bank estimates that, depending on the year, between 19% and 66% of targeted children in Kenya receive Vitamin A supplementation ("[Vitamin A supplementation coverage rate \(% of children ages 6-59 months\)](#)," 2017). The results were significant for two reasons. First, because the percentage of respondents having received or having children that had received Vitamin A supplementation falls squarely within the expected value for Kenya, our sample can be considered more trustworthy. Second, a large proportion (73%) of respondents knew about

Vitamin A supplementation, demonstrating that Kenyans are not taking their children to receive supplementation without any knowledge about what is actually happening. People are being told, at the very least, the name of the medical intervention, which is far better than blindly receiving capsules to take.

Limitations

Related to the method, using a convenience sample in lieu of a randomized sampling is one possible source of error. The convenience sample is adequate for the exploratory nature of this study but further research should be randomized. Additionally, Tawa is only one village in one tribe of the seventy distinct ethnic groups that make up Kenya. Tawa is part of the Kamba people which is one of the five largest ethnic groups in Kenya, but together these five groups make up only 20% of Kenya's population (["Kenya -- Ethnic Groups,"](#)). The results of this study may not be able to be extrapolated to other ethnic groups in Kenya. Further research should examine differences across people groups within Kenya to determine how similar beliefs are across the country.

Furthermore, the measures were created specifically for this study and therefore cannot be directly compared with previous research. There is very little previous research related to trust in sub-Saharan Africa, meaning much of the background research that our hypotheses were formed from was conducted in the United States.

Other limitations include bias due to the nature of Likert questions. People may naturally select the higher numbered answer choices and Likert data is often not normally distributed ([Bishop & Herron, 2015](#)).

Conclusion

Healthcare access is on the rise in Kenya (["2013 Kenya Household Health Expenditure and Utilisation Survey," 2014](#)). As more and more people receive different aspects of care from Kenyan and foreign healthcare providers, the trust in providers and interest in healthcare should be studied. To examine this relationship, we created a 19-question survey and administered it to 139 participants in Tawa, Kenya. We found that while Kenyans are generally very trusting of medical providers, certain factors are related to increased trust and may need to be considered when medical teams visit rural communities. Regarding our research questions, the findings of this study indicate that physician language affects trust, but origin and gender do not. Additionally, younger and more educated patients are less trusting but there is no difference based on patient gender. Moreover, people are very interested in healthcare, regardless of their own demographics. Medical teams can be confident that regardless of their own demographics, people are interested in the healthcare they provide. Finally, people overwhelmingly understand the importance of nutrition and recognize the term "Vitamin A supplementation." These results are limited by the exploratory nature of this study – further research should expand outside of the Kamba people group to determine its applicability to the rest of Kenya.

References

- 2013 Kenya Household Health Expenditure and Utilisation Survey. (2014). *Ministry of Health, Government of Kenya*: Nairobi: Government of Kenya.
- Bishop, P. A., & Herron, R. L. (2015). Use and Misuse of the Likert Item Responses and Other Ordinal Measures. *International Journal of Exercise Science*, 8(3), 297-302.
- Blendon, R. J., Benson, J. M., & Hero, J. O. (2014). Public Trust in Physicians — U.S. Medicine in International Perspective. <http://dx.doi.org/10.1056/NEJMp1407373>.
doi:NJ201410233711703
- Boulware, L. E., Cooper, L. A., Ratner, L. E., LaVeist, T. A., & Powe, N. R. (2003). Race and trust in the health care system. *Public Health Reports*, 118(4), 358-365.
- Chuma, J., Maina, T., & Ataguba, J. (2012). Does the distribution of health care benefits in Kenya meet the principles of universal coverage? *BMC Public Health*, 12, 20.
doi:10.1186/1471-2458-12-20
- Collier, P. (2007). *The bottom billion : why the poorest countries are failing and what can be done about it*. Oxford ; New York: Oxford University Press.
- Dalmiya, N., Palmer, A., & UNICEF. Division of Communication. (2007). *Vitamin A supplementation : a decade of progress*. New York: UNICEF.
- DataBank. (2017). from The World Bank
- Deroose, K. P., Hays, R. D., McCaffrey, D. F., & Baker, D. W. (2001). Does Physician Gender Affect Satisfaction of Men and Women Visiting the Emergency Department? *Journal of General Internal Medicine*, 16(4), 218-226. doi:10.1046/j.1525-1497.2001.016004218.x

Development Aid at a Glance Statistics by Region: Africa. (2017). Aid at a glance charts, from Organisation for Economic Co-operation and Development

<http://www.oecd.org/dac/stats/aid-at-a-glance.htm>

Franks, P., & Bertakis, K. D. (2003). Physician gender, patient gender, and primary care. *Journal of Women's Health* (2002), 12(1), 73-80. doi:10.1089/154099903321154167

