Improving the impact of health services delivery: The relationship between physician and patient in the Aravind Eye Care System Outreach Camp Project in Rayavaram, India

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Since consultation recordings and interviews are potentially an invasion of patient and provider privacy, informed consent was crucial. All data collection methods followed IRB (Duke University and Aravind Eye Care System) protocols. I adhered to the Duke Community Standard in completing this study.

- Malini Veerappan

December 2011
Abstract

This paper investigates the relationship between physician and patient at an outreach eye camp in Rayavaram, Tamilnadu, India. This outreach eye camp represents free ophthalmic care delivery to a rural, medically underserved population (n=32). In order to distinguish the effects of two different determinants (rural vs. urban setting and free vs. full cost care), the study included two additionally patient cohorts: urban, non-paying patients (n=33) and urban, paying patients (n=30). Audio recordings and interviews constituted data collection methods. The three components of a doctor-patient relationship that were studied through these data were power dynamics, treatment decision-making, and communication.

Results indicate that the doctor-patient relationship in a rural, non-paying setting is characterized by a paternalistic power dynamic, paternalistic treatment decision making model, and moderately effective communication. This means that medical consultations were largely driven by the physician and fostered little patient control. The physician alone made decisions about treatment (when choices were available). Furthermore, there was a moderate level of communication from doctor to patient about the diagnosis and treatment protocol. Lastly, each consultation was largely a one-sided exchange as it offered little opportunity for the patient to express concerns or ask questions. Though medicine of the western world has increasingly come to embrace the concept of patient-centered medicine, the study discusses the harm associated with activating rural, poor patients who are ill-equipped to take personal health into their own hands.

The study hopes that this understanding of the doctor-patient relationship will lay the groundwork for future research and inform strategies to enhance this interaction, thereby improving health outcomes of global health development projects.
I distinctly remember an elderly woman at the research site, who was suffering from advanced cataract. When she expressed reluctance to surgery without family consent, I gave her my phone to contact her daughter. Yet she continued to resist, and I soon realized that her real fear was the operation. I proceeded to explain the procedure, benefits, and risks. At that moment, I suspected a major shortcoming of the medical consultation she had just minutes before. An optimal interaction with her doctor would have entailed identification of barriers to care, collaborative treatment decision-making, and communication about medical care in layman’s terms. Her confusion and hesitation only alluded to a lack of information exchange with her doctor. Yet this interaction, the doctor-patient relationship, is one that can drastically improve health outcomes. An often underplayed or neglected concept, the doctor-patient relationship is the focus of this study.
Chapter 1: “The Symptoms”
Introduction, Central Question

A Brief Backdrop

Health disparities among nations are complex in nature, tangled in the economic and political turmoil of developing countries. Still, many can be addressed by effective development strategies involving local healthcare providers and global health workers. Broadly speaking, this study aims to enhance the quality of global health development projects.

The effectiveness of health services delivery within global health development projects depends on two types of features. The first is a domestic feature, which is something that relates to the project location, local manpower, or target population. The alternative is a project feature, or something that relates to the formulation or mechanics of the foreign intervention. This study focuses on a domestic feature: the relationship between local healthcare provider and patient. In other words, if the goal of an intervention is to alleviate a health stress in a community, this study targeted the enhancement of doctor-patient relationships as a means to better achieve that goal.

The development project chosen for this study was a one-day outreach eye camp in rural India. The camp site was an ancestral home in Rayavaram, a small village in the Pudukkottai district of Tamilnadu, India. The long-standing village has a rich history of literature, religion, and tradition. However, there is very little documentation of village demographics. Much of the background information about the area that I have obtained has come from speaking with long-standing members in the village. The population number is about 3300 and the main industry is agriculture and money lending. There is one high school and one college in the area. Medical care is very scarce, with only one
poorly staffed emergency hospital to deal with trauma, childbirth, and other urgent care demands. For primary eye care, villagers must travel 18 km away to Pudukkottai, a small town. For secondary and tertiary eye care however, they must travel either 72 km north to Trichy or 90 km south to Madurai.

While the project was organized by students of Duke University, clinical manpower was drawn from a local eye hospital, the Aravind Eye Care System. The outreach camp provided free eye care to the population in and 10 km around Rayavaram. The goal was to bring eye care to a population that could not afford or neglected to make a hospital visit. Outpatient services included refractive corrections (free eyeglasses) and medication prescriptions. Inpatients were bused back to the main Aravind hospital to receive cataract surgeries or be examined for complications. With 2 doctors and 30 other health personnel (nurses, health technicians, counselors, camp managers, student volunteers), the camp served 235 patients.

Central Question

The central question of this study is: What is the relationship between physician and patient in free ophthalmic care delivery at the Aravind Eye Care System outreach camp in Rayavaram, Tamilnadu, India?

This question assesses the doctor-patient relationship in the context of a rural, non-paying ophthalmic care setting. In order to comprehensively address this question, the study took the additional step of examining the rural setting and non-paying nature as two distinct contributors to the observed doctor-patient relationship. This was done by incorporating two additional cohorts into the study: urban non-paying and urban paying patient populations. Thus, as sub-parts of the central question, the study assessed the
following as determinants of the doctor-patient relationship: a) rural vs. urban patient population; b) free vs. full-cost medical care.
Chapter 2: “The Value of Finding Treatment”

Research Impact

Why the doctor-patient relationship?

The relationship between doctor and patient has a significant impact on health outcomes, as shown by prior research. Enhancing understanding, trust, and respect between physician and patient is likely to improve access to care, decision-making quality, and treatment adherence. Furthermore, it encourages patients to be proactive with their health, promotes preventative behaviors, and fosters emotional well-being (Street et al. 2008).

Why global health development projects?

A global health development project aims to relieve a health stress in a medically underserved population. More often than not, this population lives in a rural setting and is economically disadvantaged. Due to geographic and financial barriers, the population is unable to gain access to health care. Given this lack of continuity in care, these rural poor are especially vulnerable to disease and bear a disproportionate health burden. It is thus important to maximize efficacy of care delivered to these people, and improving the doctor-patient relationship is one way to do so.

Why ophthalmology?

Though research has been done on the doctor-patient relationship in primary care, there has been little investigation of this relationship in specialized medicine, especially ophthalmology. Ophthalmology is a particularly important specialty given the current burden of global visual impairment. Blindness is a leading global health issue. Recent statistics show that 161 million of the world’s population suffers from visual impairment, of which 37 million are blind (Resnikoff et al. 2004). This disturbing portend is despite
the fact that 80 percent of blindness is avoidable (preventable or curable) (Thylefors 1998). Furthermore, the burden of ocular diseases disproportionately affects the underdeveloped and developing world, with 90 percent of victims living in the poorest countries (Poudyal et al. 2005). This calls for effective, appropriate, and timely movement towards ocular disease prevention in such areas.

India was chosen as target country because it is home to one fifth of the world’s visually impaired, of which 6.7 million are blind (Resnikoff et al. 2004). Visual impairment disproportionately affects the rural population, which has limited access to eye care due to financial and educational barriers. Characterizing the doctor-patient relationship in the context of ophthalmic care is one step towards improving eye care provision and alleviating visual impairment in populations that bear the greatest burden.
Chapter 3: “The Physician’s Handbook of Diagnoses”

How to characterize the doctor-patient relationship

The study examined three components of medical consultations in order to classify the relationship between doctor and patient: power dynamics, treatment decision-making, and communication (Morgan 2003).

Power Dynamics

The power dynamic of a consultation was chosen because it describes the amount of control held by each of the two participants (doctor and patient). Power dynamics are described by three main models. Though provider-patient relationships usually exhibit a combination of the models, most tend towards one more than others (Morgan 2003).

The first model, a paternalistic relationship, combines low patient and high physician control. The provider takes on a parental role, in which he/she decides what is best for the patient and acts accordingly. The consultation is driven by questions and comments from the physician. A relationship of mutuality involves high patient and high physician control. To the consultation arena, the provider brings his/her technical and clinical expertise, while the patient brings his/her personal experience, social circumstances, values, and preferences. The consultation is intended to inform both the patient and physician. In a consumerist relationship, the patient plays an active role by asking questions and making decisions, while the provider occupies a passive role by providing little more than a second opinion and/or referral. Lastly, the default relationship combines low control from both parties (Morgan, 2003).

For the purpose of this study, control in the consultations was demonstrated in the form of physical force, tone of voice, coercion, commands, and amount of verbal communication. While patients draw power from a personal health stake and the ability
to switch providers, physicians draw power from the ability to restore health, subject expertise, and professional power.

<table>
<thead>
<tr>
<th></th>
<th>Default</th>
<th>Paternalistic</th>
<th>Mutuality</th>
<th>Consumerist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Control</strong></td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td><strong>Physician Control</strong></td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
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</tbody>
</table>

(Morgan, 2003)

*Treatment Decision Making*

The next component of the doctor-patient relationship that this study examined was treatment decision-making. This element was chosen because the degree of control that each of the two actors have in deciding on a treatment option speaks to the type of relationship that is fostered. The joint or singular nature of deciding on a treatment indicates both the ability and the desire to play an active role in the consultation.

