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Patterns of Urban Health Utilization in Patan, Nepal

by

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B.S. Columbia University 1980

M.D. Brown University 1984

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Abstract

Patan Hospital (Nepal) is a 138 bed hospital which is responsible for primary and secondary care in the city of Patan (population 117,173) and secondary care in Lalitpur District (population 210,358). The residents of Patan have under-utilized the hospital's primary care clinic. During the Summer of 1991, 310 door-to-door surveys were administered in Patan to assess patterns of health-seeking behavior. The major barrier in utilizing the Patan Hospital Clinic is its long waiting times. In general, as long as the care given is speedy, the people were willing to pay more to attend a private physician. People also were willing to pay less and attend a less experienced provider, the compounder, for their speedy service. However, Patan Hospital Clinic is the most common second choice, indicating that it is well respected. The Clinic could consider alleviating the waiting time by redirecting those who attend from outside their catchment area and using the waiting time constructively.

Dedication

To the United States Air Force

Acknowledgements

I wish to thank my wife, and sons (Timmy and David) for sacrificing their summer and coming to Nepal. I am indebted to my Nepal sponsor Owen Lewis, MBBS for taking care of us while we were in Nepal. I am grateful to my advisor James Jekel, MD, MPH at Yale for guiding me on this survey. Eric Mood, MPH at Yale has been a great teacher and encouragement.

I am grateful to the Committee on International Health in allowing me to participate in the Down's International Travel Fellowship. I thank the Air Force Institute of Technology (The United States Air Force) who allowed me to do this field work in Nepal.

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Chapter 1: Patan Hospital

Patan Hospital was founded by Christian missionaries in 1954 when Nepal opened its doors to Western assistance. From the beginning, the hospital has had an outpatient primary care clinic. Initially the hospital was located in a former palace but steadily grew to the point where the facility was no longer adequate. So in 1982 it moved to a new building 3 miles from its old site, where it is today. The hospital is easily accessible from the neighboring cities of Kathmandu and Bhaktapur via buses.

Patan Hospital is managed by Westerners under the umbrella organization of the United Mission to Nepal (UMN). This non-governmental development organization is composed of 39 Christian groups from 19 countries. However the hospital's staff is more than two-thirds Nepali, including the medical staff. Many of the Nepali staff are Hindu. In 1990, the UMN contributed 29% of the hospital's operational expenses and the Nepali government contributed 2% (Figure 1). Fees provided the remainder of the revenue. Although the inpatient services are heavily subsidized, the outpatient services are financially self-sufficient. One of the goals of the UMN is to assure that every project that it initiates will eventually be turned over to the nationals.

Patan Hospital Clinic

The Patan Hospital Clinic has grown steadily since its founding. Presently, its staff of 40 practitioners consists of 13 physicians (full and part-time), 13 health assistants, and the other 14 are various ancillary workers. All but three physicians are Nepali. The Clinic's major role is primary care, but it has some secondary referral functions (obstetrics, gynecology, internal medicine, surgery, dentistry, and pediatrics). The Clinic is open 5 days a week, closed Saturdays and Wednesdays. Nationally, most businesses are closed Saturday; Wednesday is their in-service day.

In the morning before seeing a health care provider, a Clinic patient lines up to pay a registration fee and to receive a ticket. The tickets are issued from 8 to 10 am, and typically patients start lining up at 6 am. If one does not receive a ticket by 10 am, the person must return another day to wait in line. Appointments are not given. Due to waiting in at least three lines (registration, cashier, and pharmacy), a patient commonly may spend his or her entire day at the Clinic. The Clinic has tried alternative registration schemes to relieve these frustrations, but so far without success.

Several crowds wait in a large dimly lit lobby (Picture 1). As patients near a practitioner, they are weighed and allowed to wait in a smaller room where the practitioner is (Picture 2). In this room, minimal privacy is observed. Patients are easily seen and over-heard explaining their personal medical concerns to the practitioner.

The registration fee is 6 Rupees (Rs.) (equivalent to US $0.15; August 1991: US $1 = 40 Rs.) and covers the cost of being seen by the provider. If a patient requires laboratory tests (urine, blood, stool, x-rays) or medicines, there is an additional cost. If the patient has been to the Clinic previously and has brought his record (records are maintained by the patient), the registration fee is 1 rupee less.

Reduced fees are given to approximately 7% of the outpatients. There is no overt solicitation by the Clinic staff in promoting lower fees. However if a patient expresses financial difficulties, they are referred to a social worker who makes the final determination. The social worker, who is Nepali, has difficulty determining those in real need because all Nepalis see themselves as poor.

Nepal has no national health insurance. In Patan Hospital Clinic, as in most facilities, patients pay out-of-pocket, usually up-front. Patan Hospital offers a local health insurance to the urban and rural communities. About 15% of the families in the urban area and 30% around the rural health posts have participated[1].

There are three main primary care clinics: male, female, and under five

Patan Hospital: 1990 Revenue Sources
Patan, Nepal

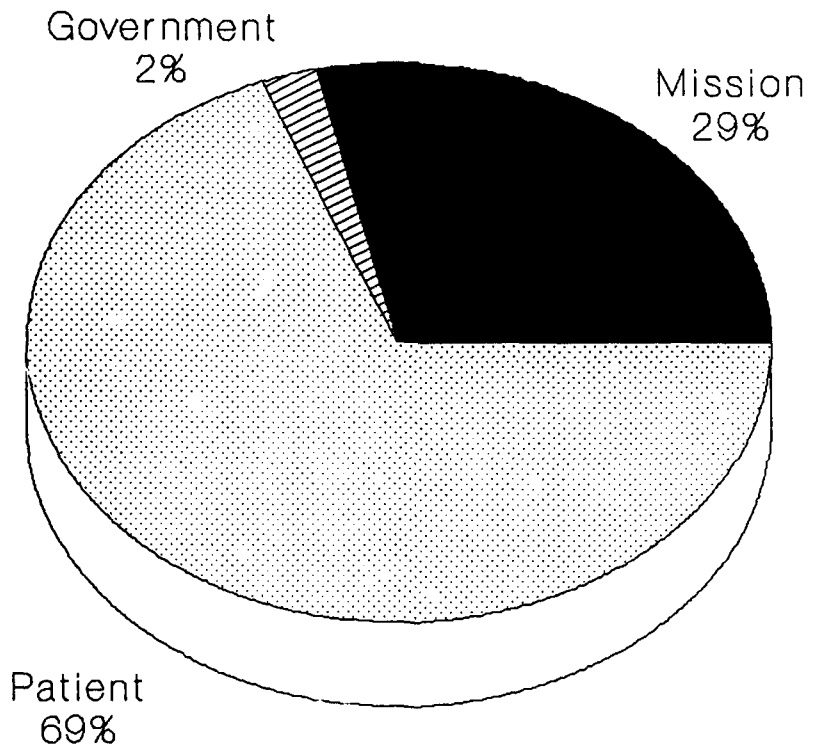


Figure 1

1990 total revenue: $840,000

Picture 1: Large Waiting Area

Picture 2: Practitioners Seeing Patients

Patan Hospital Clinic, Patan, Nepal 1991

years. In each clinic daily limits exist on the total number of patients and new patients seen. In the male clinic, a maximum of 100 patients are seen in the morning and 60 in the afternoon. There is an antenatal clinic which sees 40-50 patients per day and charges 13 Rs. The secondary referral specialty clinics are run at various times during the week. The lines for the specialty clinics are much shorter. There is another primary care clinic where one can make an appointment several days in advance to see a physician; however, the fees are 10 times as much. It is mostly utilized by Westerners and well-to-do Nepalis. This clinic sees about 15 patients each day and is under-utilized.

The government has mandated that the Clinic provide primary and secondary care for the residents of Patan (population: 117,173) and secondary care for the residents of rural Lalitpur (population 93,185). Patan Hospital is the district hospital for Lalitpur District; Patan is the district capital. The health posts in rural Lalitpur refer 500-1000 patients annually. However, there are about 150,000 outpatients visits annually, many of whom come from outside the Clinic's catchment area of Patan and rural Lalitpur. No restrictions exist directing patients to specific medical facilities.

In 1990, the inpatient records show 31% of the inpatients were from Patan and 42% from their entire catchment area of Patan and rural Lalitpur (Figure 2). Similar figures are not available from the Clinic, although the inpatients come from the Clinic and the emergency room.

Community Development and Health Project

Working alongside Patan Hospital is the UMN's Lalitpur Community Development and Health Project (CDHP). The CDHP has responsibilities in community health development in both urban Patan and rural Lalitpur. The CDHP's offices are in Patan Hospital, and the CDHP's staff often interface with the Clinic. Two physicians work half-time in Patan Hospital Clinic and half-time in the CDHP. In Patan, the CDHP maintains the 4 maternal and child health (MCH) clinics which are staffed by paramedical workers. The MCH clinics are involved in family planning (depo-provera injections), well child care, and prenatal care. However their services are under-utilized. Showing health videos and doing home visits are some of their other major activities. During the Spring of 1991, the CHDP staff started teaching community members about chlorination of well water.

Objectives

Even though the Clinic is being overwhelmed with the large crowds seeking care, the CDHP staff have noted that the people in the immediate community are not readily attending the Clinic. There seems to be a significant barrier to care at the Clinic for these people. The Clinic desires to make themselves more attractive to those in Patan. Therefore the main study objective was to elucidate these barriers and to offer suggestions in dealing with them. Looking at it from another angle, perhaps those unfamiliar with the Clinic preferred other health care providers, so determinants which predicted health-seeking behavior were sought. Other objectives were to quantify the Clinic's growth and to determine where Clinic patients came from.

Hypotheses

To assess what were the barriers for attending the Patan Hospital Clinic, a door-to-door survey of Patan was done. To assess the Clinic's growth and patient's home area, a survey of the Clinic's records was done. The major hypotheses were that cost, language, waiting time, lack of privacy, and Westernism were major barriers to Clinic utilization. Another hypothesis was that a large portion of the Clinic's population resided outside its catchment area.

Inpatients' Home Areas, 1990
Patan Hospital, Patan, Nepal

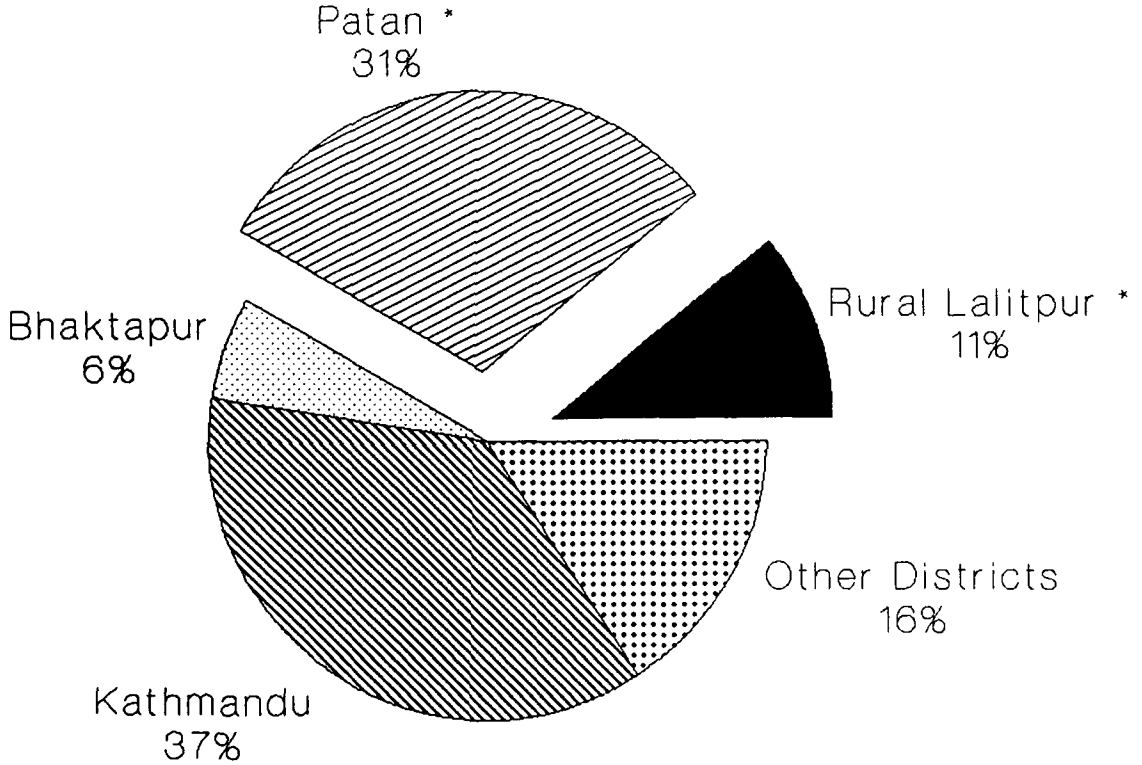


Figure 2

N = 8307

* catchment area (42%)

Chapter 2: Background

Global urbanization is changing the strategy of health care delivery. For rural areas, the World Health Organization (WHO) has designated that the health post, staffed by paramedical workers, be the first encounter for medical care. Health posts are strategically planned, so that patients can only attend one in a given locale. However, in the urban areas there is a variety of choices for medical care, due to more abundant health facilities. Typically urban areas have hospitals, clinics, pharmacies, and specialists, luxuries that are lacking in rural areas.

Urbanization has contributed to other health concerns besides utilization, such as sanitation, overcrowding, housing, nutrition, and education. UNICEF is meeting this challenge through its Urban Basic Services Program which has been implemented in about 40 countries to meet the needs of the urban poor. In India it has reached national coverage. However in Nepal UNICEF is initiating needs-assessment studies in several urban areas. In 1990, the first UNICEF survey was done in a small neighborhood of Patan[2].

Nepal

Although Nepal is one of the least urbanized countries in South Asia, it too is becoming increasingly urbanized. In 1970, the country only had a 4.0% urban population. The urban population was estimated to be 8.2% in 1986. This contrasts with its neighbor India in which 25% of its population was considered urban (1987).[3] In 1990, 45% of the Lalitpur District's citizens lived in the Patan[4] urban area. From 1980 to 1990, the District population grew at annual rate of 4.0%, whereas, the urban area grew at 4.7%. Nepal's population growth from 1970 to 1980 was 2.7% annually.