Gakuo Mwangi, O. (2008). Political corruption, party financing and democracy in Kenya. *The Journal of Modern African Studies*, 46(2), 267-285. doi:10.1017/S0022278X08003224

Graham, J. L., Shahani, L., Grimes, R. M., Hartman, C., & Giordano, T. P. (2015). The Influence of Trust in Physicians and Trust in the Healthcare System on Linkage, Retention, and Adherence to HIV Care. *AIDS Patient Care STDS*, 29(12), 661-667.
doi:10.1089/apc.2015.0156

Green, H. N., & Mellanby, E. (1928). VITAMIN A AS AN ANTI-INFECTIVE AGENT. *The BMJ*, 2(3537), 691-696.

Harris, K. M. (2003). How Do Patients Choose Physicians? Evidence from a National Survey of Enrollees in Employment-Related Health Plans. *Health Services Research*, 38(2), 711-732. doi:10.1111/1475-6773.00141

Haywood, C., Lanzkron, S., Bediako, S., Strouse, J. J., Haythornthwaite, J., Carroll, C. P., . . .

Beach, M. C. (2014). Perceived Discrimination, Patient Trust, and Adherence to Medical Recommendations Among Persons with Sickle Cell Disease. *Journal of General Internal Medicine*, 29(12), 1657-1662. doi:10.1007/s11606-014-2986-7

Kagotho, N., Bunger, A., & Wagner, K. (2016). "They make money off of us": a phenomenological analysis of consumer perceptions of corruption in Kenya's HIV

- response system. *BMC Health Services Research*, 16, 468. doi:10.1186/s12913-016-1721-y
- Karliner, L. S., Jacobs, E. A., Chen, A. H., & Mutha, S. (2007). Do Professional Interpreters Improve Clinical Care for Patients with Limited English Proficiency? A Systematic Review of the Literature. *Health Services Research*, 42(2), 727-754. doi:10.1111/j.1475-6773.2006.00629.x
- Kenya -- Ethnic Groups. *East Africa Living Encyclopedia*. Retrieved from <https://www.africa.upenn.edu/NEH/kethnic.htm>
- Kimuna, S. R., & Djamba, Y. K. (2008). Gender Based Violence: Correlates of Physical and Sexual Wife Abuse in Kenya. *Journal of Family Violence*, 23(5), 333-342. doi:10.1007/s10896-008-9156-9
- Lai, P. S. M., Mudri, S. M., Chinna, K., & Othman, S. (2016). The development and validation of the advance care planning questionnaire in Malaysia. *BMC Medical Ethics*, 17, 10. doi:10.1186/s12910-016-0147-8
- Li, T., & Fung, H. H. (2013). Age Differences in Trust: An Investigation Across 38 Countries. *The Journals of Gerontology: Series B*, 68(3), 347-355. doi:10.1093/geronb/gbs072
- Mayo-Wilson, E., Imdad, A., Herzer, K., Yakoob, M. Y., & Bhutta, Z. A. (2011). Vitamin A supplements for preventing mortality, illness, and blindness in children aged under 5: systematic review and meta-analysis. *The BMJ*, 343. doi:10.1136/bmj.d5094
- Mwaniki, A. (2009). Biofortification as a Vitamin A Deficiency Intervention in Kenya. In F. Cheng & P. Pinstrip-Anderson (Eds.), *Case Studies in Food Policy for Developing Countries* (First Edition ed., Vol. 1, pp. 81-89): Cornell University Press
- Namunane, B. (2017). Stingy officers, higher prices abroad caused unga shortage. *Daily Nation*.

- National Research Council Panel on Race, E., & Health in Later, L. (2004). The National Academies Collection: Reports funded by National Institutes of Health. In N. B. Anderson, R. A. Bulatao, & B. Cohen (Eds.), *Critical Perspectives on Racial and Ethnic Differences in Health in Late Life*. Washington (DC): National Academies Press (US)
- National Academy of Sciences.
- NLiS Country Profile: Kenya. (2017).
- Pearson, S. D., & Raeke, L. H. (2000). Patients' Trust in Physicians: Many Theories, Few Measures, and Little Data. *Journal of General Internal Medicine*, 15(7), 509-513. doi:10.1046/j.1525-1497.2000.11002.x
- Pellowski, J. A., Price, D. M., Allen, A. M., Eaton, L. A., & Kalichman, S. C. (2017). The differences between medical trust and mistrust and their respective influences on medication beliefs and ART adherence among African-Americans living with HIV. *Psychology & Health*, 32(9), 1127-1139. doi:10.1080/08870446.2017.1324969
- Regitz-Zagrosek, V. (2012). Sex and gender differences in health: Science & Society Series on Sex and Science. *EMBO Reports*, 13(7), 596-603. doi:10.1038/embor.2012.87
- Safran, D. G., Taira, D. A., Rogers, W. H., Kosinski, M., Ware, J. E., & Tarlov, A. R. (1998). Linking primary care performance to outcomes of care. *The Journal of Family Practice*, 47(3), 213-220.
- Saha, S., Komaromy, M., Koepsell, T. D., & Bindman, A. B. (1999). Patient-physician racial concordance and the perceived quality and use of health care. *Archives of internal medicine*, 159(9), 997-1004.
- SanJoaquin, M. A., & Molyneux, M. E. (2009). Malaria and vitamin A deficiency in African children: a vicious circle? *Malaria Journal*, 8, 134. doi:10.1186/1475-2875-8-134