Morgan (2003) describes three models of decision making: paternalistic, shared, and informed. In the *paternalistic* model, the provider makes treatment decisions and the patient is expected to cooperate. In the *shared* decision making model, both parties exchange information and reach a consensus about the preferred treatment. Last, the *informed* model is characterized by a division of labor between the provider and patient. The provider is responsible for conveying all relevant information about treatment options, benefits, and risks. The patient is in turn responsible for valuing outcomes and making a decision (Morgan 2003).

For the purpose of this study, a paternalistic model described a consultation in which the doctor did not give a patient the treatment choices where possible. The shared model described a situation in which the patient was given choices and there was negotiation about which treatment would be optimal. The informed scenario in this study
entailed the doctor explaining the diagnoses and treatment options, and then, without further involvement, allowing the patient to make the decision.

<table>
<thead>
<tr>
<th>Information Exchange: flow direction, type, amount</th>
<th>Paternalistic</th>
<th>Shared</th>
<th>Informed</th>
</tr>
</thead>
<tbody>
<tr>
<td>One way (largely), provider --&gt; patient, medical, minimum legally required</td>
<td>Two way, provider &lt;-&gt; patient, medical and personal, all relevant for decision making</td>
<td>One way (largely), patient --&gt; provider, medical, all relevant for decision making</td>
<td></td>
</tr>
<tr>
<td>Deliberation</td>
<td>Provider alone or with other providers</td>
<td>Provider and patient (plus potential others)</td>
<td>Patient (plus potential others)</td>
</tr>
</tbody>
</table>

(Morgan, 2003)

It is important to note that the power dynamic models do not map neatly onto the treatment decision making models. The two are not linked. For example, although a paternalistic power dynamic entails more physician control overall, the treatment decision-making model could still be shared for a particular consultation if the patient and doctor are equally involved in this part of the consultation.

**Communication**

Human relationships are defined by the language that constitutes them, and the doctor-patient relationship is no exception. The third component of the doctor patient relationship that this study examined is communication. Communication between patient and provider demonstrates the level of mutual understanding in their relationship.

Communication in a consultation is two-fold: patient to doctor and doctor to patient. In the former, effective communications means doctors understanding their patients’ words and emotions for diagnostic and therapeutic purposes. This study focused on the latter. Doctor to patient communication entails explaining the diagnosis, cause, recommended treatment, and treatment regimen to the patient. It also involves comforting
the patient, establishing trust, and clearing doubts (Street et al 2008). A difference in health literacy between the provider and the patient is the primary barrier to effective communication. Ensuring that discourse is such that patients with limited health literacy can understand the diagnosis and treatment is important for good doctor-patient relationships. Other enemies of effective communication are time, provider’s patience, patient educational level, and provider’s ability to speak in translate medical jargon to simple language.
Chapter 4: “The Prognosis and Plan of Action”

Literature Review, Hypotheses Development, Methodology

The Existing Provider-Patient Relationship in Rural, Non-paying Settings

The provider-patient relationship in low-income, developing countries (or regions within these countries) is typically paternalistic. Fochsen (2006) further describes the existing provider-patient relationship in rural India through a study on TB. The common provider’s attitude described in this study was frustration that the patient was not understanding, not convinced, or not obeying instructions. On the other hand, patients were dissatisfied with low levels of patience from the provider. The interaction was fraught with mistrust and poor communication. The study noted that when the patient is viewed as a consumer (paying patient) as opposed to an ill person, he/she feels entitled to active involvement in and personalization of care. This indicates that the provider-patient relationship is malleable if patients and providers understand their responsibilities in the interaction. The study also mentioned that villagers are particularly sensitive and submissive to providers’ authoritarian attitude and demands. This problem is especially prevalent among women, who are largely dependent, financially and socially, on their male counterparts.

Alternatively, Monnickendam (2007) reports the contrary in his study on how primary care physicians in Israel perceive and help poor patients. Physicians working in resource-poor areas are sympathetic to the plight of the poor. They make a sincere effort to exhibit compassionate listening and speaking. However, the relationship still exemplifies a paternalistic model, as providers often treat patients like children. Providers often advise patients on job situations, give patients unusually large amounts of attention and comfort, and even occasionally pay for patient meals and consults out of pocket.
Though the power dynamic and decision making aspects of the provider-patient relationship in rural, poor settings seems to be consistently paternalistic, there is enhanced communication and personalization. In place of the frustration that Fochsen (2006) found in her study, there seems to be more sympathy and understanding in Monnickendam’s study.

Thus, there is some controversy on findings about the doctor-patient relationship in rural, non-paying settings. Though there are few (if any) studies on the doctor-patient relationship in the context of ophthalmic care, the following hypotheses are grounded in the general findings of the studies just discussed.

**Hypotheses**

In the context of an eye-health development project in a rural, medically underserved community in India, the doctor-patient relationship will exhibit:

a. A paternalistic power dynamic

   With patients of low socioeconomic and educational backgrounds, providers will exercise high control during the consultation.

b. A paternalistic treatment decision-making model

   Doctors will determine and dictate treatment plan.

c. Ineffective communication from doctor to patient

   Patients will find it difficult to understand diagnosis and treatment given disparities in health literacy between the doctor and patient.
**Methodology**

**Setting**
There were three data collection sites. The first was the Aravind outreach camp in the village of Rayavaram in Tamilnadu, India. This site allowed researchers to study the rural, non-paying population, the focus of this study. The two other sites were branches of the main hospital in the city of Madurai in Tamilnadu, India (about three hours by drive from the camp site). One branch treats the urban, non-paying population, mainly drawing from the slums of Madurai city. The other treats the urban, paying population, drawing from the middle- and upper-class of Madurai city. These two additional data collection sites allowed the researcher to analyze the sub-questions of the study.

Specifically, it allowed a study of the doctor-patient relationship at the eye camp with regard to two determinants: rural vs. urban and free vs. full cost care.

The study looked at the determinant of rural vs. urban care by comparing data from the outreach camp (rural, non-paying) to data from the Aravind free hospital branch (urban, non-paying). Thus, any differences between these two populations are attributable to the rural vs. urban setting and not to payment for care. The doctor-patient relationship with respect to the determinant of free vs. full cost care was studied by comparing data from the Aravind free hospital branch (urban, non-paying) to data from the Aravind paying hospital branch (urban, paying). Thus, any differences between the two populations are attributable to free vs. full cost care and not to location type.

**Participants**
There are three patient cohorts: rural non-paying, urban non-paying, and urban paying. The purpose of this comparison is to enhance understanding of why a rural non-paying population elicits the doctor-patient relationship that was observed.
Patient participants must be of Asian Indian origin and reside in India, to eliminate any difference in treatment due to ethnicity or foreign residence. Participants must be visiting the clinic for ophthalmic purposes and must be of age 18 or older. The latter is to minimize encounter of paternalistic relationships that are due to age differences. The exclusion criterion for the study is having visible mental disorders, because this would elicit a unique relationship between the provider and patient, with less patient control.

All eligible patients from the outreach camp and two main hospital branches were included. This was a non-probability convenience sample. I studied the patients who visit during my limited time at Aravind and the patients who visit the outreach camp during the one day it was open when I was in India (the camp visits only once a month).

Patients were not screened on the basis of religion. Dress type and tracing names to origins indicated that most patients were either Hindu or Muslim. Based on observation in the consultation room, there were no apparent differences based on religion thereby excluding it as a confounding factor. Patients were also not screened on the basis of caste. However, this too is unlikely to have had an effect on care provision because a patient’s caste is not on his/her chart and it is difficult to tell one’s caste from physical appearance. This reinforces the idea that caste does not play a major role in health delivery. (It is mainly pertinent in marital and educational affairs.)

The number of subjects included in each of the three patient cohorts was a result of the number who consented to the study and who were present during hours of data collection. The study ultimately included 32 patients from the rural, non-paying category,
33 from the urban, non-paying category, and 30 from the urban, paying category. This is reasonable because previous studies have used between 20-30 patients (Fochsen, 2006).

Another participant was the Aravind Eye Care System ophthalmologist, Dr. Navdeep Kaur. Dr. Kaur is a certified ophthalmologist. (She has completed her MBBS and DO degrees, which is approximately equivalent to a doctor who has completed his/her medical school, residency, and fellowship in the United States). The study only incorporated one doctor. This was because the study aimed to investigate differences between three patient populations while keeping the doctor constant.

The Aravind outreach camp was chosen as the main data collection site because it is the site of a development project intended to provide eye care access to a medically underserved population. Aravind Eye Care System at-large was chosen as the partner hospital because this institution treats free and paying, urban and rural patients, allowing the study to make the comparisons it did. Also, the institution’s eye care delivery structure allowed researchers observe the doctor-patient relationship across three different patient cohorts with the doctor held constant.