Nepal is a small land locked-country about the area (147,181 sq. km. or 56,827 sq. mi.) of the state of Iowa (Figure 3). Yet it is thinner and longer (550 mi. by 100 mi.; 885 km. by 161 km.) than Iowa. India is on its south and Tibet/China on its north. It is known for its breath-taking Himalayan mountains. The elevation ranges from 29,000 feet (8848 m.) (Mount Everest) on the north to 200 feet (62 m.) on the southern plains area. Its latitude (28° N.) is that of Florida. Its climate depends on the elevation. There is a summer monsoon season and dry season for the remainder of the year. The majority of the population lives in the subtropical foothills of the Himalayan mountains (4000 feet; 1220 m.). This is where Nepali history started in the first century A.D. As the population has expanded during this century, there has been a significant migration to the more tropical low-land plains, which is now the most fertile and fastest growing part of Nepal.

The population of Nepal is approximately 18 million. The central hills contain 62% of the population and the plains contain 38%. The mountainous northern area has a very small population. Nepal is composed of about 35 ethnic groups with about 33 languages[5]. However Nepali is the unifying language. In the Kathmandu Valley, the Newars are the major ethnic group.

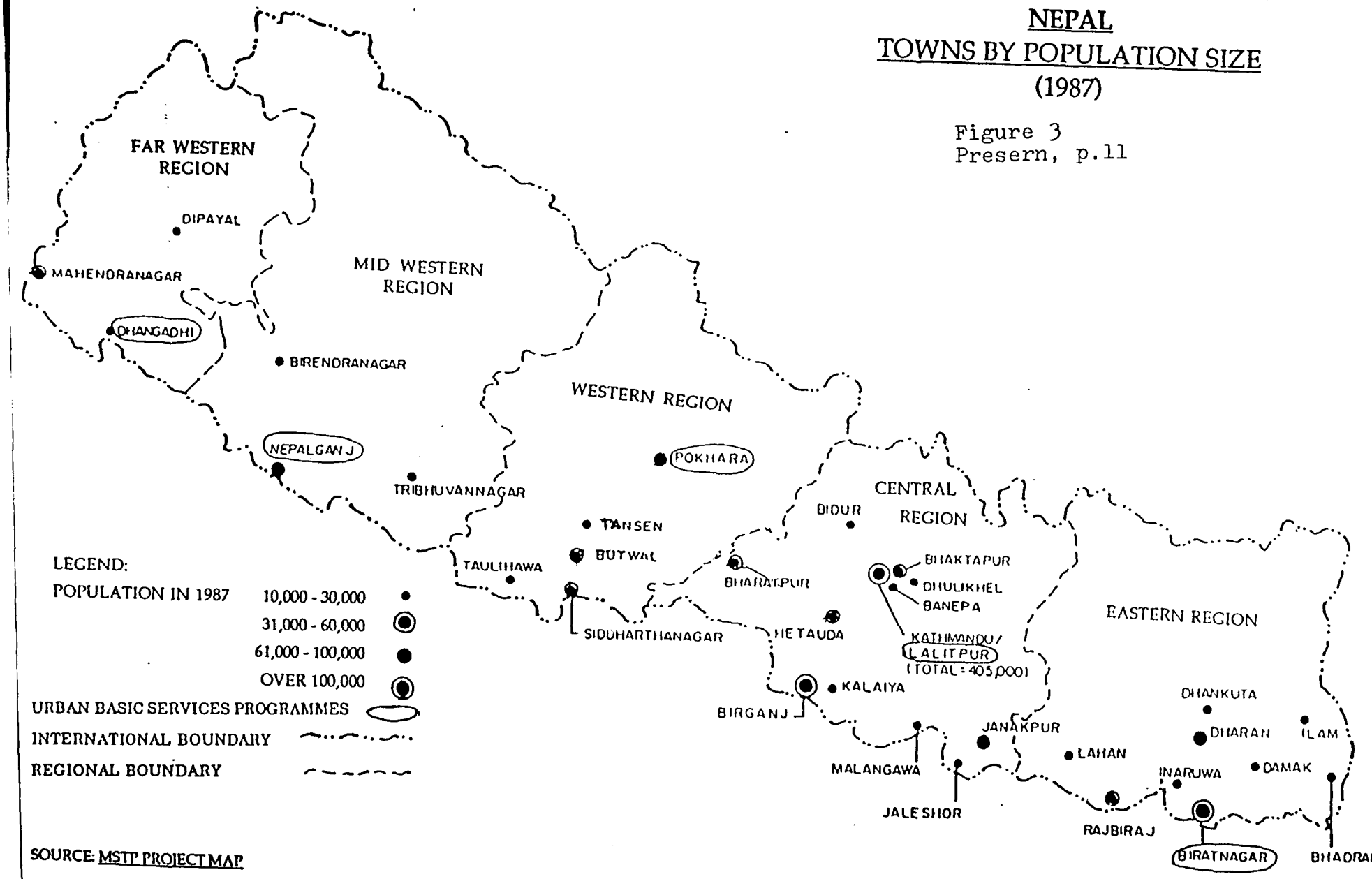
Patan (elevation 1400 m., 4600 ft.) is one of three cities in the Kathmandu Valley (Figure 4). Its 1990 population was 117,173[6,7] (population density of 570 per sq. km.). It is adjacent to the capital Kathmandu (population of over 1/2 million and double the population density of Patan) and another city, Bhaktapur. The population of these three neighboring cities is about 1 million, making it the largest urban area in Nepal. Since 1980, the population has grown by 37,298 (4.7% annually). This is evident when one tours the city.

Patan can be divided into three developmental areas, "new", "intermediate", and "old" Patan. The center of the city is in "old" Patan; the highest concentration of shops is located here. "Intermediate" and "new" Patan surround "old" Patan. "Intermediate" Patan has housing that is very close together, whereas "new" Patan has many more affluent homes that are farther apart. Patan Hospital is in "new" Patan.

From a Western point of view, Nepalis are friendly and obliging. Their culture is full of family tradition. The elders are respected; marriages are

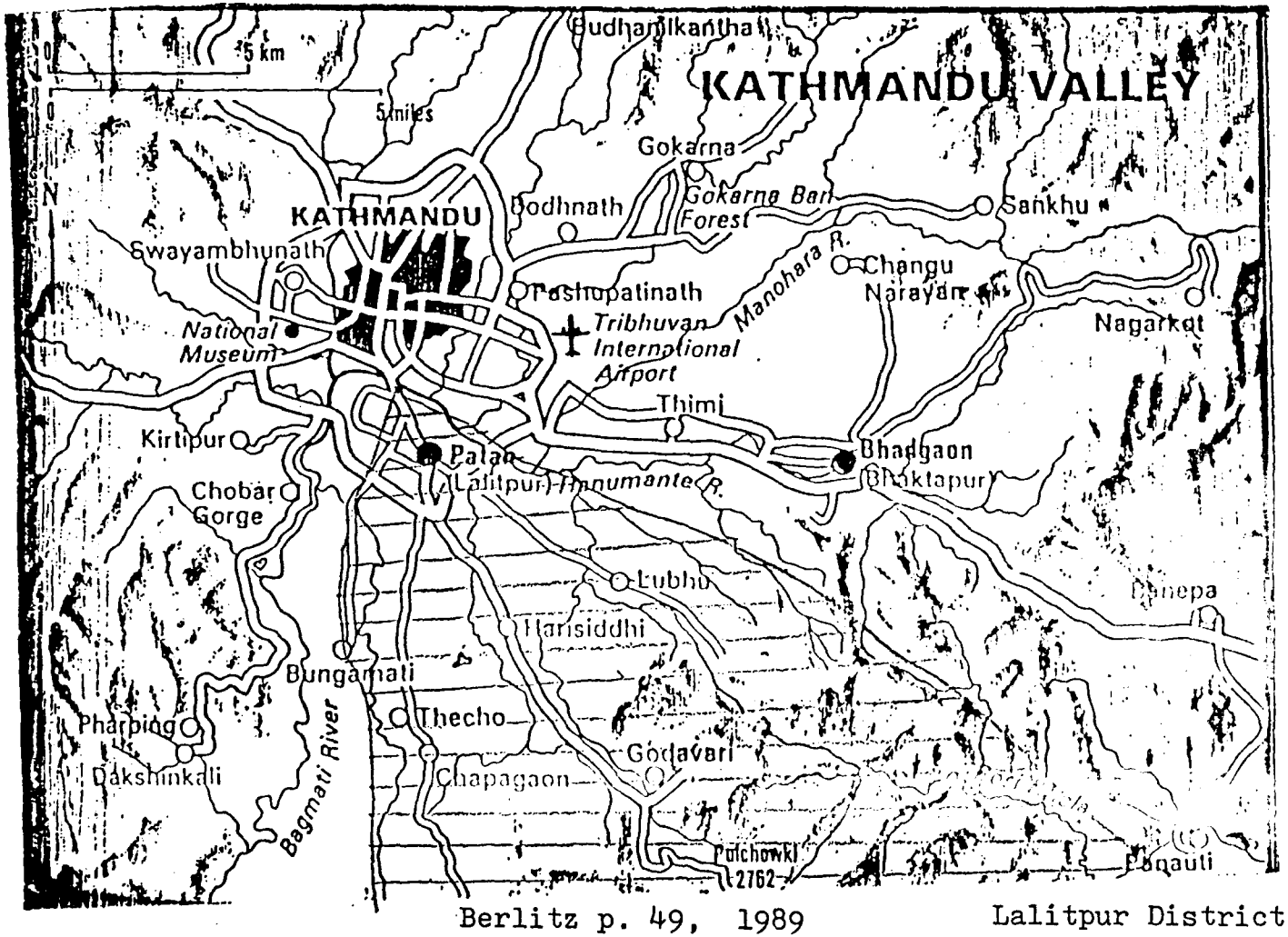
NEPAL
TOWNS BY POPULATION SIZE
(1987)

Figure 3
Presern, p.11



SOURCE: MSTP PROJECT MAP

Figure 4: Kathmandu Valley



Berlitz p. 49, 1989

Lalitpur District

arranged; and children are nurtured. The husband is the head of the household, but the wife is the overworked caretaker. For the most part, extended families reside in the same area for generations which contributes to their sense of belonging. Buying a house takes priority over education or business. In Patan, the Newari group is especially artistic with wood and metal.

Although the government provides "free" education until 8th grade many poor families find it too costly to send their children to school. They cannot afford the required uniforms and supplies. In addition, during the planting or harvesting season the children are taken out of school to work in the fields. The lower castes are allowed to attend schools, but there is significant social ostracism of these castes in school so that they often drop out. Therefore Nepal's literacy for adults over 14 years old is only 8% for females and 30% for males.[8] The urban areas are more affluent and have a significant number of prestigious private schools available. In the Lalitpur District the reported literacy is 20% for females and 46% for males.[8] The UNICEF survey (1990)[2] showed a 53% literacy among males and 14% literacy among females in their sample in Patan.

Nepal has a rich religious heritage. It is the only country in the world where Hinduism is the state religion (90% adherence). One of the features of Nepal is the plethora of religious shrines, some of which date back centuries. In their daily religious practices, shrine offerings become routine. Buddhism and Hinduism are intertwined in Nepal. Hindus will worship in Buddhist temples and vice versa. Buddha was born into a Hindu Newari family in Nepal, so this syncretism is long standing. With the caste system, a certain element of fatalism exists. However it is different from India's caste system. Nepali laws prohibit discrimination based on caste.

Nepal is listed among the 5 least developed countries in the world. Its main resource, water, is vastly under-utilized for hydro-electric power. About 95% of the workers are involved in subsistence agriculture which makes up about 70% of the GNP. The average per-capita income is US $160 per year, among the poorest in the world. A major reason for its underdevelopment is its rugged topography, which contributes to Nepal's inadequate roads and lack of rail system. Nepal is a recipient of much foreign aid. The US, United Kingdom, and Japan are among the largest bilateral contributors. The United Nations has a major role in multilateral development also.

Nepal's political history is focused on several ruling families. Nepal was isolated from the West and the 20th century until a revolt in 1951. The new monarchy then welcomed foreign aid. In the past 3 years, there has been a popular movement from the constitutional monarchy towards democracy. The recent student-initiated revolution has been bloodless for the most part. As a result, the king has decided to forego his absolute authority to permit a democratically elected congress. A new constitution was written, and elections for congress were held in the Spring of 1991. There was still minor unrest while this study was conducted, so the political changes are not yet solidified.

Sanitation is a major problem in the Nepal, particularly in the urban areas. In 1975, about 17.2% of urban and 0.2% of rural residents were served by sanitation facilities representing 1.7% of the total population[15]. In Patan, most households lack sanitary toilet facilities. Often there are pit toilets that are located too close to the household well, causing contamination. Feces are commonly seen in the street, often from young children and animals. Nepalis like to keep their own living area clean but often dispose of garbage on the street. Chickens and pigs often feed in these trash heaps.

The sewage ditches are adjacent to the city water mains. Since the water mains have many leaks, raw sewage is drawn into the city water because of the fluctuating low pressure. This often happens during the summer monsoons, when the sewage ditches are at their fullest. Observations have corroborated that the summer monsoons are associated with an increase in diarrheal diseases. Thus, poor engineering has contributed to waterborne illnesses.

Due to these and similar problems, Nepal is a country struggling with many health problems that the West has not encountered in decades. Significant infectious diseases, including diarrheal diseases, acute respiratory diseases, tuberculosis, malaria, leprosy, and neonatal tetanus are commonplace. Maternal

perinatal complications are a leading cause of morbidity. Clearly, the major groups who suffer most are the women and small children.

Providers of Care

Nepalis seek medical care from a wide variety of health practitioners, ranging from traditional healers to the Western allopathic physicians. There is also an element of self-care. Many times the advice sought depends on the aliment. If there is overt trauma, one may go to the Western hospital emergency room. If there are stomach pains, one may seek out the traditional healer.