Schyve, P. M. (2007). Language Differences as a Barrier to Quality and Safety in Health Care:

The Joint Commission Perspective. *Journal of General Internal Medicine*, 22(Suppl 2), 360-361. doi:10.1007/s11606-007-0365-3

Shin, D. W., Roter, D. L., Roh, Y. K., Hahm, S. K., Cho, B., & Park, H. K. (2015). Physician gender and patient centered communication: the moderating effect of psychosocial and biomedical case characteristics. *Patient Educ Couns*, 98(1), 55-60.

doi:10.1016/j.pec.2014.10.008

Stryer, D. B., Weinick, R. M., & Clancy, C. M. (2002). Reducing Racial and Ethnic Disparities in Health Care. *Health Services Research*, 37(5), xv-xxvi. doi:10.1111/1475-6773.00002

Varga, C. A. (2003). How Gender Roles Influence Sexual and Reproductive Health Among South African Adolescents. *Studies in Family Planning*.

Vitamin A supplementation coverage rate (% of children ages 6-59 months). (2017). Retrieved 22 November 2017, from The World Bank Group

<https://data.worldbank.org/indicator/SN.ITK.VITA.ZS>

Voeten, H. A., O'Hara H, B., Kusimba, J., Otido, J. M., Ndinya-Achola, J. O., Bwayo, J. J., . . .

Habbema, J. D. (2004). Gender differences in health care-seeking behavior for sexually transmitted diseases: a population-based study in Nairobi, Kenya. *Sexually Transmitted Diseases*, 31(5), 265-272.

Appendix

Sample Survey

Public Health Survey

University of Tennessee

English Version 1.1

06/06/2016

Please circle the response that best describes you.	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
<i>How likely are you to trust the advice of medical providers who speak your language?</i>	1	2	3	4	5
<i>How likely are you to trust the advice of medical providers who do not speak your language?</i>	1	2	3	4	5
<i>How likely are you to trust the advice of medical providers from Kenya?</i>	1	2	3	4	5
<i>How likely are you to trust the advice of medical providers from a foreign country?</i>	1	2	3	4	5
<i>How likely are you to trust medical providers who are female?</i>	1	2	3	4	5
<i>How likely are you to trust medical providers who are male?</i>	1	2	3	4	5

Now imagine a team of American doctors came to your community offering free medical care and advice...

Please circle the response that best describes how you would feel about the above situation.	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
<i>How likely are you to seek care from these doctors?</i>	1	2	3	4	5
<i>How likely are you to bring your children to these doctors?</i>	1	2	3	4	5
<i>How likely are you to take medicine given to you by these doctors?</i>	1	2	3	4	5

Please circle the response that best describes you.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
<i>Adequate nutrition is important to the health of children.</i>	1	2	3	4	5
<i>What I consume is important to my health.</i>	1	2	3	4	5
<i>I am interested in receiving healthcare.</i>	1	2	3	4	5

General Questions

Vitamin A Supplementation is a medical treatment in which a very large amount of Vitamin A is given to children under five years of age through an oral tablet.

1. *Have you heard of Vitamin A supplementation before?*

☐ Yes

☐ No

☐ Not Sure

2. *How likely would you be to allow your child to receive Vitamin A supplementation if a medical team came to your community and offered it?*

☐ Very Unlikely

☐ Unlikely

☐ Neutral

☐ Likely

☐ Very Likely

3. *Have you or any of your children ever received Vitamin A supplementation before?*