Procedure

The study used two different data collection methods for all three patient populations: audio recordings and interviews. Each patient was taken through the study as follows: Outside of the consultation area, one research assistants obtained informed consent from study subjects, after screening for eligibility. Stationed in the consultation space, I audio-recorded consultations and made informal observations of the doctor-patient interaction. Another research assistant was stationed outside of the consultation area to interview patients immediately after their consult.
Data analysis consisted of two parts. First, consultation recordings were considered to determine two of the three doctor-patient relationship components examined in this study: power dynamic and treatment decision-making. Consultation recordings were systematically coded for each of the three patient populations. The coding consisted of tagging each consultation recording with one of the categories from each of the two components:

**Figure 1. Power Dynamic and Treatment Decision Making Scales**

| Power Dynamics: default, paternalistic, mutuality, consumerist |
| Treatment Decision Making: paternalistic, between paternalistic and shared, shared, between shared and informed, informed |

The following were also quantified from the audio recordings aggregately for each of the three patient cohorts: percentage of total patients who initiated consultation, percentage of total patients who asked questions, percentage of total patients who asked about other treatment options, percentage of total patients who requested further clarification on diagnosis, average estimated percentage of consultation time that patient speaks, average estimated percentage of consultation time that physician speaks, average estimated duration of consultation, average number of questions asked by physician, and average number of questions asked by patient.

The interviews were intended to investigate the third component of the doctor-patient relationship in this study: communication. Specifically, the interview questions tested the patients’ level of understanding of the diagnosis and treatment, and his/her ability to clarify any doubts before the end of the consult.

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1 NVivo 9, a qualitative analysis software program, was used to code each recording.
Chapter 5: “The Diagnosis”

Results and Data Analysis

Doctor-patient Consultation Recordings

The rural, non-paying consultations took place in an old home transformed into the eye camp site. In one small room, the senior doctor, Dr. Navdeep Kaur, and a junior doctor sat on simple chairs at a table with rudimentary equipment (a flashlight, hand sanitizer, prescription pad, and pen). The camp was organized into stations through which patients rotated to see nurses, optometrists, and the ophthalmologist.

Each consultation normally progressed as follows (all in Tamil, the local Indian dialect): doctor asks “What is the problem? How long have you had it for?”; patient responds, doctor examines the patient’s eyes, doctor says “you have ___” (sometimes), doctors says “you need to do ____”, doctors says “go to ____ station.”

A close look at the data for doctor-patient consultation recordings indicates that the power dynamic in consultations of the rural, non-paying population is undeniably paternalistic. The patient has very little control, while the doctor exhibits complete control over the procession and result of the consultation.

Figure 2. Power Dynamic for Rural, Non-paying Cohort. As indicated by the figures above, the power dynamic was paternalistic for 100% of the rural, non-paying population consultations. This indicates low patient control and high physician control.
The consultations were very response-based: the doctor would ask a question, expect an immediate answer, and then move on to another question or to silent chart writing. There seemed to be no room for discussion and no invitation for the patient to express his/her concerns freely. Often times, when the patient asked a question in the middle of the doctor’s examination, the doctor neglected to respond or pacified the patient by saying, “Don’t worry- I’ll take care of it.” The exception was the normal opening question that the doctor asked as soon as the patient sat down in front of her: “What is the problem?” Even after asking this somewhat open-ended question however, the doctor would stop listening and start examining the patient’s eye as soon as she figured out what the problem was. The patient’s words were only important to the extent that they hinted at what the diagnosis could be. It was almost like a parent, listening only to key phrases amidst a child’s blabbering and dismissing the rest as unimportant- the epitome of paternalism.

Additionally, the relationship between doctor and patient in the rural, non-paying setting is a more intimate one. Doctors refer to elderly patients endearingly as “Iyya” (grandpa) or “Paatti” (grandma) in Tamil, the local Indian dialect. This is as if to tell patients, “Trust me, like you would your own family.” Rarely do doctors address patients as “Sir” or “Madam,” thus eliminating formalities and engendering trust. While patients feel more comfortable with doctors due to this unusual way of addressing patients in India, they also feel more entitled to sit back and let the doctor make decisions. Essentially, it elicits a passive attitude in the patient, because he/she trusts that the doctor will take care of everything. This feeds into the paternalistic power dynamic.
It was surprising to see that in some cases, both doctors and nurses would not tell patients what to do, but instead get them to do it using physical force. For example, one of the study subjects was being examined by the doctor. He was an old man and hard of hearing. The doctor first commanded, “Do not move your head.” After a few seconds and realizing that the old man was not following her instruction, Dr. Kaur used her hand to force his head to look towards her and kept it from shaking.

Finally, a description of the camp physical environment is important for explaining the paternalistic power dynamic. The day was hot and humid, and the doctor’s room had poor ventilation. For 5 hours, a line of patients crowded the whole consultation room and extended many feet outside. Given the somewhat uncomfortable situation, many patients became restless and nervous that they would not be seen. Naturally, both clinicians and patients felt rushed. Many patients may have forgotten the questions they had planned to ask or felt pressured to not ask too many questions given the busy atmosphere.

Some may be disbelieving that every single patient experienced a paternalistic power dynamic. Perhaps a clarification of what paternalistic entails in this context will be more convincing. The power dynamic characteristic was decided not only by how much the patient talks, but also the tone of the doctor, whether she told or made the patient do something using physical contact, and the way she phrased questions. For example, when a patient stammered about how long he had been using drops for glaucoma, she said, “Tell me correctly! Has it been one week or one year?!” The tone and phrasing of the question almost implied that the patient was confused and needed help. Similarly, to
another patient, Dr. Kaur said, “You must not be taking your BP medications…” in an accusatory tone and without giving the patient a chance to explain.

Signs of the uniformly paternalistic treatment decision making were manifest when the doctor told the patient what treatment he/she needed. As data shows, the physician alone decided on the appropriate treatment, giving the patient no choices. In cases when the diagnosis was not a cataract and thus did not require immediate surgery, the doctor even neglected to explain the diagnosis for which she was prescribing treatment. Upon telling patients about the treatment she decided on, Dr. Kaur would finish most sentences with the Tamil equivalent of, “Okay?” This sounded rather condescending, as if to say “Do you understand what I’m commanding you to do?”

Figure 3. Treatment Decision-making for Rural, Non-paying Cohort. The treatment decision making style was also paternalistic for 100% of the rural non-paying population. This means that the physician dictated the treatment, without any (or minimal) patient involvement.

An interesting observation at the eye camp surfaced when comparing the junior doctor examining patients in the same room to the senior and study doctor, Dr. Kaur. The junior doctor seemed to have more of a discussion with her patients when discussing treatment options. I overheard her asking her patient, “Would you like to buy glasses now from the camp optical shop, or wait until later?” Another time, she asked “Can we do an operation?” Though she probably would not have let the patient go without consenting to
the operation, she made it seem like the patient was important and involved in a joint
decision making process. Though she too occupied herself with writing down her
diagnosis as the patient expressed his/her concerns, she did (in contrast to the senior
doctor) respond directly to any questions from patients even if she had already addressed
them. Though the junior doctor was not part of the study, I think the comparison alludes
to reasons why the senior doctor, Dr. Kaur, may have fostered a paternalistic treatment
decision making model. First, the junior doctor is a native Tamil speaker, while the senior
doctor is native to Kashmir in northern India and speaks a completely dissimilar Indian
dialect. While she is trained in understanding the little Tamil she needs to know to ask
patients key diagnostic questions, it may have been more difficult to understand the
Tamil slang that villagers used to communicate with her. Second, Dr. Kaur is much more
skilled than the junior doctor. The junior doctor may have spoken more with the patients
because she was trying to buy time to think about her treatment choice or because she
was looking for clues from the patient in case she needed to modify her treatment. Third,
it could have simply been that the junior doctor placed more importance to empowering
and conversing with patients.

The **urban non-paying population** consultations took place in a building
separate from but adjacent to the main, paying hospital. The courtyard in front of the
hospital was packed with over a hundred patients waiting to be seen. Patients registered
at the receptionist station, which was structured rather like a concessions stand. The
waiting area inside the hospital consisted of patients who were closer in line to being
seen. The doctors’ cubicles were among this crowded setting. Patients were brought to
the doctor’s cubicle one by one. The doctor’s cubicle consisted of a slit lamp, indirect ophthalmoscope and associated lenses, flashlight, prescription pad, and pen.

One important point to note here is that the urban non-paying and urban paying populations receive full eye examinations during their visit to the eye hospital. The consultations for the rural non-paying patients were only vision screenings. This has implications for the differences across the three populations, as discussed below. The procession of each consultation followed the same general dialogue pattern from the rural, non-paying setting. However, since this was a full examination, the doctor asked some additional questions: “Do you have hypertension or high blood pressure? Do you have a thyroid problem? Do you wear glasses and for how long have you been wearing them?”

The power dynamic in the urban non-paying population demonstrated a shift towards an on average more patient controlled consultation as compared to the rural non-paying population. The urban population has greater access to healthcare. They are accustomed to seeing healthcare providers of different specialties on a regular basis. This mitigates any fear that may be associated with seeing a doctor, prepares them to ask appropriate questions, and trains them to take an active role in maintaining good health. Since many do visit other healthcare facilities on a regular basis, they tend to not get confused about what questions to ask of an eye specialist and do not attempt to ask all health related questions during the consultation for fear of future inability to access medical care. Furthermore, given their exposure to public educational facilities at minimal cost in the city (i.e. internet center, library), these patients do not experience barriers to knowledge as high as those experienced by the rural, non-paying population.
However, other factors determined by the atmosphere rather than the patients themselves could have been confounding. First, the urban non-paying and urban paying patients have longer consultation times with the doctor, since they are receiving a full eye examination instead of a short vision screening. The extra time associated with an eye exam may be more accommodating of a discussion-based consultation between the doctor and patient. Additionally, the hospital ward was more spacious, so the atmosphere was a little less chaotic and humid as compared to the rural, non-paying setting. This may have elicited a more calm, collected, and patient demeanor in both doctors and patients.