The traditional healer is known as a jhankri or dhami. These the shamans of the Hindu culture, deal with the spirit world. Boskis are witches who cast spells to inflict pain (head, stomach, etc.) in their victims, so the role of the jhankri is to reverse these spirit curses. They often use mantras and prayers. At times they go into a trance to accomplish their desired effects. These healers generally practice part-time, while being employed full-time elsewhere. Their numbers are most abundant in the rural areas. In Nepal, at least three-fourths of all illness are treated by the traditional healers[9].

The Western allopathic physicians are few compared to the jhankris. Typically, they are concentrated in the urban areas. Most of the physicians have been trained in India. In the past 10 years, Nepal has started a medical school which graduates less than 50 per year. However Nepalis desire to attend medical school outside Nepal, because Nepal's school is not well known. A small group of Western physicians, many of whom have learned the language, practice in Nepal.

Physicians work at the hospital or in health centers. These are typically low-paying government positions, so most of them work in private clinics early in the morning or evenings. This is where physicians make substantial money. They maintain their government positions because it is a source of private patients, and because they need a hospital affiliation to admit their private patients. People attend these private clinics because of accessibility. Typically, one can see a specialist privately first, bypassing the long hospital referral process.

Practitioners such as health assistants, nurses, village health workers, midwives, and compounders are trained in allopathic medicine. A variety of training programs have come and gone for these practitioners. For the most part, they require at least an 8th grade education with training lasting from a few months to a few years. The Patan Hospital Clinic uses two health assistants per physician. Health assistants do the majority of the patient care, referring the difficult cases to the physicians. Another respected group of practitioners is the compounders. They were initially trained for giving injections and changing dressings, so their training is less than that of a health worker. However, through experience, they often treat a number of common medical problems. Some of the health workers and many compounders have their private clinics outside of the hospital clinics.

In Nepal the pharmacists have increasingly become providers of care. Their government training programs do not allow them to give certain medications without prescriptions. However, practically speaking, these rules are not followed. Often patients ask what may be effective for common ailments like cough or diarrhea, and pharmacists sell them a prescription medication[10]. In order to increase business, many pharmacies have adjacent examining rooms for private physicians or other providers of care.

This liberal dispensing of medications has been suspected of contributing to resistant organisms. For example, in Nepal most salmonella strains are resistant to antibiotics, which are commonly used to treat it in the West. This is probably due to the dispensing of insufficient amounts of medicine, because patients cannot afford the full course treatment. Furthermore, the pharmacists may be selling the wrong antibiotic because of misdiagnosis.

Near Patan Hospital are two tertiary government hospitals (300 beds each), which have primary care and specialty clinics. Both these hospitals are in Kathmandu and are Nepal's premiere central hospitals. Bir Hospital[11] dates back to the late 1950's. The Teaching Hospital dates back to the late 1970's and is the hospital affiliated with the medical school. Both of these hospitals are

easily accessible from Patan. A public bus even stops in front of Patan, Bir, and Teaching Hospitals. The bus ride from Patan Hospital to Bir and Teaching Hospitals takes 20 and 30 minutes, respectively.

There are several specialty hospitals nearby. They include eye, leprosy, mental health, maternity, infectious disease, children's and tuberculosis hospitals. A class of hospitals known as "nursing homes" are not nursing homes as we know them. Essentially they are small (5-30 beds) hospitals for the richest citizens of Nepal.

Women have several options in obstetrical care. Patan Hospital Clinic provides obstetrical care. There are also 4 MCH clinics affiliated with Patan Hospital, where women can obtain prenatal care and deliver in Patan Hospital. There is the government Maternity Hospital, which is about 20 minutes away in Kathmandu. Another option is home delivery with a midwife.

Midwives receive a wide range of training. The traditional birth attendant (TBA) has learned her trade from another woman, most likely her mother. Many of these TBAs use cultural practices, such as having another woman cut the umbilical cord several days after birth. Many of these TBAs are illiterate, but they are the source of much health information. Home deliveries are also performed by Western trained midwives.

Finally, there are the ayurvedic healers who use natural medicines (such as plants or goat urine). They are known as vaidhyas. These practitioners employ elements of traditional and Western medicine. The nation's medical school graduates about 30 ayurvedic healers per year. However, most of them are trained by others in the rural setting. These people are viewed as the general practitioners of the village. They place heavy emphasis on pulses of the wrist. They also may use x-rays or consult with the spirits for diagnosis. Treatments may involve reciting a mantra (verse), changing a diet, or giving a medicinal potion. There is a 50 bed ayurvedic hospital in Patan.

Community Health Development

Since moving in 1982, Patan Hospital's governing board has had community representation. Community participation is crucial for development. Too often, over-zealous foreign development has made Nepal more dependent and powerless. Participation increases program coverage, efficiency, and effectiveness. Equity and self-reliance is fostered[12]. This helps realize the UMN's goal of turning the hospital over to the nationals.

The following illustrates the power of community participation. In one of the CHDP's target wards, the community desired a local health clinic. Though enthusiastic but without funds, they tore bricks off the sidewalk to build it. This community sensed participation as contribution, organization, and empowerment[12].

Community involvement fostered at the ward and even block level is most beneficial. An example of this involvement is the CDHP's chlorination of water wells program. It has enjoyed success in teaching people the proper way to chlorinate their wells. It was found that teenagers were often the most important and reliable participants, and therefore the community benefitted from personal involvement.

Nepal has adopted the WHO's Alma-Ata[13] concept of primary health care starting with 816 health posts[8] with a referral network ending at central hospitals. There are several levels of health workers, from village health workers to physicians. One of primary health care's goals is to maximize community participation, but too often it practices its own programmatic agenda. Therefore, although widespread, primary health care has not fulfilled its desired impact. Specifically, the local Nepalis believe that they posses adequate preventive knowledge, so they desire curative medicine. However, to fulfill one of primary health care's goals, health education is still preached to the rural masses. In its negative view toward indigenous medicine, primary health care has failed to integrate fully traditional healers into primary health care's "program". A lesson learned is

> "that within the traditional system, it is the clients and not the healers who are in command"[14].

Due to these shortcomings, one needs to take a cautious view of what is done in the name of primary health care.

Review of Literature

The government spends about US $1.63 per-capita per year on health services. The average for Southeast Asia is US $4.12[15]. In 1985, the government spent just over 5% of its budget on health, and 65% of that was allocated for primary health care services[15]. In 1976, the estimated out-of-pocket expenditure for health services and supplies was 15 to 40 Rs. per person per year representing about 3% of the average annual per-capita income[15].

In the early 1950's, only 30 physicians existed for the entire country. In 1988, this increased to 879 physicians for the entire country, or one physician per 20,471 people (or 0.5 per 10,000) with about 18 times as many physicians per population in the urban areas. An estimated 60% of Nepal's physicians live in the Kathmandu Valley where only 13% of the people reside[15]. By comparison in 1985, the U.S. had one physician per 450 people (or 22 per 10,000)[16].

The following are some reported vital statistics[17]. Nepal's infant mortality rate in 1987 was 106 deaths per 1000 live births. This contrasts with about 250 deaths per 1000 live births in 1954. A recent average for Southeast Asia is 69 deaths per 1,000 live births[15]. The life expectancy at birth in 1988 was 54 years for males and 51 years for females. In 1954, it was 27 years for males and 29 years for females. Life expectancy is about 6 years greater among the urban population than the rural population. In 1987, the crude birth rate was 41.6 per 1000 people with a crude death rate of 14.9 per 1000 people. Nepal has seen an annual population growth rate of 2.7% from 1971 - 1981. Therefore over-population is a major problem in Nepal. The agricultural productivity has not kept pace with the population. Although overt starvation is not evident, there are definite medical problems due to malnutrition. In 1985, an estimated 7% of children under 5 years old received adequate nutrition[15].

Urban hospitals are typically secondary and tertiary referral centers, so it seems antithetical that hospitals participate in primary health care. A former medical superintendent of Patan Hospital struggled with this as he noted the growing crowds at the Clinic. In 1987, he published how hospitals should participate in primary health care[18]. Since it is more expensive for hospitals than health posts to carry out primary health care, maybe hospitals should limit themselves to seeing only secondary referrals from health posts. In Patan and Lalitpur, there is virtually no control over the utilization of health facilities, so hospital clinics may usurp patients from health posts. Since this is a common struggle among hospitals, the WHO has published some guidelines to help hospitals in their primary health care practices[19]. They state that hospitals can accomplish primary health care through integration with the local health system and community involvement.

In previous studies, strict adherence to questionnaire administration has yielded unreliable information in developing countries and Nepal[20]. Conventional questionnaires are probably misunderstood in predominately illiterate non-Western cultures. Therefore, medical anthropologists employ informal qualitative method of participant observation for health behavior data gathering[21].

Conceptual misunderstanding through cultural reinterpretation of questions has contributed to non-sampling errors in survey research. "Non-sampling errors" ("measurement error" or "method artifact") is attributed to "courtesy bias" or "response set". In Nepal a conventional fertility survey (knowledge, attitude, and practice) was compared to informal interviews. There were significant differences in the data gathered.

> "This experiment demonstrated that non-sampling error for the kind of knowledge and attitudinal variables measured in the survey was far greater than what is normally computed as a sampling error. One reason for

> inaccuracy concerned the cultural reinterpretation of survey questions by respondents. In more general terms it is argued that surveys are limited by a "contextual bias" (reliance on only one context for gathering data) that may render survey data inaccurate or misleading."[22]

The authors recommend that traditional surveys should not be replaced with qualitative methods but that qualitative methods and surveys supplement each other.

Due to the plural medical system evident in this area of Nepal, it would seem that patients typically have an eclectic view of health care. Classically, medical anthropology has assumed that traditional healers are effective on social and psychological levels of illness, and Western medicine's strength is dealing with the pathology of illness. However in over 400 interviews, Skultans (1986) concluded,

> "in the Kathmandu Valley the picture of the healer as psychotherapist and social mediator was not endorsed, nor was the claim that a medically plural society fosters an easy eclecticism altogether supported."[23]

Skultans (1986) noted also,

> "Most patients are firmly committed to one style of treatment rather than eclecticism."[23]

Using Andersen's Health Behavioral Model[24] in determining health care behavior, Subedi (1989) surveyed 658 people who went to Western hospitals in Kathmandu[9]. Subedi (1989) observed that these people first used home remedies.

> "Next they seek the indigenous health services; it appears that when they turn to the modern health services, they do so because of their dissatisfaction with the previous folk or traditional help provided or because an indigenous health professional advised them to seek modern hospital services."[25]

Subedi (1989) concluded:

> "The findings show that the presence of medical pluralism is a significant factor which delays use of modern health services."[26]

On the other hand, some may simultaneously attend the Western practitioner and the traditional healer. It has been observed that a Nepali may seek care from a Western practitioner and the traditional healer for his TB. Their logic is as follows: He believes in the effectiveness of Western medicine, but there is a need for spiritual cleansing. If he is the only one of fifteen in a crowded household who gets TB, then he believes that he may be cursed. Thus, this spiritual dimension of disease needs to be addressed by the traditional healer.

The UNICEF (1990)[2] survey asked who was the preferred initial provider of choice (Figure 5). For their sample of Patan, the traditional healer (28%) was the foremost preferred initial provider of choice, and Patan Hospital Clinic (20%) was next. When the respondents were asked why the people would not use hospital clinics for medical care,

> "distance was a factor. This is surprising as the nearest hospital [Patan Hospital] at Lagankhel is about 10 minutes walk away. ... Other significant reasons for not using hospitals included cost and staff attitudes."[27]

Developing countries have found a steep distance-decay gradient, which is especially pronounced in the rural areas- the further away a person lives from health services the less it is utilized. In Uganda the average individual attendance per year halves every 2 miles (3.2 km), and in India it halves every

Initial Provider of Choice, UNICEF Study Patan, Nepal, 1990

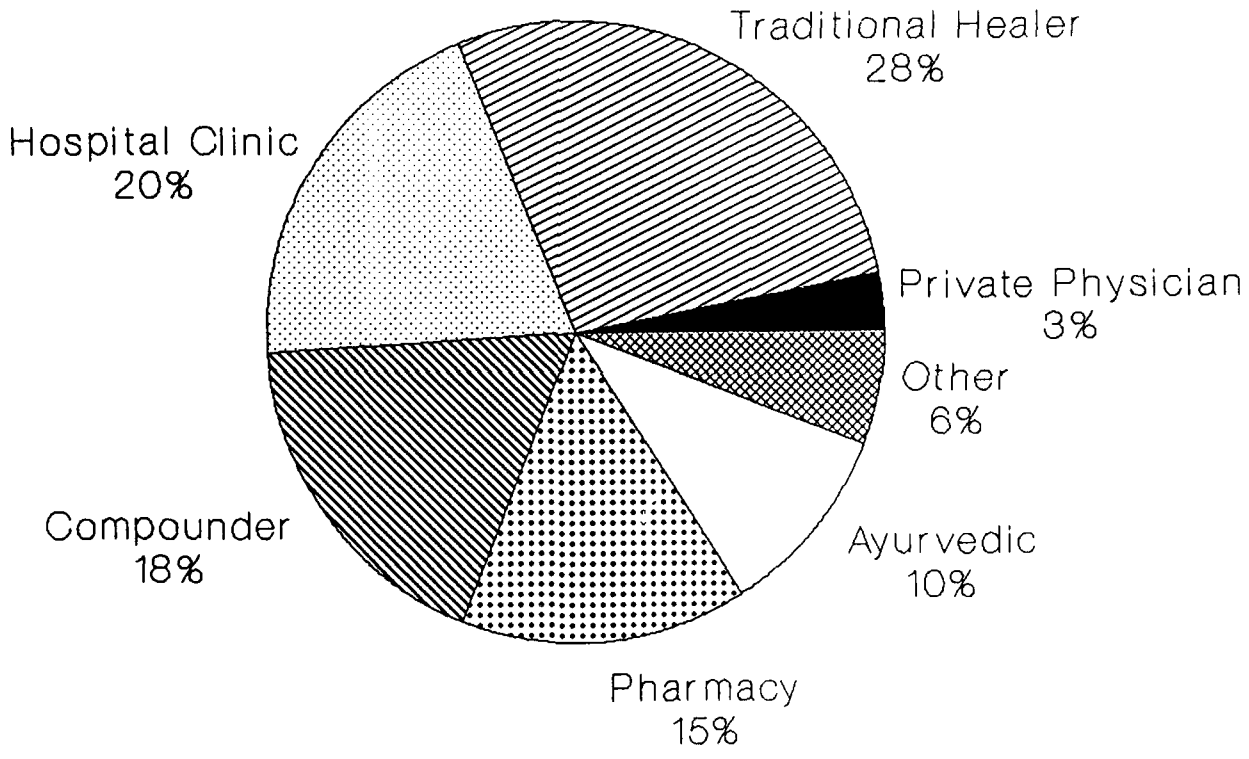


Figure 5

N = 156

½ mile (0.8 km.)[28]. Walking long distances involves considerable time, effort, and often pain. Similarly, waiting time also may be an important limiting factor to access of care.