☐ Yes

☐ No

☐ Not Sure

4. *Has a medical team ever come to your community before?*

☐ Yes

☐ No

☐ Not Sure

5. *What is your age?*

6. *What is your sex?*

☐ Male ☐ Female ☐ Prefer not to respond

7. *What is the highest level of education you have had?*

Tables

Table 1: Trust subscale

Question	Very Unlikely	Unlikely	Neutral	Likely	Very Likely	Mean	Std. Deviation	N
1. How likely are you to trust the advice of medical providers who speak your language?	0.00%	2.20%	3.60%	18.10%	76.10%	4.68	0.65	138
2. How likely are you to trust the advice of medical providers who do not speak your language?	1.40%	8.00%	3.60%	37.00%	50.00%	4.26	0.96	138
3. How likely are you to trust the advice of medical providers from Kenya?	0.70%	2.20%	2.90%	44.20%	50.00%	4.41	0.72	138
4. How likely are you to trust the advice of medical providers from a foreign country?	2.90%	0.70%	2.20%	34.80%	59.40%	4.47	0.83	138
5. How likely are you to trust medical providers who are female?	1.50%	0.70%	2.20%	23.40%	72.30%	4.64	0.70	137
6. How likely are you to trust medical providers who are male?	1.40%	0.00%	2.20%	24.60%	71.70%	4.65	0.67	138

Table 2: Language Differences and Age

	<i>Trust of providers who speak your language</i>	<i>Trust of providers who do not speak your language</i>	<i>Mean difference</i>	<i>p- value</i>
<i>Younger</i>	4.6	4.05	0.55	<.001*
<i>Older</i>	4.77	4.57	0.2	.022*
<i>Mean difference</i>	0.17	0.52		
<i>p-value</i>	0.126	.001*		

Horizontal rows represent paired samples t-tests. Vertical rows represent independent sample t-tests. Significant results (<.05) are starred. With regards to age, the preference for a medical provider who speaks ones' language was found to be stronger in younger respondents.

Table 3: Language Differences and Education

<i>Means</i>	<i>Trust of providers who speak your language</i>	<i>Trust of providers who do not speak your language</i>	<i>Mean difference</i>	<i>p- value</i>
<i>Less than 12th grade</i>	4.69	4.46	0.23	.01*
<i>Completed high school</i>	4.65	3.96	0.69	<.001*
<i>Mean difference</i>	0.04	0.5		
<i>p-value</i>	0.746	.003*		

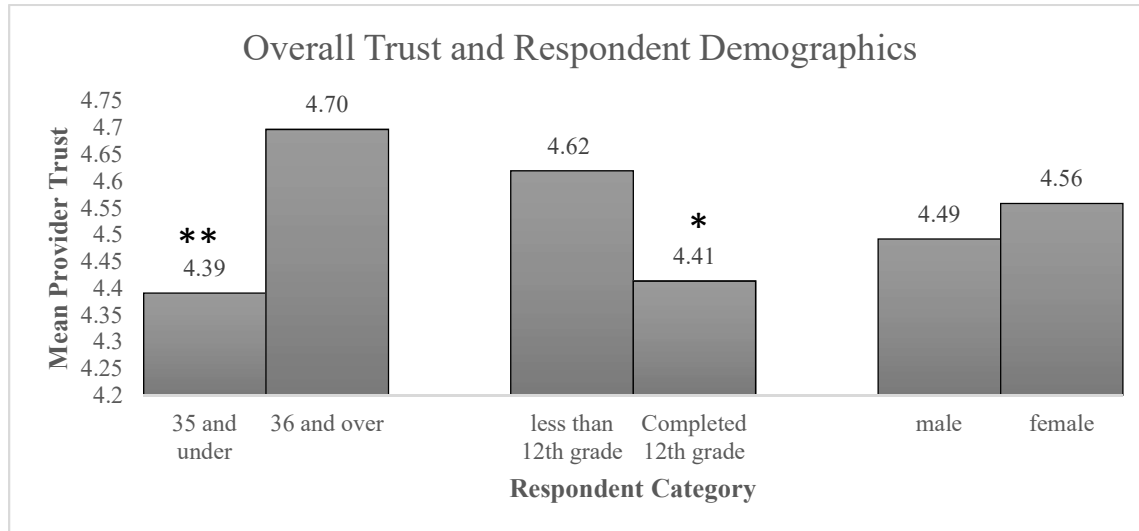
Horizontal rows represent paired samples t-tests. Vertical rows represent independent sample t-tests. Significant results (<.05) are starred. With regards to education, the preference for a medical provider who speaks ones language was found to be stronger in more educated respondents.

Table 4: Interest in American Doctors Subscale

Question	Very Unlikely	Unlikely	Neutral	Likely	Very Likely	Mean	Std. Deviation.	N
How likely are you to seek care from these doctors?	0.70%	3.00%	3.70%	7.40%	85.20%	4.73	.735	135
How likely are you to bring your children to these doctors?	0.00%	1.50%	2.20%	8.20%	88.10%	4.83	.528	134
<i>How likely are you to take medicine given to you by these doctors?</i>	1.50%	1.50%	0.70%	9.60%	86.70%	4.79	.673	135

Figures

Figure 1: Overall Trust Correlations



Overall trust as a function of age, education, and gender. * $p < .05$, ** $p < .001$