![Figure 4. Power Dynamic for Urban Non-paying Cohort.](image)

The figure indicates that about 45% of urban non-paying patients experienced paternalistic power dynamics and 55% of them fostered a mutual relationship with their doctor.

The consultations characterized as paternalistic in power dynamic contained features similar to the rural, non-paying consultations: response-based (as opposed to conversational), doctor pacifying patient without addressing concern directly, and doctor ignoring patient’s words. Other signs of paternalism stemmed from Dr. Kaur’s tendency to walk patients over to the next station or to a nurse, instead of just advising them on where should go next. It reminded me of a parent holding a child’s hand as they cross a busy road. Additionally, sometimes patients did not understand orders quickly and the doctor got frustrated. She often repeated herself very slowly, as if talking to a child. Some
patients who came in whining or complaining about their ailments also elicited a paternalistic power dynamic.

However, the relationship between doctor and patient was not as intimate as it appeared to be in the rural, non-paying setting. Patients were consistently referred to as “Sir” or “Madam,” thus maintaining the professionalism of the consultation. This made patients feel less passive and more empowered regarding their health, which speaks to the substantial number of mutualistic power dynamic relationships that were apparent. Occasionally, elderly patients were referred to endearingly as they were in the rural, non-paying population. This usually happened when the patient was hard of hearing or slow in processing questions or orders. Thus, often times older age correlated with a more paternalistic power dynamic.

Further evidence for an overall shift toward mutuality was evident in the rare use of physical contact to make patients position themselves in a certain manner. The doctor most often told the patient what to do, instead of doing it for them using physical contact. Additionally, many patients at this free hospital were accompanied by family members. This steered the consultation away from a paternalistic power dynamic because these accompanied patients already had a “parent” beside them to make sure that the diagnosis and treatment were understood. Additionally, mutuality is engendered when the doctor not only asks questions, but also acknowledges the patient’s response. Dr. Kaur often repeated the patient’s answer after he/she had finished responding, so as to imply, “I understand.”

A more mutualistic power dynamic indicates an urban, non-paying population that is taking a more active role in their health. For example, one female patient came to
see the doctor just to check her eyeglass prescription power. Another came in because she had felt discomfort and itchiness in her eye that morning- “my eyesight was blurry this morning so I decided to come in.” This shows a more proactive or preventative mentality.

Like in the rural non-paying population, treatment decision making was uniformly paternalistic. Dr. Kaur would most often tell the patient that he/she needs certain tests to complete the eye examination, but never told the patient why the tests were necessary. It can be safely stated that there was never any treatment choices or negotiation. There was also little clarification about how to use the treatment, excepting the occasional directions for how to use eye drops. The instructions were instead listed on the prescription slip, but when I made a trip over to the hospital pharmacy for observation, I noticed that none of the pharmacists explained how to apply the treatment unless specifically asked. This is clearly problematic for an illiterate population.

Figure 5. Treatment Decision-making for Urban Non-paying Cohort. This figure indicates that 100% of urban non-paying patients experienced paternalistic treatment decision making.

The urban paying consultations took place in the main hospital. The doctor has an individual room for consultation. Wards were separated by both super-specialty and age, so patient traffic was controlled and calm. The hospital was quiet, air-conditioned,
and well-staffed by nurses and technicians. Whereas in both non-paying settings the doctor and patients sat in stools, doctor had an office chair in the paying hospital. This could simply be a display of professionalism or a reinforcement of superiority when serving wealthier patients. Nurses escorted each patient to the doctor’s room. The doctor’s room was fully equipped with a slit lamp, direct and indirect ophthalmoscopes, a doctor’s desk, flashlight, prescription pad, and many more ophthalmic tools packed away in protective cases. This spacious, organized hospital layout is likely to have played a role in increasing the level of calmness in patients, and the level of patience and tolerance in doctors. The doctor was able to enlist more help from the many nurses in the ward (for translation, equipment, etc.), and the process was thus much more efficient as compared to the other two settings. There was more privacy for patients with the consultation rooms (as opposed to open cubicles or no cubicles). This drastic change in the setting dynamic is understandable, since the Aravind Hospital has to compete with another paying hospital down the road: Vasan Eye Care. The institution also needs to make the paying hospital substantially better (in terms of cleanliness, service, etc.) in order to develop a large base of paying patients, who are the main reason for the hospital’s sustenance in serving the non-paying populations.

Again, the urban paying population members received full eye examinations during their hospital visit. The general dialogue followed the same pattern as in the urban non-paying population.

The power dynamic in the urban paying population was minimally paternalistic. The paternalistic consultations were characterized by response-based consultations, the doctor pacifying the patient without addressing their concerns directly, and the doctor
dismissing patient talk as unimportant while she is examining. The doctor uses commands, although in a more polite in tone than in the other settings.

A more dramatic shift towards a mutualistic power dynamic was readily apparent in this setting. The patient and doctor tended to have lengthy conversations. After asking what the problem was, Dr. Kaur listened patiently to the patient’s full explanation, without doing something else at the same time, ignoring the patient, or cutting him/her off. The doctor was more respectful of the patient’s personal space, and refrained from touching the patient to get him/her to follow her orders. This shift is due to the same reasons described in the urban, non-paying section, albeit to a higher degree: greater access to health care and educational resources.

Figure 6. Power Dynamic for Urban Paying Cohort. The data indicate that most urban paying patients (77%) foster mutualistic relationships with their doctors, in which both the physician and patient have control in the consultation. A minority of patients (20%) experienced a paternalistic power dynamic and an even smaller number (3%) demonstrated consumerism.

Many patients came with questions prepared, but some forgot to ask them during the consultation. At first, this may seem to create a paternalistic dynamic since it appears that the patient is scared or nervous when talking to a doctor who is believed to be superior. However, most patients who forgot to clear their doubts did not hesitate to go back into the consultation room as soon as the doctor was available to ask their questions. This makes it unlikely that they were scared of the doctor and more likely that they foster a mutual relationship with her. Overall, the patients were respectful of the doctor, but not
frightened. They spoke politely and appeared more confident about understanding the doctor’s words. About 20% of patients used English to converse with the doctor.

Dr. Kaur also demonstrated more trust in the urban paying patients. She advises patients to come in after 6 months or one year for their next regular check-ups, because she is confident they will follow her advice. Her speech was at normal pace (not extra slow as it was for non-paying patients) and she did not feel the need to repeat herself excessively. She believed that the patients would clarify anything they did not understand. Her tone was more patient and polite. For example, when she needed to leave the room, she excused herself and explained to the patient where she was going. In the mutualistic consultation, Dr. Kaur tended to explain the basic part of the eye that was affected by the eye problem, but neglected to describe any details. This indicates the absence of an ability to communicate with patients in lay men’s terms. However, during the doctor’s explanation, she did wait for the patient to acknowledge that they understood her words, either by gesture or speech.

A more mutually respectful power dynamic was also fostered because several patients came in for preventative purposes, instead of for an already occurring problem. For example, one middle-aged man opened the consultation with, “My dad has glaucoma, so I just come in regularly to make sure my eye pressures are still normal.” Furthermore, when the doctor asked the standard question, “What is the problem?”, many responded that there was no problem and that they were visiting simply for their regular check-up. This demonstrates a patient population that takes a more active role in their health. Additionally, patients in the urban non-paying hospital often felt the need to answer questions even if they did not know the answer. This probably happened in the rural non-
paying setting as well, but unfortunately the doctor had no patient chart against which she could check the patients’ claims. However in the urban paying hospital, the patients understood that it would be detrimental to their own eye care if they fabricated data about their health. Thus, they were truthful in their responses and if they were unsure of an answer, they would say so. Otherwise, these patients were more comprehensive in explaining exactly when and how problem occurs.

The greater shift towards a mutualistic (and consumerist) power dynamic when compared to the urban non-paying population is most clearly due to difference between a paying and non-paying population. The paying population works in the industry, nationally and internationally, while the non-paying population mainly works domestically (Appendix A: Interview Tables). The paying population thus interacts with a variety of people on a daily basis and has access to technology. Their education levels was alluded to through their preparedness and alertness during each consultation. They knew how to explain only the information relevant to their potential eye problem, instead of listing every bodily ailment they felt. A few patients already understood their ailment and had read about it online prior to their hospital visit. One patient already knew she had a sinus problem and came in to renew her prescription. Another patient knew his exact blood pressure and sugar level numbers. Ironically, the rural non-paying patients who are uninformed about their own health status have no patient charts to cross-check, while the paying patients who are well-informed have the most organized inventory of patient charts. In sum, this discussion shows the potential of the urban paying population to be more educated about health issues and take a more active stance than they already do.
In terms of treatment decision making, though the majority of consultations exhibit paternalistic decision making, we do see a slight shift toward the Between Paternalistic and Shared or Shared models. The continued paternalism comes from the doctor’s tendency to prescribe tests, but not explain what the tests will disclose or why they are being taken. Also within the paternalistic power dynamic, the doctor often prescribed a medication but did not explain what the medication was meant to treat or how to use it. At most, Dr. Kaur gave a rudimentary explanation and then referred patients to the nurses for further clarification. Though treatment explanations were rare, treatment choices were not. “Would you like new glasses or do you want to keep the ones you have?” was a phrase I heard several times. Similarly, many patients were asked whether they were ready for a cataract surgery immediately or if they needed some time. This speaks to the trust the doctor invests in the urban, paying patients. Since they are paying, they are likely to use their consultation as a tool towards a better health status. Also, they understand the importance of their personal health and are sure to come back as soon as they are ready for the surgery.