In the urban setting, there is less transportation time, but increased crowds producing long waiting times. In Port Sudan (Sudan), a city of 250,000 people, significant dissatisfaction was expressed at the long waiting times by the patients of a hospital's (500 bed) primary care clinic[29]. A recommendation from that study was that the hospital clinic see only secondary referrals from the city's health centers[30]. This experience is duplicated in Western countries also. In Los Angeles (USA), low-income women prefer more expensive private physicians over public clinics for family planning. One factor involved was the longer waiting room times at the public clinics[31].

In Nigeria (1986)[32], long clinic waiting time hampered health care in the community, particularly preventive services. Another study in Nigeria (1984)[33] demonstrated that adding an immunization station in that clinic reduced waiting time. Additionally, immunization coverage was improved.

Chapter 3: Door-to-Door Survey

Methods

To elucidate the pattern of health care seeking behavior, a door-to-door survey was administered in Patan with particular attention to the poorer areas. The survey (Appendix I) included questions of demography, income and health expenses, patterns of utilization, experiences with and impressions of the hospital, and health desires. Respondents were given opportunities to offer their impressions of and suggestions for Patan Hospital's Clinic. Therefore entries were both quantitative and qualitative in nature. The survey was pre-tested on 10 people. Three-hundred and ten surveys were done between July 4, 1991 and August 7, 1991. The data were entered into Epi Info[34] and analyzed using Epi Info and SAS[35]. Alpha was set at 0.05.

Survey Development

Advisory Committee

In order to better define the problem and the goals and objectives of the survey, an advisory committee was organized, which consisted of 10 members[36]: the hospital medical director, the hospital chief executive officer, the CDHP manager, the urban services medical consultant, the previous urban services medical consultant, the public health environmental advisor from the medical school, the community health advisor from the medical school, the principal investigator involved with the UNICEF (1990) survey in Patan, the UMN CDHP director, and the investigator.

This group met on June 23, 1991 to review an initial questionnaire. The group discussed whether the interviews should be represented as for a US student or for Patan Hospital. If the respondents thought it was for Patan Hospital, then they may give answers that Patan Hospital wanted to hear. However, if the survey was for a US student, they may not show interest in the survey. The advisory group concluded that it would be more important for the respondents to know that the surveyors primarily represent the Hospital so to obtain more motivation from the interviewees.

The majority of the discussion focused on the questions. The initial questionnaire was quantitative with many yes/no and multiple choice questions. The consensus was that this may not be particularly reliable in Nepal. The group thought that a more informal dialogue with the individuals would produce more accurate information. Therefore, they encouraged more open-ended qualitative questions.

Translation

The survey was first written in English and translated into Nepali. The female surveyor was hired first, and she translated the questionnaire into Nepali. Two other Nepalis reviewed the translation's accuracy.

Although the questionnaire was printed in Nepali, the vast majority of the interviews were conducted in Newari. Newari is primarily a verbal language, with few people reading the original language. Both surveyors were Newari but neither could read or write Newari. However, they had no difficulty in translating the Nepali into Newari. The responses were recorded in English.

Surveyors

Two surveyors were hired to conduct the door-to-door verbal interviews. Both of them had a master's degree and were able to speak in Newari (their native language), Nepali (the national language), and English (the investigator's language). Both of them were Newari and Hindu.

The first hired surveyor was a 30 year old single female[37]. She was recommended from a firm who had hired her for some of their surveys. Therefore, her experience was valuable in the translation and pre-tests. Moving from another urban area for higher education, she was residing in Kathmandu. She

possessed a master's degree in Nepali literature.

The second surveyor[38] was hired 2½ weeks after the first surveyor and was 25 year old, single, male, and a native of Kathmandu. He possessed a master's degree in economics but had no prior experience in conducting interviews. However his conversational English was better than the first surveyor.

Sampling

Most questions on the initial survey had yes/no responses, so sample size determination was from a binomial distribution. Therefore the formula used was

$$S.E. = [p(1-p)/n]^{1/2}$$

where S.E. is the standard error, p is the estimated probability of event, and n is the number needed for one group. For the maximum sample size, the probability of the event was set at 50% (p = 0.5). S.E. was chosen to be 0.04 or 4% (giving a 95% confidence interval within ± 8% in the intermediate range). Solving for n in the formula gives a sample size of 150 for each group. So to compare two groups[39], a total sample size of 300 was needed for the survey.

Considerable difficulty was encountered in obtaining accurate population and geographic data. The recently conducted 1990 census data were not published, so the 1980 census data were used as a start. However, for the recent elections, the election commission went door-to-door asking who in the family was over 18 years old. When people heard "family", they included relatives who did not reside at that house. Therefore, their data were known to over-estimate the population. Surprisingly, the city government did not have any records of the population in their wards or detailed street maps. The houses had no street addresses. Many of the houses were numbered by the utilities but not enough.

The election commission had population by the wards, so most surveys were proportionally distributed in the wards of most interest. Once in the ward, the surveyors tried to administer no more than one survey per block. They tried to be consistent in which household they approached in each block. Practically, those interviewed were those who were usually at home or in the courtyard. People often do not spend much time in their home due to the overcrowding. Therefore many people socialize in their streets. Due to time and budgetary constraints there could not be a more rigorous sampling method.

Patan was first geographically divided by neighborhoods called toles. Subsequently, Patan was divided into 22 wards which included 5 to 17 toles each. Figure 6 shows the ward boundaries in Patan. The ward and tole populations are not uniform. Some large toles even cross ward boundaries. The city government did not even have a listing of the toles in each ward. Although not completely accurate, the hospital had compiled a list of toles in each ward. However, the local people knew in which ward and tole they resided.

The 310 surveys were conducted in 14 wards of most interest. The CDHP targeted 5 wards namely, 6, 7, 8, 9, and 22. These 5 wards are in "intermediate" Patan. Ward 6 was done by a recent UNICEF (1990) survey, so no surveys were done there. The goal was to do about half of the surveys in the remaining 4 CDHP target wards and divide the rest in other areas of "old" and "new" Patan. These surveyed wards encompassed about 109 toles. Stratified sampling was employed, which required administering a set number of questionnaires in each tole.

Other studies done in Nepal have spent considerable time and effort in pre-surveying the area for accurate sampling. The Patan UNICEF (1990) study for Urban Basic Services employed cluster a sample which is good for small areas of interest.

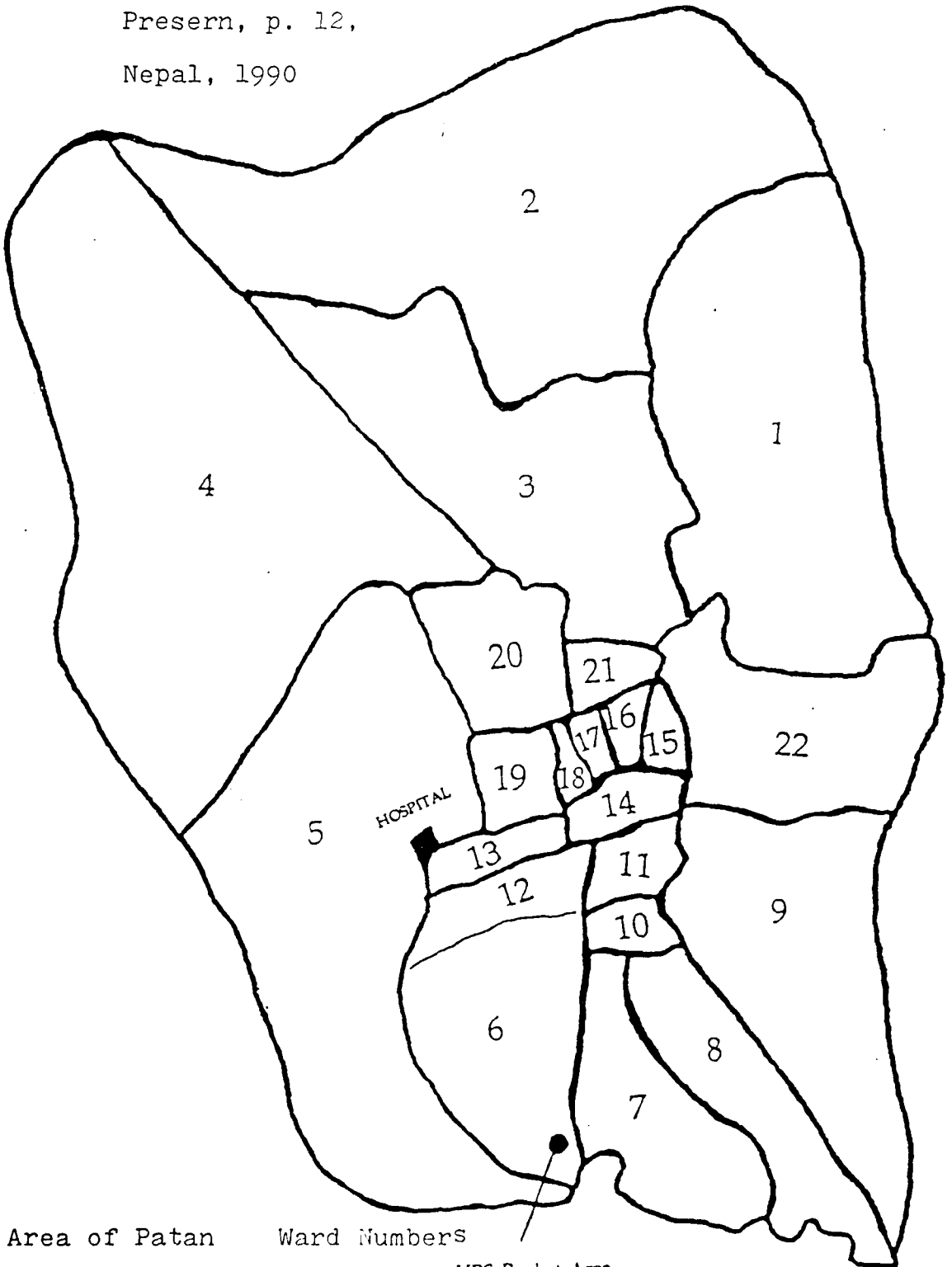
Surveys for this essay were conducted as early as possible in the morning because the work day did not start until late morning. Surveying generally started at 7 to 8 am and ended about noon. Ten surveys a day for each interviewer was the goal.

URBAN PATAN (LALITPUR MUNICIPALITY) BY WARD

Figure 6

Presern, p. 12,

Nepal, 1990



Area of Patan Ward Numbers

"New" Patan: 1,2,3,4,5,20
"Intermediate" Patan: 6,7,8,9,15,22
"Old" Patan: 10,11,12,13,14,16,17,18,19,21

Source: Courtesy of David Stevens, UMN

Results

The female interviewer did 219 (71%) of the surveys, and the male did the remaining 91 (29%). The investigator accompanied the female interviewer on 117 (53%) of her surveys and the male on 47 (52%) of his surveys. To standardize the two interviewers, 10 surveys were done together. There was only one refusal. The average time needed to complete the interview was 17 minutes. The questionnaire was written in Nepali, but two-thirds of the interviews were conducted in local language, Newari.

When accompanied it became obvious that the male interviewer surveyed fewer female interviewees than the female interviewer (Table 1). Often when entering a household, men would answer the survey, especially when the male surveyor was accompanied by another male, the investigator.

One-hundred and seventy-eight (57%) of the surveys were done in the 4 "target" wards of the CDHP (Figure 7). All of these wards are in "intermediate" Patan. Seventy (23%) of the surveys were done in "new" Patan, wards 1, 2, 3, 4, and 5. Forty-seven (15%) of the surveys were done in "old" Patan, wards 14, 16, 17, and 18. The remaining 15 surveys were done in "intermediate" Patan ward 15. Depending on the size of the tole, there were 1 to 8 surveys taken from each of the 109 toles surveyed.

Demographics

The respondents ranged in age from 17 to 80 years, with a mean age of 38 (standard deviation (s.d.) of 14) years. Males comprised two-thirds of those interviewed. Two hundred and eighteen (71%) claimed literacy. More males were literate than females (Table 2), risk ratio 6.0 (95% CI: 3.4, 10.6). Among the literate 19 (8.7%) had no formal education. Ninety-two (42%) had gone to high school. Eighty-two (37%) had bachelor's or master's level education.

There were 68 castes representing 13 ethnic groups. Newars composed the vast majority surveyed, 249 (80%). The Newars represented 37 castes in the survey. The castes were grouped into three strata: low, middle, high. The predominant caste group in this sample was middle at 48% (Figure 8).

In gathering the data, the interviewers tried to obtain reliable information for the entire household. One hundred and nineteen (39%) of those interviewed were the "head of the household" (Figure 9). Eighty-eight percent had lived in the same house, or at least in the Patan area, for their entire life. For those who moved to the area, the average length residing in Patan was 7.1 years (s.d. 7.4). The average household consisted of 4.4 adults (range: 1 to 15; s.d. 2.4) and 2.6 children-under 15 years old (range: 0 to 13; s.d. 2.0). Hinduism was the family religion of 223 (72%) of the households. Except for one Christian, Buddhism was practiced by the remainder. Survey data indicated a mean per-capita income of 7093 Rs. (US $177) (s.d. 6839). The mean annual per-adult income was 11323 Rs. (US $283) (s.d. 9819). The most common primary occupations were agriculture (38%) and government service (12%). On average, a family spent 6% (s.d. 7.3) of their annual income on health. The annual health expenses per-capita ranged from 20 to 2500 Rs. (US $0.50 to $62.50) (N = 296); the median was about 205 Rs. (US $ 5.13), and the average was 333 Rs. (US $ 8.33) (s.d. 357).