![Urban Paying, n=30](image)

Figure 7. Treatment Decision-making for Urban Paying Cohort. Treatment decision making was 60% paternalistic in the urban paying population. Also, 17% of patients experienced Between Paternalistic and Shared, 20% experienced Shared, and 3% experienced Between Shared and Informed decision making styles.
Audio Recording-based Conclusions

The power dynamic in the rural, non-paying population, the primary population of this study, is paternalistic.

As we move from rural, non-paying to urban non-paying to urban paying, the power dynamic shifts from less to more patient control. This could be due to greater access to health care and educational tools and higher education levels of urban and paying populations. This change in level of patient control is especially true of the shift from rural, non-paying to urban, non-paying cohorts, indicating that the rural vs. urban determinant is more influential on the power dynamic component of the doctor-patient relationship.

A chi-squared test of independence was performed to determine if whether a patient experiences a default, paternalistic, mutual, or consumerist power dynamic is dependent on the population type that the patient is in. In other words, this statistical test allowed us to determine whether the apparent shift toward a more patient-centered consultation when moving from a rural, non-paying to urban, non-paying to urban paying population was significant (i.e. not due to chance). The test result was significant (p<.0001), indicating that power dynamic is dependent on the patient population type (Appendix B, I: Chi-squared test).

The treatment decision making in the rural, non-paying population is also paternalistic.

As we move from rural, non-paying to urban non-paying, there appears to be no change. Both populations experience paternalistic treatment decision-making models. As we move from urban, non-paying to urban, paying, the treatment decision-making shifts
from physician dictated to jointly determined. Again, this could be due to greater access to health care and educational tools and higher education levels of the urban, paying population. The change in treatment decision-making model is especially true of the shift from urban, non-paying to urban, paying cohort, indicating that the non-paying vs. paying determinant is more influential on the treatment decision-making component of the doctor-patient relationship.

A chi-squared test of independence was performed to determine if whether a patient experiences a paternalistic, shared, or informed treatment decision-making model is dependent on the population type that the patient is in. In other words, this statistical test allowed us to determine whether the apparent shift toward a more patient-controlled treatment decision when moving from a rural, non-paying to urban, non-paying to urban paying population was significant (i.e. not due to chance). The test result was significant (p<.0001), indicating that treatment decision-making is dependent on the patient population type (Appendix B, II: Chi-squared test).

Table 1 (below) provides many more areas of comparison for the three populations. Both the percentage of patients who initiated the consultation (either with a question or explanation) and the percentage of patients who requested further clarification on the diagnosis was greatest in the rural non-paying population and smallest in the urban paying population. This can be explained by the fact that the rural non-paying population does not see a healthcare provider on a regular basis. They are eager to speak with the doctor and hope to solve all of their health issues at one stop. Many had also been suffering with the eye problem they presented with for a long while, and thus accumulated questions over time. The percentage of patients who asked questions and the
percentage of patients who asked about other treatment options were highest in the urban non-paying population and lowest in the rural non-paying population. This interesting peak in the “middle” population is due to the synergistic effect of two things. First, it is in part the beginnings of another sector of the urban population attempting to take more active role in their health status and becoming more informed. Second, it is the result of a poor population that is more prone to health risks and more limited in the treatment options they can afford or abide by. The average number of questions asked by the provider and the average number of questions asked by the patient were both highest in the urban non-paying population for the same two reasons just mentioned. The average estimated percentage of the consultation time that patient speaks is highest in the urban paying population. This corroborates the claim that there is a shift towards a more mutualistic doctor-patient power dynamic in the urban paying population. The average estimated percentage of the consultation time that the provider speaks is also highest in the urban paying population. While in the non-paying populations this provider time primarily entailed talking at the patient about what he/she needed to do for examination purposes, in the urban paying population it was a combination of that and the doctor’s attempt to be more comprehensive in her explanations of the diagnosis and treatment. The average estimated duration of the consultation was greatest in the urban non-paying population because the doctor had to both do a full eye examination and tolerate a noisy ward with insufficient nursing staff.
### Table 1. Other Data Collected From Doctor-patient Consultation Recordings

<table>
<thead>
<tr>
<th></th>
<th>Rural Non-paying</th>
<th>Urban Non-paying</th>
<th>Urban Paying</th>
</tr>
</thead>
<tbody>
<tr>
<td>% total patients who initiated consultation(^2)</td>
<td>3.125%</td>
<td>3.030%</td>
<td>0%</td>
</tr>
<tr>
<td>% total patients who asked questions(^3)</td>
<td>18.75%</td>
<td>42.42%</td>
<td>40.00%</td>
</tr>
<tr>
<td>% total patients who asked about other treatment options</td>
<td>0%</td>
<td>9.091%</td>
<td>6.667%</td>
</tr>
<tr>
<td>% total patients who requested further clarification on diagnosis</td>
<td>15.63%</td>
<td>6.061%</td>
<td>3.333%</td>
</tr>
<tr>
<td>Average estimated % consultation time that patient speaks</td>
<td>8.531%</td>
<td>25.15%</td>
<td>31.67%</td>
</tr>
<tr>
<td>Average estimated % consultation time that physician speaks(^4)</td>
<td>29.69%</td>
<td>43.33%</td>
<td>45.00%</td>
</tr>
<tr>
<td>Average estimated duration of consultation(^5)</td>
<td>1.494 min</td>
<td>4.797 min</td>
<td>3.345 min</td>
</tr>
<tr>
<td>Average number of questions asked by physician</td>
<td>2.406</td>
<td>9.848</td>
<td>6.833</td>
</tr>
<tr>
<td>Average number of questions asked by patient</td>
<td>.3750</td>
<td>1.727</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Interviews**

The purpose of the interviews is to assess the third component of the doctor-patient relationship that this study examines: effectiveness of communication between doctor and patient. This was measured by interviewing the patients immediately after their consultations with the doctor.

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\(^2\) Either with a question or a comment  
\(^3\) Questions do not include those asked due to inaudibility  
\(^4\) The consultation time not accounted for between this category and the previous consisted of silence, while the doctor wrote on the patient chart or prescription slip, or spoke with nurses.  
\(^5\) This estimate is excluding the time the doctor took to speak with junior doctors, interjecting non-consult patients, and/or nurses.
The interview questions (Appendix B) are listed here for the reader’s convenience:

1) Did the doctor tell you what your eye problem is? If so, describe the eye problem you have. (cross checked with consultation for accuracy)
2) Do you know what the doctor prescribed, such as medication, eyeglasses, or an operation? (cross checked with consultation for accuracy)
3) Do you have any lingering doubts?

Table 2. Summary of Interview Data

<table>
<thead>
<tr>
<th></th>
<th>Male Percentage</th>
<th>Female Percentage</th>
<th>Statistical Mean Age</th>
<th>Question 1 (Diagnosis)</th>
<th>Question 2 (Treatment)</th>
<th>Question 3 (Lingering Questions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Non-paying</td>
<td>62.5%</td>
<td>37.5%</td>
<td>60.6 years</td>
<td>NO</td>
<td>YES</td>
<td>NO 93.75% 90.6% 9.4%</td>
</tr>
<tr>
<td>Urban Non-paying</td>
<td>30.3%</td>
<td>69.7%</td>
<td>55.8 years</td>
<td>40.6% 59.4%</td>
<td>6.25% 93.75%</td>
<td>90.9% 9.1%</td>
</tr>
<tr>
<td>Urban Paying</td>
<td>66.7%</td>
<td>33.3%</td>
<td>48.6 years</td>
<td>10%</td>
<td>90%</td>
<td>3.3% 96.7% 63.3% 36.7%</td>
</tr>
</tbody>
</table>

Some immediately apparent overall observations: All ratios for the urban non-paying population are comparable to the corresponding data for rural non-paying patients, excepting the male to female ratio (higher in rural non-paying) and the mean age (higher in rural non-paying). The proportion of patients who understood their diagnosis and who had lingering questions after their consultation was significantly greater in the urban paying population as compared to the other two. Furthermore, in the urban paying population, the mean age was less than in the two other populations, and the male to female ratio was comparable to the rural non-paying population.

In terms of the male to female ratio, the rural non-paying population and urban paying population had about twice the number of males as females. The urban non-paying population interestingly had the opposite ratio: about twice the number of females as males. This result indicates interplay between access to care, cost, and a patriarchal society in India. For the rural non-paying population, the eye camp represented temporary eye care provision. In a district that lacks access to primary eye care, this was a rare
opportunity. Just like any other scarce resource, males are given priority and thus were more represented on camp day. Though the number of patients that could be seen was not forcibly limited, it is unlikely that the female of a household even thought of attending the camp. This is because women are expected to have a higher tolerance for illness. Their health is secondary to the health of the male of the household—a reflection of the female subordination and dependency on males. Similarly, in the urban paying population, the male majority alludes to the general perception that only male health care is worth paying for. The limited resource here is money and its first beneficiary is the male. In contrast, the urban non-paying hospital is a permanent facility and costs no money. Since no limitations are imposed, females have the opportunity to get their eyes checked and thus represent a majority. This indicates a widespread need for female eye care, suppressed by societal norms.