General Health Questions

When asked if they were satisfied with their family's health, 238 (77%) responded "yes". An open-ended question ascertained what they thought would improve their health. The respondents could list up to three suggestions. Of the 448 suggestions, the most common was sanitation (39%) which generally meant ridding the streets of garbage. Safe water (25%) was the next most prevalent response. However, there were times that the interviewer gave them suggestions if they were puzzled. Some other suggestions included "clean food" and "balanced diet". Interestingly, less than 1% of the responses had anything to do with medical care.

From questions on the usual expenditure per outpatient visit (provider fee, laboratory tests, and medications) for each provider of care, the average cost

Table 1: Surveyor's Sex by Respondent's Sex
Patan, Nepal, 1991

SURVEYOR'S SEX	RESPONDENT'S SEX		TOTAL
	MALE	FEMALE	
FEMALE	131 (60)	88 (40)	219 (100)
MALE	74 (81)	17 (19)	91 (100)
TOTAL:	205 (66)	105 (34)	310 (100)

N (Row Percentage)

Chi-square = 13.3; p-value = 0.00027

Areas of Patan Surveyed

Nepal, 1991

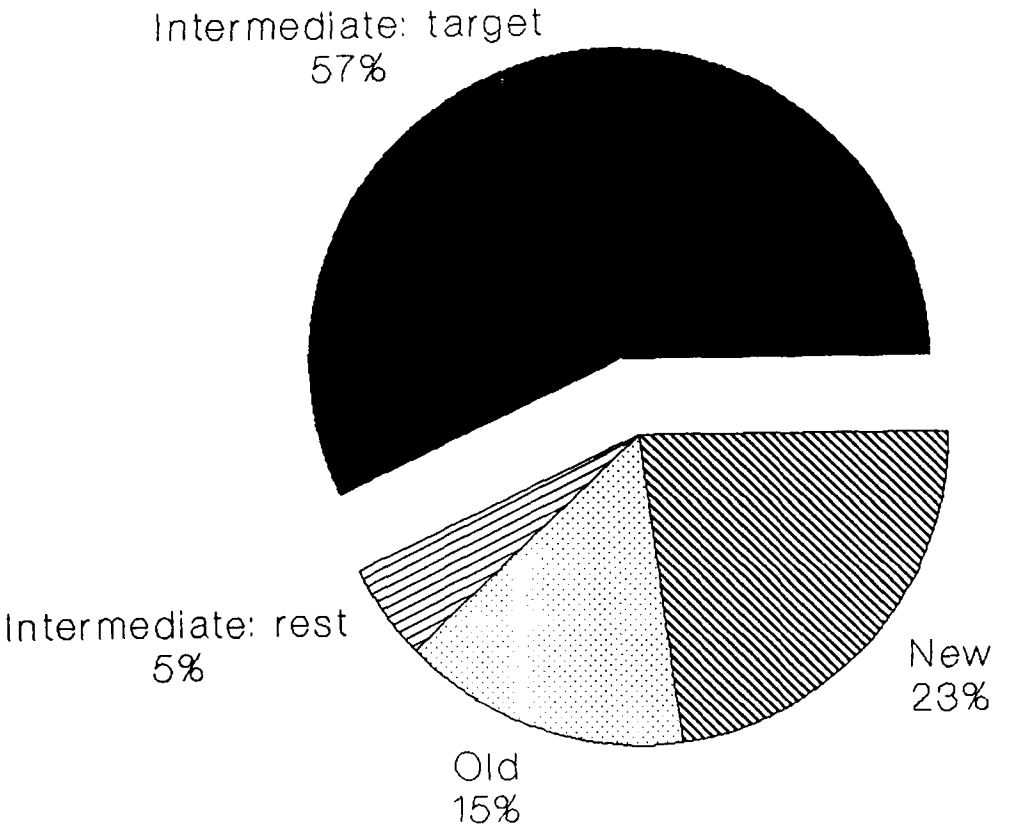


Figure 7

N = 310

Table 2: Literacy by Sex
Patan, Nepal, 1991

SEX	LITERATE	ILLITERATE	TOTAL
MALE	171 (83)	34 (17)	205 (100)
FEMALE	48 (46)	57 (54)	105 (100)
TOTAL	219 (71)	91 (29)	310 (100)

N (Row Percent)

Chi-square = 47.6; p-value < 0.00001
Odds Ratio = 6.0; 95% confidence interval (3.4, 10.6)

Table 3: Cost (Rupees) Per Outpatient Visit
Patan, Nepal, 1991

FACILITY	AVERAGE	S.D.	N
Patan Hosp. Clinic	49	62	236
Private physician	128	64	163
Pharmacy	40	37	34
Compounder	35	31	84
Ayurvedic	16	16	12
Bir Hosp. Clinic	49	27	47
Teaching Hosp. Clinic	76	48	37

US $1 = 40 Rupees, August 1991

Caste Grouping
Patan, Nepal, 1991

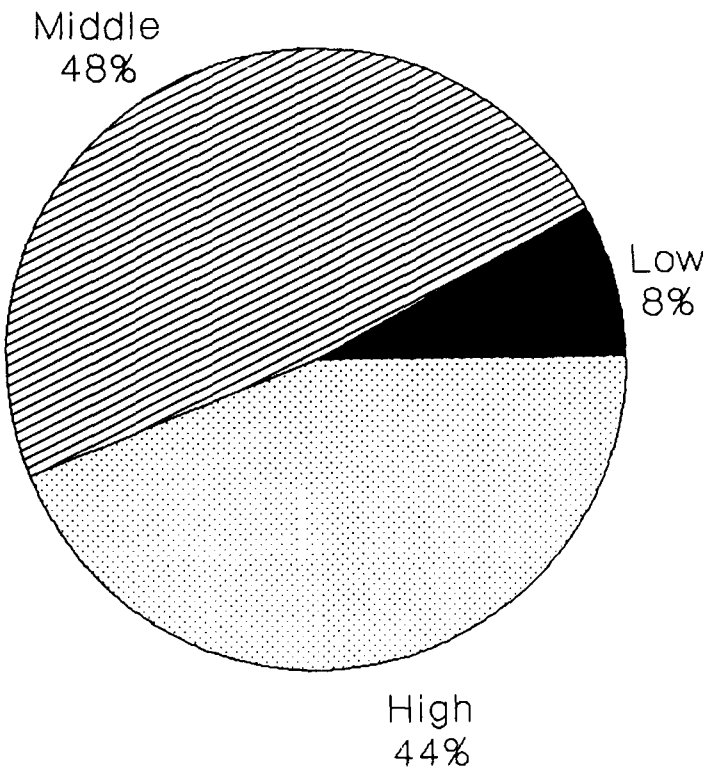


Figure 8

N = 309

Respondent's Family Postion
Patan, Nepal 1991

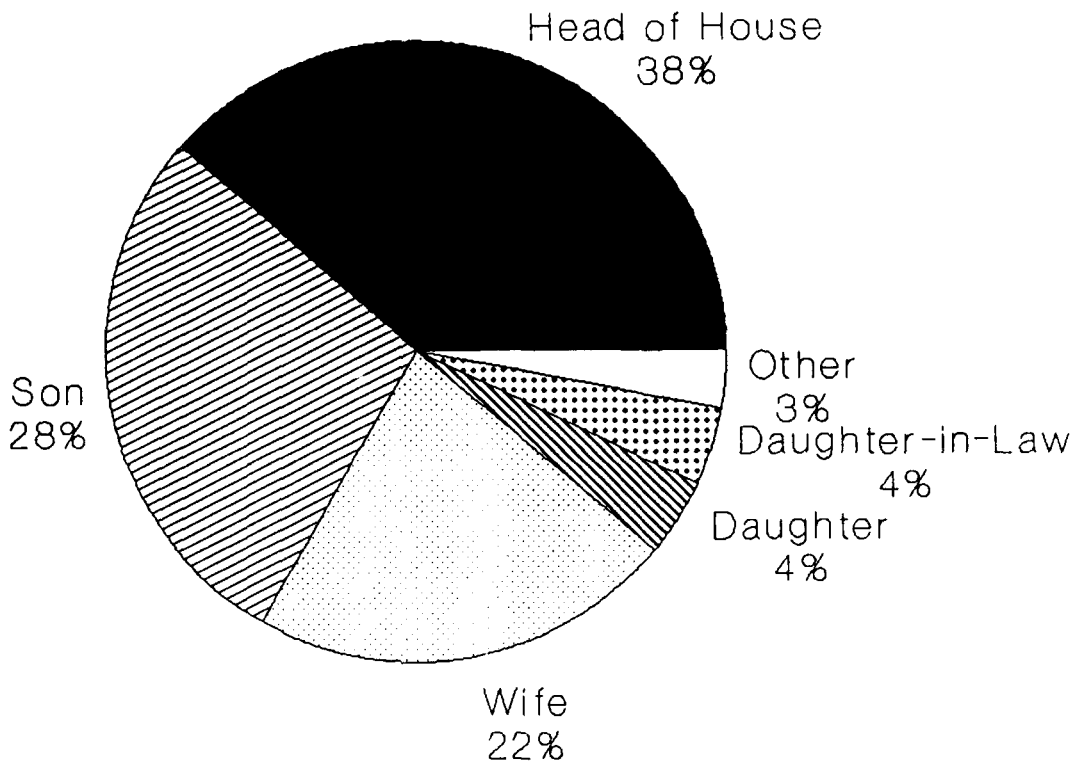


Figure 9

N = 305

per encounter was calculated (Table 3). The private physician was the most expensive (128 Rs.), 2.5 times as expensive as Patan Hospital Clinic (49 Rs.). However, Patan Hospital Clinic was comparable with the closest government hospital clinic, Bir Hospital.

Patan Hospital Clinic and the CDHP Services

Two-hundred and forty-seven (80%) of the respondents indicated that either they or a family member had been to Patan Hospital Clinic. The most common reasons for going were stomach problems (16%), obstetrical care (14%), and high fever (13%) (Table 4). Ninety-one percent were satisfied with the 6 Rs. Clinic registration fee. Ninety-four percent were satisfied that the Clinic staff could understand them, and the respondents could understand the staff. Ninety-seven percent said that they would go back. Being "near" the Clinic was the most common reason for returning (70%). When all of the respondents were asked about their general impression of the Clinic, 68% had a positive response (good, good treatment, good service, etc.), 9% had a negative response (expensive, bad doctors, crowded, etc.), 15% had mixed response (good but expensive, good but rude, etc.), and 8% had no impressions.

When utilizing the Clinic, lack of privacy was not a concern to the respondents. When specifically asked about this, some women stated it was not an issue. Many respondents liked the Western medicine practiced at the Clinic. The Christian nature of the Clinic was not a barrier either.

Because payment is due at the time of service, respondents were asked if they thought people without enough money would receive treatment at Patan Hospital. Only 57 (20%) said that they thought these poor would be treated. This was to ascertain if people thought charity services were available.

The survey concluded with an open-ended question about how the Clinic could change so that more people would use it. It was difficult to quantify these replies, but 51 (17%) of the 300 respondents stated that they did not know what the Clinic could do differently. However, the suggestions primarily focused on the long wait. About 100 (33%) of the respondents included something concerning the long wait or overcrowding. Many stated that the quota ticket system should be abolished and the Clinic should be kept opened longer. Many desired somehow eliminating the crowds and having quicker service.

Another general category of responses focused on offering cheap or free treatment and medicines. About 91 (30%) mentioned this in their suggestions. Some specified that the poor should have cheaper or free medicines and/or treatment. A few believed that the rich received better treatment than the poor.

About 71 (24%) mentioned that more doctors or better doctors were needed. Some stated that there should be more specialties and more specialists. Others stated that the health assistants should be replaced with doctors. Some even preferred more foreign doctors.

About 22 (7%) stated that the attitude of the staff should be improved. Some observed that the nurses or doctors were not caring or honest. They suggested that doctors should spent more time with the patient and not be careless. Outright rude behavior was noted by a few. There were stories in which some doctors advised patients to come to their private clinic for more treatment.

The respondents liked having a well-stocked pharmacy available in the Clinic. The retail drug costs are comparable with the pharmacies outside the Clinic. By contrast, Bir Hospital does not have a pharmacy, and the nearest ones are ill equipped. Even inpatients at Bir Hospital are responsible for obtaining their own medicines in local pharmacies, IV solutions and injectables too.

Although the questions focused on the Clinic, many responses were directed specifically at the emergency room. Some did not like the prepayment requirement of the emergency room. Also the service was not quick enough, and suggestions for more caring doctors were stated. Another suggestion given by some was that a physician be present in the emergency room. In reality, a physician is in the emergency room around the clock, although some respondents perceived otherwise.

One hundred and six respondents (34% of the entire sample) were acquainted with at least one of the CDHP programs. For the entire survey, the chlorination

Table 4: Reasons for Seeking Care at Patan Hospital Clinic
Patan, Nepal, 1991

REASON FOR SEEKING CARE	PERCENT
Stomach Problem	16
Obstetrical Care	14
High Fever	13
Respiratory, TB	7
Diarrhea	7
Immunization	7
Dental	5
Injury	5
Typhoid	4
Headache	3
Leg Problem	2
Others	16
Total:	100

N.B. 247 respondents gave 529 reasons for seeking care at Patan Hospital Clinic

of well water program was the most widely recognized (67%) with the MCH activities being mentioned second (Table 5). When one eliminates those who heard about the chlorination of well water, then only 16% of the respondents for the entire survey and 21% in the CDHP target wards have heard of any CDHP activities. This was of interest because the chlorination of well water was a recent program. When analyzing only the wards where the CDHP had programs, it was surprising that fewer people had heard about chlorination of well water than for the entire survey, since it is only done in those wards. Those who had heard of one of the CDHP programs were asked about their impression of the program in an open-ended question. All of the responses were positive ("good" or "good service").