Though only tangentially relevant to the study aims, an interesting gender division was apparent within the power dynamic characteristic of the doctor patient relationship. As indicated in Table 1, the average estimated percentage of time that the patient spoke during a consultation was very low (8.5%) in the rural non-paying population. Most of the lower percentages that constituted this average were from consultation with female patients. Women often responded with “Yes” or “No” while men felt confident enough to elaborate. This may have been because despite her professional degree, Dr. Kaur is a female. Females spoke sparingly because Dr. Kaur is educated, but men may have spoken more than usual because Dr. Kaur is a female. Surprisingly, despite a heavily patriarchal society in India, there was no major difference between the percentage of time that men and the percentage of time that women patients spoke in the urban setting consultations.
Again, this may have been because both women and men alike were more comfortable speaking to a female doctor.

The statistical mean age increases as we go from urban paying to urban non-paying to rural non-paying populations. This is an indication of the belief or disbelief of preventative medicine. The concept of preventive medicine, avoiding a disease before it occurs, is becoming increasingly common as populations both urbanize and become financially well-off. Of the urban paying patients, many visited simply to get a check-up, with no specific complaints. Most rural non-paying patients on the other hand, visited due to some ocular discomfort or disease. Furthermore, the urban population has a greater percentage (approximately 40%) of people below age 30. A higher prevalence of the productive population means higher representation at the corresponding urban hospitals.

Another extrapolation from data about age stems from the attitudes of elder vs. younger patients. Younger patients among all populations seemed to express greater concern about their eye health. They are uncomfortable with experiencing eye diseases at a young age, as we naturally correlate disease with increased age. Patients past middle age, however, expect problems and are therefore more complacent about their ailments. Older people especially rarely expressed agony over their eye problems, because they have the expectation that end-of-life is near. The mentioned points corroborate the evidence we found from the recordings that indicate that the urban paying population takes a more active role in their health. However, it also indicates that age may be the reason for this trend, and not the fact that these patients are in an urban, paying setting. In other words, it may be due to a higher prevalence of young people who take a more active stance in
maintaining good health that the urban paying population seems to practice better health behaviors.

The first post-consult interview question was regarding the patient’s understanding of the diagnosis. The ratio of patients who did not understand the diagnosis to those who did was approximately 2:3 in both the rural non-paying and urban non-paying populations. However, this ratio drops drastically to 1:9 in the urban paying population, indicating that most patients understood the doctor’s diagnosis. This indicates that the difference is not from whether the population is rural or urban, but rather from whether the population is receiving free or full-cost care. This change in ratio could be for one or both of two reasons. First, the paying population is more empowered educationally and financially. They have the capacity to understand health-related topics and can access health education tools such as the internet. Second, the mannerisms of the doctor naturally changed when dealing with a paying population. Dr. Kaur seemed to be more thorough in explaining medical concepts, because she trusted that the patient could understand her. She once told me that it is difficult to communicate with the non-paying patients because, even with reiterations, most are unable to understand their illness. These are due to educational barriers and time constraints within the significantly more crowded non-paying settings.

The second post-consult interview question was regarding the patient’s understanding of the treatment and the procedure for its use. Approximately 94% of patients in both non-paying populations understood the treatment protocol. However in the paying population, the corresponding figure was 97% of patients. This indicates again that the differences across the three populations are more attributable to the paying vs.
non-paying difference, rather than the rural vs. urban difference. The increased level of understanding in the urban paying population is due to the same characteristics of this cohort that were mentioned in the previous paragraph. However, the percentages for an understanding of the treatment are significantly greater than percentages for an understanding of the diagnosis across all three populations. This indicates one or both of two explanations. First, patients tend to be relatively passive in issues pertaining to their health, because they invest complete trust in the doctors. Most only feel the need to tune in to the doctor’s words when she is explaining the treatment protocol, because this is the only segment of the consultation that requires post-consult responsibility of the patient. Second, doctors may emphasize (by spending more time, enunciating, etc.) the treatment portion of the consultation. This is because they want to ensure patient compliance with prescriptions or surgeries.

The third post-consult interview question asked the patient if he/she had any lingering questions, so as to assess whether he/she was able to communicate effectively with the doctor. About 9% of patients in both non-paying populations had questions. In the urban paying population however, about 37% of patients had questions. In fact, about half of urban paying patients who had questions returned to the doctor’s room to ask. Also, more often than not, the 63% of urban paying patients who answered that they had no lingering questions did so and followed with a comment not unlike, “I cleared all my doubts with the doctor already.” This once again indicates that the difference in the communication component of the doctor-patient relationship across all three populations is more attributable to the paying vs. non-paying difference rather than the rural vs. urban difference. The increased percentage of urban paying patients who had lingering
questions after the consultation can be explained by more inquisitive nature of this population. Whether it is because they are young or because they are educationally and economically advanced, these patients tend to take a more active stance in their health and are eager to practice healthy habits. It was clear from patient responses that the non-paying patient populations did not have zero questions for the doctor because they understood everything. Rather, it was because they were taking a passive role in their eye care.

*Interview-based Conclusions*

**Communication was moderately effective in the rural, non-paying population**, the target population of this study. Most patients understood the diagnosis and treatment upon exiting a consultation with the doctor. However, most patients also did not understand why they had been prescribed the treatment or how to apply it. Also, not many patients from the rural, non-paying population had lingering questions after their consultation. Further discussion with the patient indicated that the lack of questions was not because they did not have or had already clarified their doubts. Rather, it was because they invested unconditional trust in the doctor. This was exemplified in responses such as, “I have no questions. The doctor knows everything. She will do everything correctly.” This indicates that the patient population is somewhat passive in their health concerns. Most patients refrain from taking an active role in maintaining good personal health.

Overall, the percentages of Yes and No answers for questions 1, 2, and 3 are almost identical for the rural non-paying and urban non-paying populations than for the urban non-paying and urban paying populations. This indicates the difference in
communication dynamics (patient understanding of diagnosis, patient understanding of treatment, posing of questions from patient) are more magnified when comparing non-paying vs. paying populations than when comparing urban vs. rural populations. In other words, the non-paying vs. paying determinant is more consequential in terms of the communication component of the doctor-patient relationship. This is understandable when we analyze the occupations (which we assume correlate with income and education levels) of all populations. The rural and urban non-paying patients have very similar occupations (farming, tailoring, servant, etc.) (Appendix A). This makes it likely that they suffer alike from limited access to educational resources and inconsistent healthcare. These shortcomings are more likely a product of their financial status rather than their living location.

Summary of Data

The ultimate goal of the study was to characterize the doctor-patient relationship in a rural, non-paying setting. The study has proved that the power dynamic component of the doctor-patient relationship is paternalistic and that the treatment decision making component is also paternalistic. In terms of the communication component, about 60% of patients understood their diagnosis, 94% understood their treatment (though not how or why to use it), and only 9% did not express questions on their mind (which in this case indicates a passive population). This corresponds to moderately effective communication.
Chapter 6: “Implications of the Diagnosis”

Discussion

Though the study included the urban non-paying and urban paying populations, this was solely for the purpose of better understanding the problems associated with the rural, non-paying population. The rural non-paying patients are the focus of this study because they have limited access to basic health services, are more vulnerable to poor health, and need more effective healthcare attention. This discussion will center on the rural, non-paying population.

Continuity of care is key to fostering a personalized doctor-patient relationship. There are too many patients from all three populations for doctors to be able to remember on a personal level. Instead, for all urban patients, the hospitals have a patient chart system. Also, with the hospital nearby, they are able to visit at any time without having to travel long distances. However, the rural non-paying population has neither care continuity nor patient charts. (The hospital tries to conduct regular outreach camps in rural areas, but they are not held frequently enough to be considered “continuous care.”)

A related problem is follow-ups. While patients who need cataract surgeries are bused back to the hospital, monitored for a day after their surgery, and checked-up one month after the surgery, patients who are given antibiotic drops, vitamin A pills, or a new eyeglass prescription are not visited again. They are also unlikely to visit the main hospital for the same reasons they did not do so before the eye camp was held. Aravind Hospital needs to improve continuity of care and surveillance of these patients.

The perception that doctors are know-all, solve-all super-humans exists among all patient populations, but especially prevalent in the rural, non-paying population. Often times, patients do not ask questions for fear of “wasting” the doctor’s time. They fail to
understand that the doctors are there to serve patients. This attitude needs to be changed. Furthermore, it fosters passive patient attitudes. As one middle aged women remarked during her post-consult interview, “I have no questions because I know the doctor will solve everything.” Patients need to be encouraged to take a more active role in their health, and doctors command enough power to be able to do this. Doctors must discuss with patients good health behaviors and push them to take preventative measures to protect their eyes. This type of discussion was non-existent across all patient populations, but is important because the burden of eye diseases would decrease significantly if patients knew how to prevent them from occurring in the first place. The onset of debilitating diseases further inhibits the level of responsibility patients can take with their own health.