Medical-Seeking Behavior

Questions were asked regarding their medical-seeking behavior. Among initial providers of choice, the private physician was first (39%) (Figure 10). The compounder (22%) was the next preference as an initial provider. The Patan Hospital Clinic was third (19%). Of the 251 (81%) who did not initially attend Patan Hospital Clinic, 178 (72%) stated that the alternative provider's "quick service" was the reason not attending Patan Hospital Clinic first.

While asking for the providers of choice it was evident that there were very few responses for the traditional healer. In one of the interviews, a Brahmin priest was asked about this. He stated that the traditional healer in the area sees only two patients a month. Even he did not admit seeking care from the traditional healer.

Two-hundred and sixty-three indicated at least one other choice, if their first provider of care was unsatisfactory. The Patan Hospital Clinic was the most common (49%) second choice (Figure 11). To assess a pattern of medical-seeking behavior, the first two choices were linked in each survey. The two most prevalent patterns of preferences were 1) attending a private physician and then the Patan Hospital Clinic (N = 73, 24%), and 2) attending a compounder and then Patan Hospital Clinic (N = 33, 11%) (Table 6).

To assess the pattern of utilization based on the type of medical problem, a question was asked about where the family would go if one was ill or if one was injured. During the pretest[40], it was noted that the responses were the same for the question on illness and a prior question on provider of choice. So the question on illness was dropped but the question on injury was kept. Respondents interpreted this as minor injuries. Of the 292 responses, the most common first response was a pharmacy (N = 182, 62%). The next two most common responses were home (N = 42, 14%), and compounder (N = 27, 9%).

Correlations with socioeconomic indicators

One main purpose of the survey was to see if there was any correlation between income and the health care sought, so analysis was done by three income indicators: income per-capita, income per-adult, and percent of family income spent on health. For convenience, each monetary indicator was categorized by quartiles (Tables 7, 8, and 9).

The mean cost of each provider of care was used in correlating the three income indicators to the initial provider of choice. Tables 10, 11, and 12 show how many fell into each provider of care by the three income indicators. It seems that the lower quartiles attend the cheaper compounder more than expected and the higher quartiles attend the more expensive private physician more than expected. The linear regression model was used[41]. There were statistically significant positive relationships of per-capita and per-adult income to the initial provider of choice (Table 13). The more a family earned, the more they spent on the initial provider of care. However, the model explains less than 3% (R^2) of the data. Therefore, the income relationships are weak at best.

Another commonly used proxy for socioeconomic status is caste. The three caste groups were then compared with the three income indicators and area of residence in Patan. There was an association of caste grouping with the annual per-adult and per-capita income quartile, but caste grouping had no relationship with the percent of income spent on health (in quartiles) (Tables 14, 15, and

Table 5: Community Programs
Patan, Nepal, 1991

PROGRAM	CDHP WARDS	ENTIRE SURVEY
CHLORINATION OF WELL WATER	53%	67%
MATERNAL AND CHILD HEALTH FAMILY PLANNING	53%	47%
VIDEO EDUCATION	11%	11%
HOME VISIT	9%	8%
DENTAL	5%	2%
COUGH	2%	1%

Entries represent percentage who heard about each program.
Total N for CDHP wards is 57 and for entire survey is 102

N.B. The reason why the percentages add to more than 100 % is that some respondents heard of more than one program.

Initial Provider of Choice
Patan, Nepal 1991

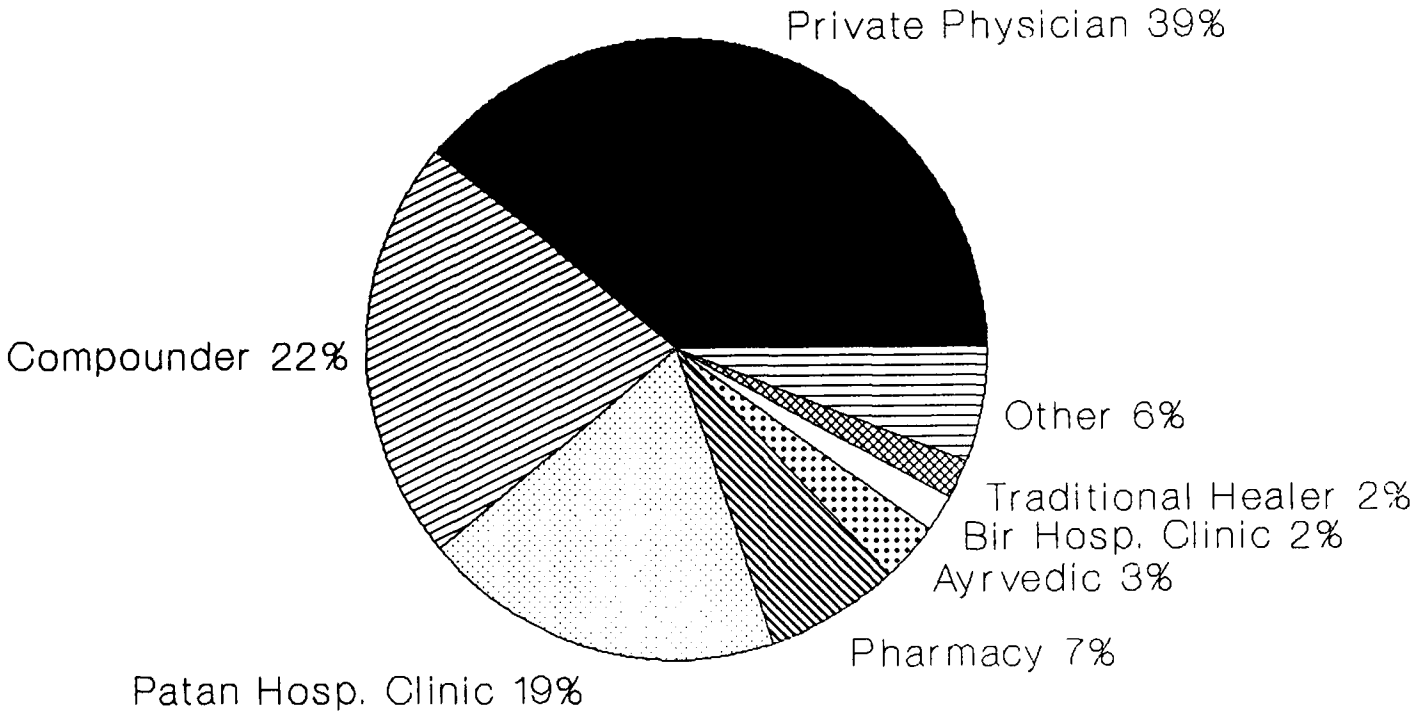


Figure 10

N = 310

Second Provider of Choice
Patan, Nepal 1991

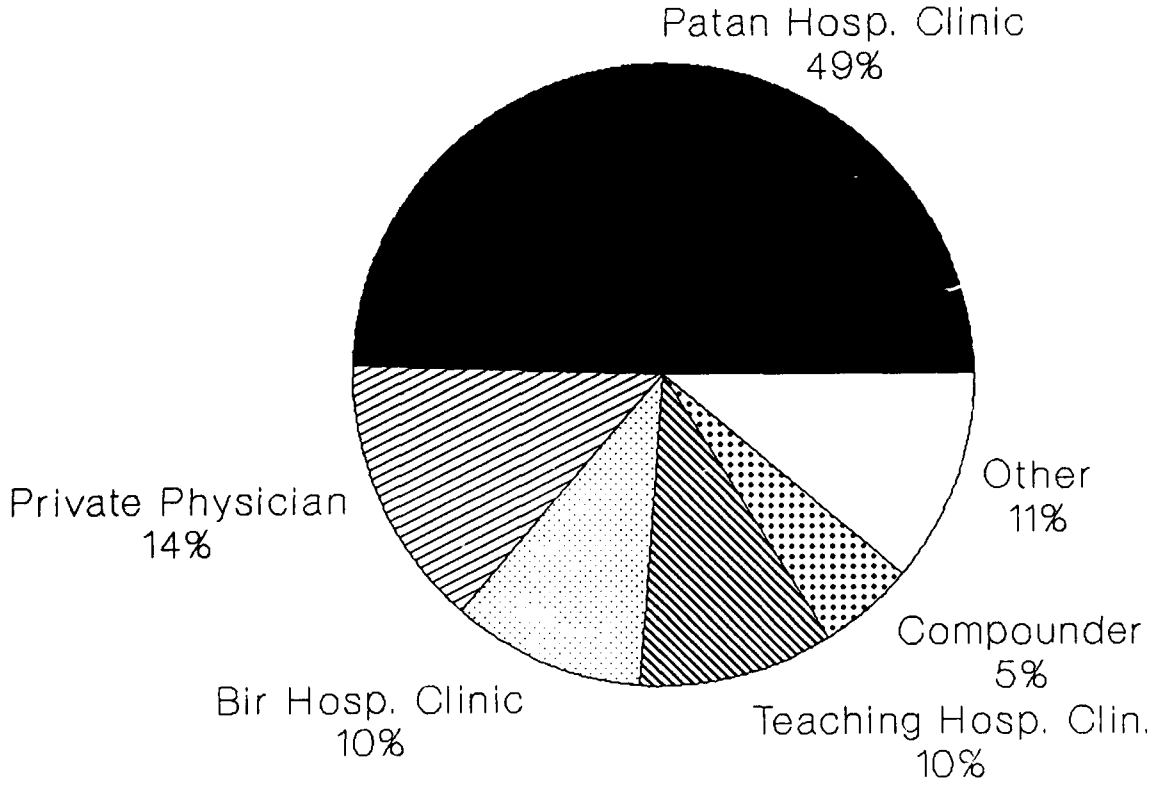


Figure 11

N = 263

Table 6: Health Seeking Pattern When Given Two Choices
Patan, Nepal, 1991

HEALTH SEEKING PATTERN	N	PERCENT
Private Physician Then Patan Hosp. Clinic	73	24
Compounder Then Patan Hospital Clinic	33	11
Patan Hospital Clinic Only	23	7
Patan Hosp. Clinic Then Private Physician	16	5
Private Physician Then Bir Hosp. Clinic	13	4
Private Physician Then Teaching Hospital Clinic	12	4
Compounder Then Private Physician	12	4
Pharmacy Then Patan Hospital Clinic	10	3
Private Physician Only	10	3
Other Combinations	108	35
Total	310	100

Table 7: Annual Per-Capita Income Quartiles
Patan, Nepal, 1991

QUARTILE	RANGE (Rs.)	N	PERCENT
1	400 - 3999	75	25
2	4000 - 5142	79	26
3	5143 - 7999	69	23
4	8000 - 60000	82	27

Total N = 305

Table 8: Annual Per-Adult Income Quartiles
Patan, Nepal, 1991

QUARTILE	RANGE (Rs.)	N	PERCENT
1	600 - 6000	83	27
2	6001 - 8999	66	22
3	9000 - 12000	74	25
4	12001 - 78000	74	25

Total N = 306

Table 9: Annual Percentage of Family Income Spent on Health Quartiles
Patan, Nepal, 1991

QUARTILE	RANGE	N	PERCENT
1	0.3 - 2.3	76	26
2	2.4 - 3.9	71	24
3	4.0 - 7.0	74	25
4	7.1 - 69.4	74	25

Total N = 295

Table 10: Annual Per-Capita Income by Initial Provider of Choice
Patan, Nepal, 1991

PER-CAPITA QUARTILE	AYURVEDIC	COMPOUNDER	PHARMACY	PATAN HOSP. CLINIC	BIR HOSP. CLINIC	TEACHING HOSP CLINIC	PRIVATE PHYSICIAN	TOTAL
LOWEST: 1	3 (4)	17 (24)	6 (9)	13 (19)	2 (3)	0 (0)	29 (41)	70 (100)
2	3 (4)	25 (35)	6 (8)	17 (24)	1 (1)	0 (0)	20 (28)	72 (100)
3	3 (5)	14 (22)	5 (8)	13 (20)	2 (3)	0 (0)	28 (43)	65 (100)
HIGHEST: 4	0 (0)	12 (15)	5 (6)	16 (21)	1 (1)	2 (3)	42 (54)	78 (100)
TOTAL	9 (3)	68 (24)	22 (8)	59 (21)	6 (2)	2 (1)	119 (42)	285 (100)

N
(Row Percent)
Provider of choice is listed from the lowest mean cost to the highest.
See table 13 for statistical tests

Table 11: Annual Per-Adult Income by Initial Provider of Choice
Patan, Nepal, 1991

PER-ADULT QUARTILE	AYURVEDIC	COMPOUNDER	PHARMACY	PATAN HOSP. CLINIC	BIR HOSP. CLINIC	TEACHING HOSP CLINIC	PRIVATE PHYSICIAN	TOTAL
LOWEST: 1	2 (3)	24 (31)	8 (10)	14 (18)	3 (4)	0 (0)	27 (35)	78 (100)
2	3 (5)	25 (25)	7 (4)	10 (16)	2 (1)	0 (0)	28 (46)	61 (100)
3	3 (4)	19 (24)	8 (10)	19 (24)	1 (1)	0 (0)	28 (36)	78 (100)
HIGHEST: 4	1 (1)	10 (14)	2 (3)	16 (23)	1 (1)	2 (3)	37 (54)	69 (100)
TOTAL	9 (3)	68 (24)	22 (8)	59 (21)	6 (2)	2 (1)	120 (42)	286 (100)

N
(Row Percent)
Provider of choice is listed from the lowest mean cost to the highest.
See table 13 for statistical tests

Table 12: Percent of Family Income Spent on Health by Initial Provider of Choice
Patan, Nepal, 1991