On a related note, a decreased sense of responsibility has implications for patient compliance with treatment protocols. Patients are often less compliant because they are unaware of the potential consequences of their ocular diseases or because their lifestyle does not permit proper use of medications (i.e. sanitation issues, family abuse). Patients may also be more likely to follow treatment protocols because they are unable to see a doctor regularly and trust the doctor’s prescription completely. However, I would argue that this is obedience, not compliance. Though both obedience and compliance lead to the same end goal (taking the medication), obedience is practiced by patients who have no idea what their disease is and why they are taking the treatment. This is because the doctor has not empowered them with the knowledge to be able to understand their eye problem. It is also because they do not have the resources to be informed. This uninformed stance is perilous to the health of the patient if he/she fails to follow orders.
Furthermore, it suppresses patients from taking an active role in their health. This is the classic emergence of a vicious cycle between poor health, poverty, and lack of education.

An important point for discussion is the counselor, an integral part of the Aravind health care system. At the main and non-paying hospital in Madurai city, counselors spend time with patients who need to be admitted for surgeries (cataract or other complications). These trained professionals speak with patients after they have seen a doctor, so that patients have the opportunity to ask questions about finances, diagnosis, treatment, and pre- and post- surgical care. (Nurses provide this same support for non-surgery patients). Counselors can be considered another healthcare provider, but were not included in this study. The study chose to focus only on the relationship between the doctor and patient. The counselors make the health care provision a more efficient process and supplement the scarce availability of doctors. However, it is clear from the audio recordings that the doctors tend to fall back on these counselors to explain medical concepts and surgery details to the patient. Dr. Kaur identified this as a reason for not explaining things thoroughly to patients: “The counselors are responsible for that and people don’t understand quickly anyways.” Still, I think this is an efficient use of the doctor’s time, especially because counselors are well trained at the Aravind Eye Care System educational institute over a course of two years. Furthermore, doctors are a scarcity and their time needs to be distributed across a large volume of patients.

The rural non-paying population too receives the support of a counselor on site. However, the setting produces a very different relationship between the counselor and patient. My observations at the paying hospital indicated that the doctor sat at a desk with a counselor, who used a pencil and paper to aid in explaining concepts and to jot down
reminders for the patient. It was a very mutualistic, if not consumerist relationship.

However, at the camp, the counselor sat the patient down in chair and stood in front of him/her. She talked at the patients about pre- and post- surgical procedures, instead of talking with them. There was limited time for patients to ask questions. Nevertheless, I think the concept of a counselor is very important and clever. I think the counselor’s presence at an eye camp should be improved though. Another suggestion is to have a counselor pre-consult, so as to prepare the patient for the questions the doctor will be asking and to possibly answer any concerns the patient may have that are not relevant to the diagnosis.
Chapter 7: “Optimizing Treatment Outcomes”

The Optimal Doctor-patient Relationship for a Rural, Non-paying Setting

Many researchers argue for enfranchising the patient in a medical consultation. This is for several reasons. The first is that it fosters personalized medicine, which effectively fulfills patient needs. Second, it creates a proactive patient by informing him/her about preventative health care practices. This improves quality and longevity of life. Lastly, patient activation reduces long-term health care costs because it mitigates patients’ intents to sue for malpractice and superfluous diagnostics (Thorne et al 2005 and Epstein et al 2010).

However, there are many cases in which the patient should not control the course of care, such as when he/she is in comatose or in a critical care environment. Based on this study, I would argue that treating the rural, poor of India is another case in which patient activation is not appropriate and even detrimental.

Time constraint played a huge role in the observed paternalism of the doctor-patient relationship. Hundreds of patients are seen within a span of five hours. There is no time to get to know each patient or even ask his/her name. I would argue that this is an appropriate tactic. Though fostering a good relationship with patients is crucial, treating more patients in a resource poor setting without healthcare access is more important. The benefit of treating hundreds of patients who would otherwise not receive any care outweighs the benefit of treating each patient in an individualistic way. Furthermore, given that we are dealing with the context of specialty eye care, a personalized approach is not as important as it would be in, for example, an oncology setting. The eye problems that patients present with are rarely more complicated than cataracts, diabetic retinopathy, trauma, refractive error, bacterial infections or glaucoma. The solutions to these problems
are standard and clear- it is just a matter of distributing the right prescription. I argue that the time and clinical manpower constraint necessitates that Aravind choose between treating more patients and fostering a patient-centered doctor-patient relationship. Given that Aravind doctors are trained to treat patients quickly and accurately with minimal input from the patient, Aravind Hospital has done right to take a utilitarian approach to the issue: treat more patients. Nevertheless, I still think it is important for the ophthalmologist to do a more holistic review of each patient in the rural, non-paying population, given that these people do not see doctors regularly and sometimes think that the ophthalmologist is taking care of their general health (not just their eyes).

Dr. Kaur was very demanding with her non-paying patients. When I asked her why she felt the need to do this, she responded, “If you don’t tie them down now, they won’t come back.” Her words resonated with me because again I realized that perhaps the paternalistic dynamic was more appropriate for rural, non-paying population. If these patients are given more flexibility and they decide not to return, it is a waste of the doctor’s time and she is not solving the widespread ocular burden that the hospital is working so hard to alleviate.

Another conversation was particularly striking, but also alluded to the need for a paternalistic treatment decision making model. At the eye camp, one middle aged man presented with an advanced case of glaucoma. Dr. Kaur prescribed drops to reduce his intraocular pressure, and said, “You can forget to eat, but don’t forget to put these drops.” At first, I thought this sounded condescending, as if the patient would not understand if the doctor had simply said, “Using these drops is very important.” But then I realized that the patient would not have understood if the directions were given in the latter manner.
Though this fosters obedience and not compliance, it achieves the end goal given time constraints. It was an effective way to put the medication’s importance into perspective. However, when the doctor told this same patient that he has a “horrible disease,” he asked her not a single question about it. It was disheartening to see that this patient may leave without truly understanding the depravity of glaucoma, and demonstrated a pressing need for health activism in the local population.

There is another reason behind my argument that patient centered medicine is perhaps not the optimal doctor-patient dynamic for the rural, non-paying population. This population may not be ready to take health into their own hands and it may be detrimental if we force them to do so. We need to first address educational barriers to care, so that patients can be equipped to learn about their ailments, understand their treatments, and apply good health practices. This can be achieved by ensuring basic schooling for the population, and giving patients access to educational handouts or the internet.

Technology has become a cornerstone of health. Establishing computer centers in rural areas will not only be an invaluable source of knowledge, but also an incentive for outside businesses to invest in the area and allow it to develop economically. We should also address financial barriers to care, so that patients will have the money to take time off work for check-ups, travel to a health care provision facility, and take educational initiatives. Thus, until we address infrastructural problems in India, we must veer away from patient-centered medicine. Problems such as political discrimination, the caste system, social strata, poor government attention, government corruption, a lagging economy, poverty, and hygiene are first priority. Patient empowerment can only follow, not lead.
In addition to the ability to take an active role in their health, patients need to have the enthusiasm to do so. Many prefer to adopt passive attitudes, do not have the patience to listen to speeches from the doctor, are uninterested in learning about their health issues, and/or are not accustomed to a mutualistic relationship with their doctors.

In sum, we need discourse about the type of doctor patient relationship that is appropriate for *this* rural, poor patient population, keeping in mind that patient centered medicine is not always the best option. This calls for longitudinal research on health outcomes of different types of doctor-patient relationship consultations. Also, it would be useful to more closely assess the effects of age, education, income, and gender as determinants of an optimal doctor-patient relationship.
Chapter 8: “Treatment Side Effects”

Limitations and Further Research

This study hopes to be generalizable to other rural, non-paying populations receiving ophthalmic care in India. However, the study has some limitations. First, only one doctor was studied to see how her attitudes change when dealing with three different patient populations. While this was justified for a pilot research project, future research needs to follow more doctors. Given that the rural non-paying population was seen only for vision screenings and not for eye examinations, the results of the power dynamic and treatment decision making may be a product of the time constraint. Future research needs to standardize the consultation times. Another limitation is that I performed the data coding based on my judgment of what constitutes a paternalistic, mutual, etc. power dynamic. This is because words or phrases alone cannot embody a paternalistic relationship for example; it comes together with the tone and actions of the doctor. For those who doubt the validity of the data, I can only reassure you that I tried to be as objective as possible and have no stake in convincing people that doctor-patient relationship follows one particular model. The coding was consistent across all consultations because I alone coded everything. Next, we assumed that educational level correlates with the recorded occupation of patients. In the future, we should also ask their education level. Additionally, at the urban non-paying hospital, we needed to make sure that the visiting patients were from the city or a surrounding urban area. Sometimes, the distinction between rural and urban was unclear. Also, when characterizing the power dynamic from consultations where a patient was accompanied by a family member, it was difficult to determine whether a consultation was paternalistic or not when the doctor spoke primarily to the accompanying person. Ultimately, I decided that the doctor
assumed that the patient was incompetent and thus speaking directly to the family member and fostering a paternalistic power dynamic. One example was an 18 year old boy who visited with his dad. He was irreversibly blind in one eye, but instead of expressing his concern, his dad spoke for him. He asked the doctor for a note to take to school describing his condition, and for cosmetic eye treatments. Lastly, responses to the interview questions could have been as much a product of the patient’s personality as it was of the doctor-patient communication. The assumption is that this personality effect is random and evens out within all three patient groups.

As indicated earlier, more research is needed on what constitutes an optimal doctor-patient relationship in a rural, non-paying setting. This study provides pilot data and deals with a convenience sample. Further research is needed to confirm findings. This further research should incorporate a larger doctor and patient population, and should focus on development projects in different countries. Future research can include potential supplements to bridge the power gap between doctor and patient, such as family member support. Major infrastructural changes are needed to restore health and wealth in the vulnerable rural poor populations of India. This is the first step to empowering victims of eye diseases and shifting towards patient-centered medicine.
Chapter 9: “The Prescription”
Concluding Remarks, Achieving the Optimal Doctor-patient Relationship

In retrospect, the study indicates that the doctor patient relationship in the context of a rural, non-paying population has a paternalistic power dynamic, paternalistic treatment decision-making style, and moderately effective communication. Both a rural background and free care contributed to the doctor-patient relationship observed for the primary target population.

The ultimate goal of this study was to address a domestic feature, the doctor-patient relationship, which can contribute to the success of a larger global health development project. The results of this study have laid the groundwork for future research and informed strategies to optimize this interaction, thereby improving health outcomes.

Ironically, during my research in India, I got a mild eye infection. When I visited the paying sector of Aravind Eye Hospital, Doctor X told me that I needed to use antibiotic drops and a lubricant. I questioned her prescription of the lubricant, because I’ve never used such an ointment for bacterial infections before. She claimed that I had holes in my cornea and I asked her more questions about what that meant. Doctor X became offended and said, “If you do not trust me, then you can see the senior doctor.” I proceeded to the senior doctor who clarified that diagnosis. The incident points to two things: 1) Doctors are unaccustomed to patients asking them so many questions; 2) The relationship between doctor and patient is based solely on blind trust, not informed understanding. Both need to change in order to veer away from an overall paternalistic doctor-patient relationship.
Western society largely believes that a mutualistic power dynamic, shared
treatment decision making, and effective communication models are the principal
components of a “good” doctor-patient relationship. However, the study argues that a
rural, non-paying population may do better with a paternalistic power dynamic and
paternalistic treatment decision-making model. I am optimistic that rural India may one
day transition toward more patient-centered medicine (less paternalistic). However, to
reach that end, we must first address the political, social, and economic complexities that
bar this population from receiving continuous care, educational resources, education, and
stable incomes and jobs. Making these infrastructural changes in the country would
eliminate barriers to patient empowerment.

Meanwhile, I advocate for a “transition phase.” This is a time to train physicians
and patients for patient-centered medicine. Physicians can be trained in medical school or
hospital courses to give patients more power in a consultation. They can also be taught to
listen attentively to patients, and communicate in a culturally and educationally
competent way. Rural, non-paying patients, on the other hand, can be trained to take an
active role in their health care. This can be by providing the population with educational
resources and conducting health education activities in the field. During consultations,
physicians should teach patients healthy lifestyle behaviors to foster preventative care.
Beyond this “transition phase,” I foresee a nation exhibiting patient empowerment in
clinical consultations, among many other political and economic advancements.
REFERENCES


APPENDICES

APPENDIX A. Interview Detailed Result Tables

Rural Non-paying Patients

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APPENDIX B. Chi Squared Test of Independence

I. Power Dynamic

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</table>

1) State the hypotheses:

H₀ (null hypothesis): Power dynamic and patient population type are independent.
H₁ (alternative hypothesis): Power dynamic and patient population type are not independent.

2) Analysis plan

*E=expected, O=observed, r=rows, c=columns

-p (significance level) = .001

-Degrees of Freedom = (r-1)(c-1) = (3-1)(4-1) = 6

-Calculate X²:

\[ E_{r,c} = \frac{n_r \times n_c}{n} \]

\[ E_{1,1} = \frac{(32 \times 0)}{95} = 0 \]
\[ E_{1,2} = \frac{(32 \times 53)}{95} = 17.85 \]
\[ E_{1,3} = \frac{(32 \times 41)}{95} = 13.81 \]
\[ E_{1,4} = \frac{(32 \times 1)}{95} = .34 \]
\[ E_{2,1} = \frac{(33 \times 0)}{95} = 0 \]
\[ E_{2,2} = \frac{(33 \times 53)}{95} = 18.41 \]
\[ E_{2,3} = \frac{(33 \times 41)}{95} = 14.24 \]
\[ E_{2,4} = \frac{(33 \times 1)}{95} = .35 \]
\[ E_{3,1} = \frac{(30 \times 0)}{95} = 0 \]
\[ E_{3,2} = \frac{(30 \times 53)}{95} = 16.74 \]
\[ E_{3,3} = \frac{(30 \times 41)}{95} = 12.95 \]
\[ E_{3,4} = \frac{(30 \times 1)}{95} = .32 \]

\[ X^2 = \sum \left[ \frac{(O_{r,c} - E_{r,c})^2}{E_{r,c}} \right] \]

\[ X^2 = (0 - 0)^2/0 + (32 - 17.85)^2/17.85 + (0 - 13.81)^2/13.81 \]
\[ + (0 - .34)^2/.34 + (0 - 0)^2/0 + (15 - 18.41)^2/18.41 + (18 - 14.24)^2/14.24 + (0 - .35)^2/.35 + \]
\[ (0 - 0)^2/0 + (6 - 16.74)^2/16.74 + (23 - 12.95)^2/12.95 + (1 - .32)^2/.32 = 43.48 \]
1) Use Chi-squared table to calculate p-value

The p-value is the probability that a chi-squared statistic having 6 degrees of freedom is more extreme than 43.48.

\[ p= P(\chi^2 \geq 43.48) = 0 \]

Since \( p \leq .001 \), we can reject the null hypothesis and accept the alternative hypothesis that power dynamic is not independent of the patient population type.

II. Treatment Decision Making

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2) State the hypotheses:

\( \text{H}_0 \) (null hypothesis): Treatment decision making and patient population type are independent.
\( \text{H}_a \) (alternative hypothesis): Treatment decision making and patient population type are not independent.

3) Analysis plan

*E=expected, O=observed, r=rows, c=columns

- \( p \) (significance level) = .001

-Degrees of Freedom = \((r-1)(c-1) = (3-1)(5-1) = 8\)

- Calculate \( \chi^2 \):

\[ E_{r,c} = \frac{n_r * n_c}{n} \]

\[ E_{1,1} = \frac{(32*83)}{95} = 27.96 \]
\[ E_{1,2} = \frac{(32*5)}{95} = 1.68 \]
\[ E_{1,3} = \frac{(32*6)}{95} = 2.02 \]
\[ E_{1,4} = \frac{(32*1)}{95} = .34 \]
\[ E_{1,5} = \frac{(32*0)}{95} = 0 \]
\[ E_{2,1} = \frac{(33*83)}{95} = 28.83 \]
E_{2,2} = (33*5)/95 = 1.74
E_{2,3} = (33*6)/95 = 2.08
E_{2,4} = (33*1)/95 = .35
E_{2,5} = (33*0)/95 = 0
E_{3,1} = (30*83)/95 = 26.21
E_{3,2} = (30*5)/95 = 1.58
E_{3,3} = (30*6)/95 = .32
E_{3,4} = (30*1)/95 = .32
E_{3,5} = (30*0)/95 = 0

X^2 = \sum \left( \frac{(O_{r,c} - E_{r,c})^2}{E_{r,c}} \right)

X^2 = (32 - 27.96)^2/27.96 + (0 - 1.68)^2/1.68 + (0 - 2.02)^2/2.02 + (0 - .34)^2/1.34 + (0 - 0)^2/0 + (33 - 28.83)^2/28.83 + (0 - 1.74)^2/1.74 + (0 - 2.08)^2/2.08 + (0 - .35)^2/1.35 + (0 - 0)^2/0 + (18 - 26.21)^2/26.21 + (5 - 1.58)^2/1.58 + (6 - 1.90)^2/1.90 + (1 - .32)^2/1.32 + (1 - 0)^2/0 = 29.66

4) Use Chi-squared table to calculate p-value

The p-value is the probability that a chi-squared statistic having 8 degrees of freedom is more extreme than 29.66.

p = P(X^2 \geq 43.48) = .0002

Since p \leq .001, we can reject the null hypothesis and accept the alternative hypothesis that treatment decision making is not independent of the patient population type.
APPENDIX C. Interview Questions and Questions Considered for Data Analysis

Interview of Post-Consult Patients (translated in Tamil)
1) What did the provider tell you that you have? Describe the eye problem you have.
2) Did the provider give you any medications or eyeglasses?
3) Do you have any lingering questions?

Questions Considered for Overall Data Analysis:

Power Dynamics
1) Was there time during the consultation for patient to tell the provider how he/she felt?
2) Did the provider ask patient questions, or did the patient ask provider questions, or both?
3) Who controlled the consultation- the patient or the provider?

Treatment Decision Making
1) Who made the decision about what treatment to administer?
2) Did the provider ask patient what treatment option he/she would like?
3) Did the provider tell patient about the different treatment options?

Communication
1) Did patient understand what the provider asked/told you?