% SPENT ON HEALTH QUARTILE	AYURVEDIC	COMPOUNDER	PHARMACY	PATAN HOSP. CLINIC	BIR HOSP. CLINIC	TEACHING HOSP CLINIC	PRIVATE PHYSICIAN	TOTAL
LOWEST: 1	4 (6)	15 (21)	9 (13)	10 (14)	0 (0)	1 (1)	33 (46)	72 (100)
2	2 (3)	18 (27)	3 (5)	12 (18)	0 (0)	1 (2)	30 (45)	66 (100)
3	0 (0)	17 (25)	5 (7)	18 (26)	0 (0)	0 (0)	28 (41)	68 (100)
HIGHEST: 4	3 (4)	14 (20)	4 (6)	17 (25)	5 (7)	0 (0)	26 (38)	69 (100)
TOTAL	9 (3)	64 (23)	21 (8)	57 (21)	5 (2)	2 (1)	117 (43)	275 (100)

N
(Row Percent)
Provider of choice is listed from the lowest mean cost to the highest.
See table 13 for statistical tests

Table 13: Correlation of Income Indicators and Mean Cost of the Initial Provider of Choice
Patan, Nepal, 1991

INCOME INDICATOR	PEARSON (R) CORRELATION COEFFICIENT	R^2	P-VALUE	N
PER-CAPITA	0.16	0.026	0.0084	285
PER-ADULT	0.13	0.017	0.023	286
% SPENT ON HEALTH	-0.11	0.012	0.076 NS	275

NS = not significant

Table 14: Annual Per-Adult Income by Caste Grouping
Patan, Nepal, 1991

PER ADULT QUARTILE	LOW CASTE	MIDDLE CASTE	HIGH CASTE	TOTAL
LOWEST: 1	8 (31)	46 (32)	29 (22)	83 (27)
2	2 (8)	39 (27)	25 (19)	66 (22)
3	11 (42)	41 (28)	33 (25)	85 (28)
HIGHEST: 4	5 (19)	20 (14)	46 (35)	71 (23)
TOTAL:	26 (100)	146 (100)	133 (100)	305 (100)

N (column percentage)

Kendall's Tau-b (95% confidence interval): (0.048, 0.252)
Spearman Correlation (95% confidence interval): (0.056, 0.284)

Table 15: Annual Per-Capita Income by Caste Grouping
Patan, Nepal, 1991

PER CAPITA QUARTILE	LOW CASTE	MIDDLE CASTE	HIGH CASTE	TOTAL
LOWEST: 1	10 (38)	37 (26)	28 (21)	75 (25)
2	4 (15)	52 (36)	23 (17)	79 (26)
3	7 (27)	29 (20)	33 (25)	69 (23)
HIGHEST: 4	5 (19)	27 (19)	49 (37)	81 (27)
TOTAL:	26 (100)	145 (100)	133 (100)	304 (100)

N (column percentage)

Kendall's Tau-b (95% confidence interval): (0.074, 0.278)
Spearman Correlation (95% confidence interval): (0.084, 0.312)

16). Though caste grouping had no statistical association with the initial provider of choice (Table 17), in every caste group, the private physician is the foremost preference among the initial providers of choice. Caste grouping is associated with the area lived in Patan (Table 18). The higher castes live in "new" and "old" Patan.

The area of residence in an urban area often may be used as a proxy for socioeconomic status. In Patan, it is apparent that there is a striking difference between housing among the three areas. The analysis of these data showed that there was no association between annual per-adult income quartile and the area of residence in Patan (Table 19), but there was an association between the annual per-capita income and percent spent on health quartiles to the area of residence in Patan (Table 20 and 21). The more affluent families tended to reside in "old" or "new" Patan. The analysis showed an association between the area of Patan and the initial provider of choice (Table 22). In all three areas the private physician is the highest initial provider of choice but perhaps more than expected in "old" Patan. Also "new" Patan showed utilization for the compounder lower than expected.

Each respondent was asked how much income was generated in their household, number of adults, and number of children. The only difference in the per-adult and per-capita income was how the number of children in each household was handled. The number of children and adults was included in the per-capita income, whereas only the adults were included in the per-adult income. Statistical differences were not apparent in the mean number of children per-adult among the three areas of Patan to explain the differences in results of per-adult and per-capita quartiles.

The attempt to make associations between the first two choices in the provider of care and the 3 monetary indicators resulted in numerous strata. So the combinations were grouped into three categories: 1) those who went to Patan Hospital Clinic first, 2) those who went to Patan Hospital Clinic second, and 3) other combinations not involving Patan Hospital Clinic. There was an association between the categorized first two choices of provider of care and annual per-adult income (Table 23). Table 23 shows that as the per-adult income increases the more likely that a family is to use Patan Hospital Clinic first. Yet no significant relationship with the annual per-capita income or percent of family income spent on health emerged (Tables 24 and 25).

From surveying, one had the impression that the illiterate avoided the Clinic because they were not able to read the signs directing them to various places. In the analysis, literacy and using Patan Hospital Clinic first or second did not show any associations.

Table 16: Percentage of Income Spent on Health by Caste Grouping
Patan, Nepal, 1991

% SPENT ON HEALTH QUARTILE	LOW CASTE	MIDDLE CASTE	HIGH CASTE	TOTAL
LOWEST: 1	8 (31)	33 (24)	35 (27)	76 (26)
2	6 (23)	34 (24)	31 (24)	71 (24)
3	8 (31)	35 (25)	31 (24)	74 (25)
HIGHEST: 4	4 (15)	37 (27)	32 (25)	73 (25)
TOTAL:	26 (100)	139 (100)	129 (100)	294 (100)

N (column percentage)

Kendall's Tau-b (95% confidence interval): (-0.103, 0.101) NS
Spearman Correlation (95% confidence interval): (-0.117, 0.115) NS

Table 17: Caste Grouping by Initial Provider of Choice
Patan, Nepal, 1991

CASTE GROUPING	AYURVEDIC	COMPOUNDER	PHARMACY	PATAN HOSP. CLINIC	BIR HOSP. CLINIC	TEACHING HOSP CLINIC	PRIVATE PHYSICIAN	TOTAL
LOW	0 (0)	7 (30)	2 (9)	3 (13)	0 (0)	1 (4)	10 (43)	23 (100)
MIDDLE	6 (4)	36 (26)	11 (8)	28 (20)	2 (1)	1 (1)	53 (39)	137 (100)
HIGH	3 (2)	25 (20)	9 (7)	28 (22)	5 (4)	0 (0)	57 (45)	127 (100)
TOTAL	9 (3)	68 (24)	22 (8)	59 (21)	7 (2)	2 (1)	120 (42)	287 (100)

N
(Row Percent)
Provider of choice is listed from the lowest mean cost to the highest.

When the mean cost of each provider of choice is correlated with the caste grouping,
Kruskal-Wallis = 2.4 ; df = 2 ; p-value = 0.30

Table 18: Caste Grouping by Area of Patan
Nepal, 1991

CASTE GROUPING	AREA OF PATAN			TOTAL
	INTERMEDIATE	NEW	OLD	
LOW	20 (77)	6 (23)	0 (0)	26 (100)
MIDDLE	109 (74)	17 (12)	21 (14)	147 (100)
HIGH	64 (47)	46 (34)	26 (19)	136 (100)
TOTAL:	193 (62)	69 (22)	47 (15)	309 (100)

N (Row Percent)

Kruskal-Wallis H = 23.5 , df = 2 (p-value < 0.001)

Table 19: Annual Per-Adult Income by Area of Patan
Nepal, 1991

PER-ADULT INCOME QUARTILE	AREA OF PATAN			TOTAL
	INTERMEDIATE	NEW	OLD	
LOWEST: 1	55 (29)	20 (29)	8 (17)	83 (27)
2	43 (23)	14 (20)	9 (20)	66 (22)
3	56 (29)	14 (20)	15 (33)	85 (28)
HIGHEST: 4	36 (19)	22 (31)	14 (30)	72 (24)
TOTAL:	190 (100)	70 (100)	46 (100)	306 (100)

N (Column Percent)

Kruskal-Wallis H = 4.5 , df = 2 (p-value = 0.11)

Table 20: Annual Per-Capita Income by Area of Patan
Nepal, 1991

PER-CAPITA INCOME QUARTILE	AREA OF PATAN			TOTAL
	INTERMEDIATE	NEW	OLD	
LOWEST: 1	51 (27)	19 (27)	5 (11)	75 (25)
2	54 (28)	11 (16)	14 (31)	79 (26)
3	42 (22)	18 (26)	9 (20)	69 (23)
HIGHEST: 4	43 (23)	22 (31)	17 (38)	82 (27)
TOTAL:	190 (100)	70 (100)	45 (100)	305 (100)

N (Column Percent)

Kruskal-Wallis H = 6.1 , df = 2 (p-value = 0.047)

Table 21: Percentage of Income Spent on Health by Area of Patan
Nepal, 1991

% SPENT ON HEALTH QUARTILE	AREA OF PATAN			TOTAL
	INTERMEDIATE	NEW	OLD	
LOWEST: 1	40 (22)	19 (27)	17 (39)	76 (26)
2	41 (23)	13 (19)	17 (39)	71 (24)
3	52 (29)	17 (24)	5 (11)	74 (25)
HIGHEST: 4	48 (27)	21 (30)	5 (11)	74 (25)
TOTAL:	181 (100)	70 (100)	44 (100)	295 (100)

N (Column Percent)

Kruskal-Wallis H = 11.9 , df = 2 (p-value = 0.0027)

Table 22: Area of Patan by Initial Provider of Choice
Nepal, 1991

AREA OF PATAN	AYURVEDIC	COMPOUNDER	PHARMACY	PATAN HOSP. CLINIC	BIR HOSP. CLINIC	TEACHING HOSP CLINIC	PRIVATE PHYSICIAN	TOTAL
OLD	0 (0)	9 (20)	4 (9)	6 (14)	0 (0)	0 (0)	25 (57)	44 (100)
INTER-MEDIATE	7 (4)	53 (29)	12 (7)	38 (21)	4 (2)	0 (0)	67 (37)	181 (100)
NEW	2 (3)	6 (10)	6 (10)	15 (24)	3 (5)	2 (3)	29 (46)	63 (100)
TOTAL	9 (3)	68 (24)	22 (8)	59 (20)	7 (2)	2 (1)	121 (42)	288 (100)

N
(Row Percent)
Provider of choice is listed from the lowest mean cost to the highest.

When the mean cost of each provider of choice is correlated with the area of Patan,
Kruskal-Wallis = 8.8 ; df = 2 ; p-value = 0.012

Table 23: Categorized First Two Choices by Annual Per-Adult Income
Patan, Nepal, 1991

PER-ADULT QUARTILE	PATAN HOSPITAL FIRST	PATAN HOSPITAL SECOND	OTHER	TOTAL
LOWEST: 1	7 (8) (18)	31 (37) (27)	45 (54) (30)	83 (100) (27)
2	5 (8) (13)	28 (42) (24)	33 (50) (22)	66 (100) (22)
3	12 (14) (31)	32 (38) (28)	41 (48) (27)	85 (100) (28)
HIGHEST: 4	15 (21) (38)	25 (35) (30)	32 (44) (21)	72 (100) (24)
TOTAL:	39 (13) (100)	116 (38) (100)	151 (49) (100)	306 (100) (100)

N (Row Percent)
(Column Percent)

Kruskal-Wallis = 6.4 ; df = 2 ; p-value = 0.041

Table 24: Categorized First Two Choices by Annual Per-Capita Income
Patan, Nepal, 1991

PER-CAPITA QUARTILE	PATAN HOSPITAL FIRST	PATAN HOSPITAL SECOND	OTHER	TOTAL
LOWEST: 1	7 (9) (18)	31 (41) (27)	37 (49) (25)	75 (100) (25)
2	10 (13) (26)	28 (35) (24)	41 (52) (27)	79 (100) (26)
3	10 (14) (26)	27 (39) (23)	32 (46) (21)	69 (100) (23)
HIGHEST: 4	12 (15) (31)	30 (37) (26)	40 (49) (27)	82 (100) (27)
TOTAL:	39 (13) (100)	116 (38) (100)	150 (49) (100)	305 (100) (100)

N (Row Percent)
(Column Percent)

Kruskal-Wallis = 1.1 ; df = 2 ; p-value = 0.6

Table 25: Categorized First Two Choices by Percent of Family Income Spent on Health
Patan, Nepal, 1991

% SPENT ON HEALTH QUARTILE	PATAN HOSPITAL FIRST	PATAN HOSPITAL SECOND	OTHER	TOTAL
LOWEST: 1	8 (11) (22)	31 (41) (27)	37 (49) (26)	76 (100) (26)
2	9 (13) (24)	29 (41) (26)	33 (46) (23)	71 (100) (24)
3	10 (14) (27)	29 (39) (26)	35 (47) (24)	74 (100) (25)
HIGHEST: 4	10 (14) (27)	24 (32) (21)	40 (54) (28)	74 (100) (25)
TOTAL:	37 (13) (100)	113 (38) (100)	145 (49) (100)	295 (100) (100)

N (Row Percent)
(Column Percent)

Kruskal-Wallis = 1.1 ; df = 2 ; p-value = 0.6

Chapter 4: Clinic Survey

Methods

To determine the number of patients at Patan Hospital Clinic and the locale of their residence, a survey of the Clinic records was done. There are two sets of records: the new patient log and the overall attendance log. Only the total daily number of old patients is recorded, and their residence is not recorded on the log. Moreover, there were no Clinic charts to audit, because the patients hand carry their records. However, the Clinic does log the name, address, age, and sex of the new patients. The "new" patient log contains a number of past patients who have forgotten or lost their records. In 1990[42], there were 42,023 new patients. For this study information was obtained from the last entry on every third page of the log. This gave a sample of 376 new patient entries. Annual patient numbers were taken from the overall attendance log to chart the Clinic's growth.

Results

The results show that the new patients were 58.5% female. The age of the males ranged from < 1 to 73 years with an average of 26 years (s.d. 17). The age of females ranged from 1 to 80 years with an average of 29 years (s.d. 16). Interestingly, only 39% come from the Clinic's catchment area (Figure 12). Thirty-seven percent came from the nearby cities of Kathmandu and Bhaktapur. Age and sex of those sampled were not associated with residence in the catchment area.

The Clinic records show that the patient visits have been growing at a rate of 6% annually in recent years (Figure 13). The peak in the number of visits occurred in mid-summer, with the nadir in late fall (Figure 14). In 1990, there were 168,849 visits, 25% of which were logged as new patients. Thirty-nine percent of the patients who visited the Clinic in 1990 were male. The Clinic averaged 166 new patients and 504 old patients each day, giving a total average patient load of 670 patients per day.

The Clinic limits the number of patients seen each day. When possible, this cap has been increased each year. However, at present the Clinic is operating at its maximum due to lack of space.

New Patient's Residencies, 1990
Patan, Nepal

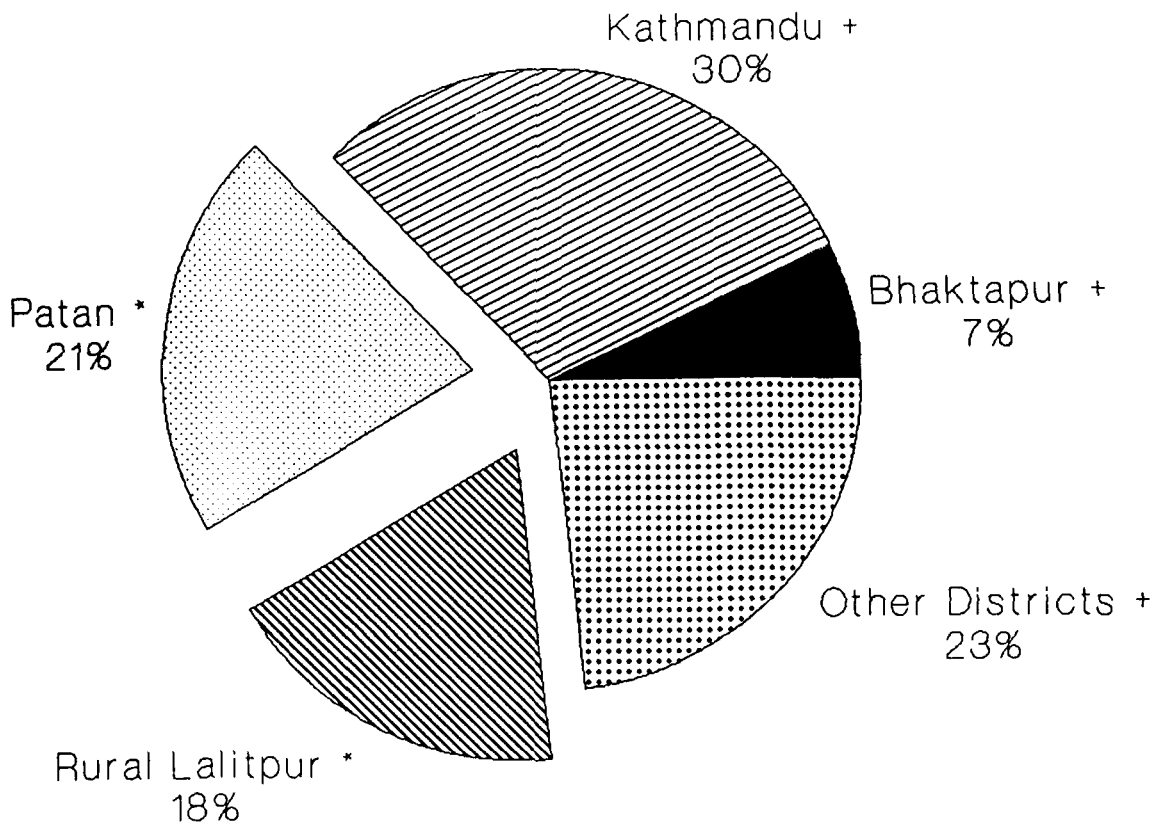


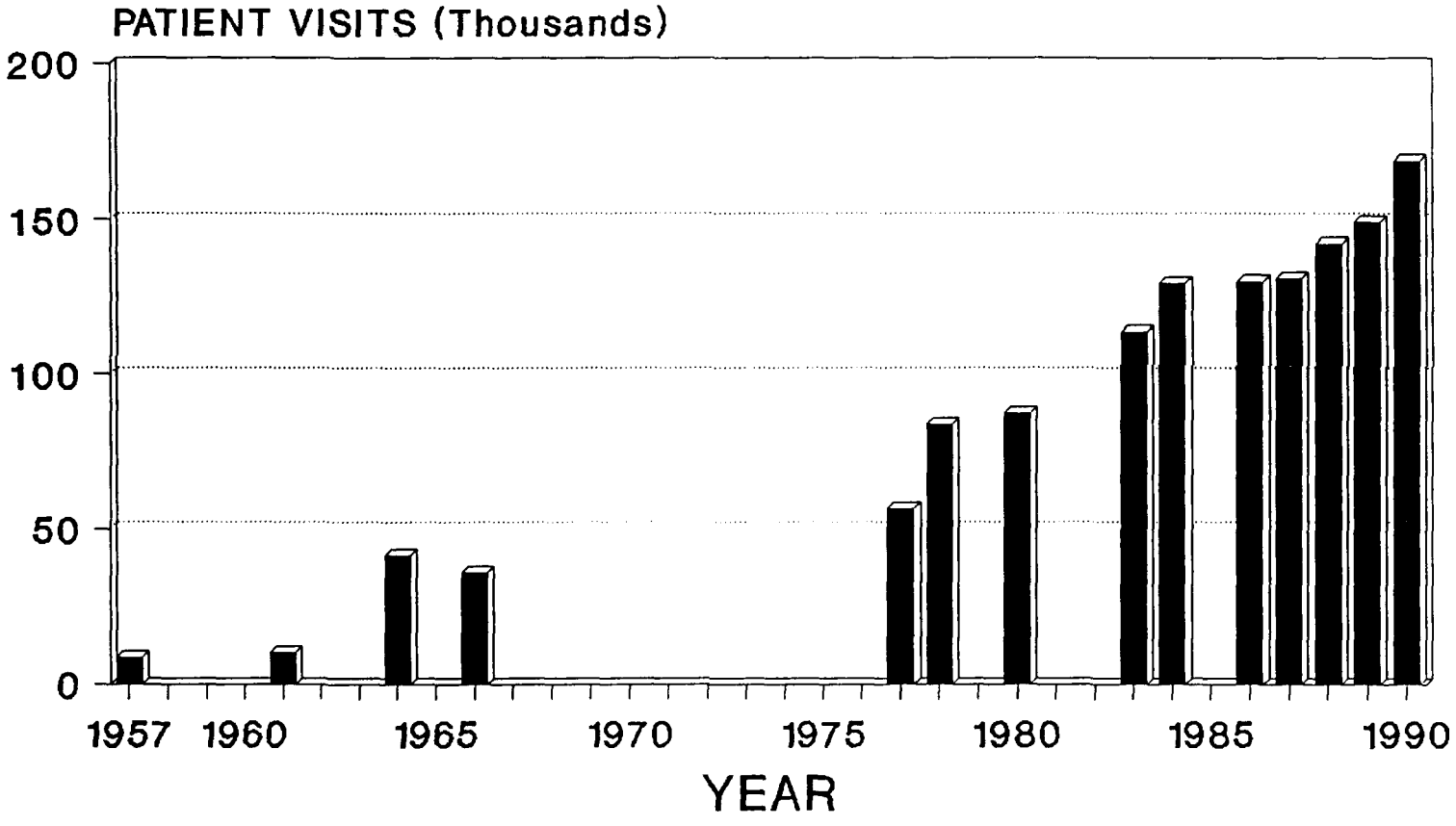
Figure 12

* catchment area (39%)

+ outside catchment area (61%)

Number of Annual Clinic Visits

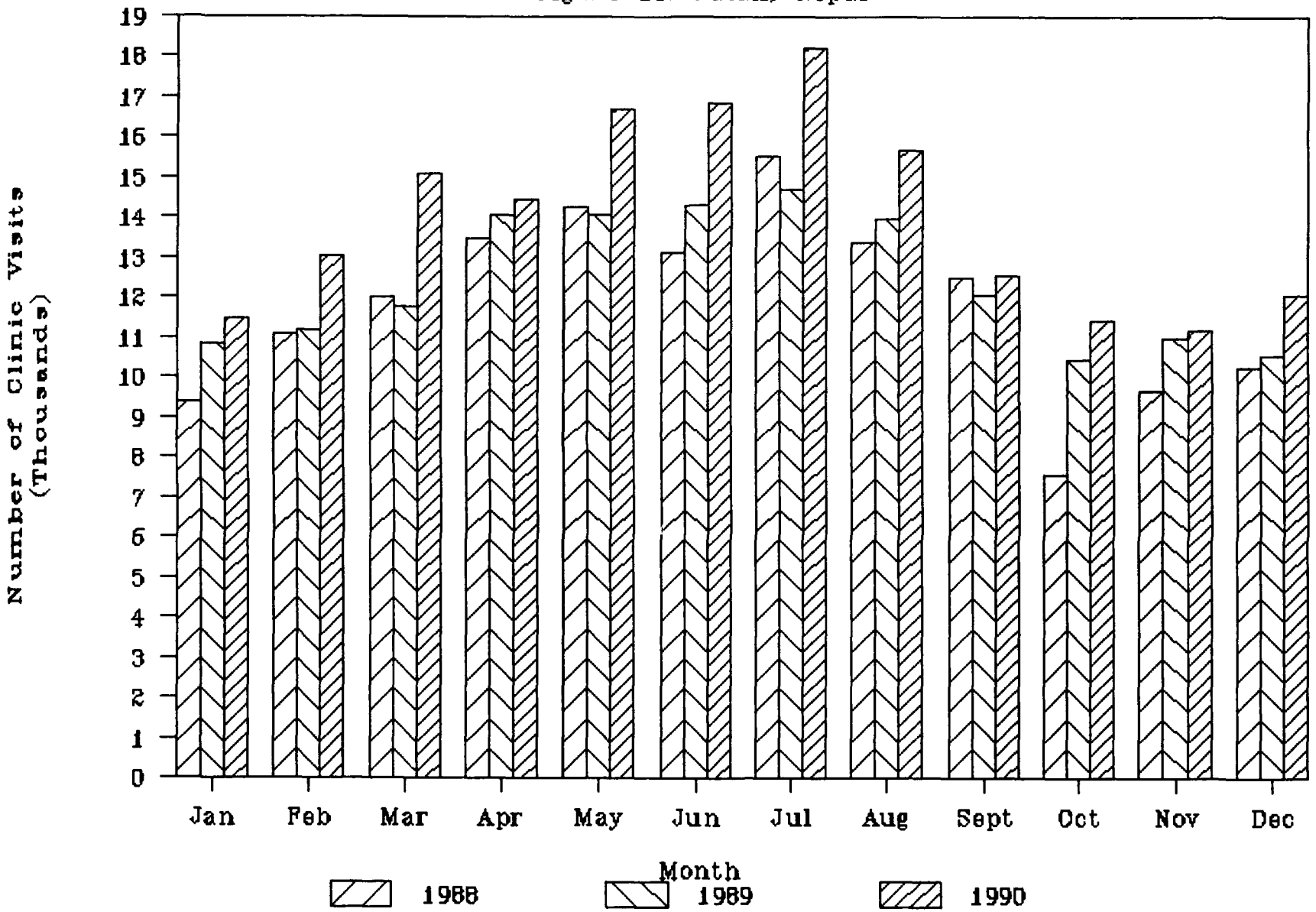
Figure 13



selected years from 1957 to 1990
Patan Hospital
Patan, Nepal

Number of Visits by Month, 1988–1990

Figure 14: Patan, Nepal



Chapter 5: Discussion

Providers of choice

The preferred initial provider of choice was the private physician. The second preference was the compounder and third preference was Patan Hospital Clinic. The average cost of attending the private physician is 250% more than the Clinic, and the average compounder costs 30% less than the Clinic. So out-of-pocket expenses were not of primary driving force in determining the initial provider of choice. Qualifications does not seem to be a driving force in determining the initial provider of care. Compared to average service one would obtain at the Clinic, the private physician would have more qualification and the compounder would have less qualifications. The predominant reason given for not attending the Clinic initially was the quick service of the alternative provider. Therefore this seems to be the factor determining the initial provider. Local residents value quick service in their initial provider of choice; expense and/or qualifications of the provider are of lessor importance.

The respondents ranked the Clinic highest in the second provider of choice. This indicates that the Clinic is regarded well as an alternative if the initial provider of choice is unsatisfactory. The respondents overwhelmingly stated that they would return because it was near. The majority had positive general impressions of the Clinic. However, when asked for suggestions for improvements, the number one response (a third) had something to do with the crowds and patient flow which produce the long waits. So the medical care delivered seems to adequate but the means of delivery brings dissatisfaction.

Alternative providers

Although self-care was not the focus of the survey, there was a hint of this in the responses to "minor injury"[43]. People predominantly went to the pharmacy for minor injuries seeking perhaps bandages, antiseptics, and analgesics. The investigator observed an interview with a 40 year old woman who said that she went to Patan Hospital Clinic for care. However, when her hand became infected from an injury one month prior, she tried home herbal remedies without an effect. Although not directly quantified, self-care via home remedies was evident as Subedi (1989) observed.

The survey allowed for responses of traditional practitioners, but few people indicated much use of them. Previously mentioned surveys in the Kathmandu area had a much higher percentage preferring the traditional healers[2]. This could be due to the fact that the interviewers represented themselves as from Patan Hospital, thereby making the respondents think of Western medicine. When a Western expert[44] on Nepali traditional medicine was asked about the low response to traditional healers, he stated that the Nepalis just did not want to admit seeing traditional healers. On the other hand, maybe they actually are becoming less popular in the midst of Westernization.

The scope of UNICEF (1990)[2] survey in a neighborhood of ward 6 was much broader. The Patan Hospital survey sought to encompass a greater area primarily focusing on utilization patterns. Comparing the results, it is surprising that the traditional healer as the first practitioner of choice was much higher than the Patan Hospital study (Table 26). The literacy rate (Table 27) and other indicators show a lower socioeconomic profile; therefore, the samples are not comparable. The area of Patan in which UNICEF (1990) study was done is more rural and less densely populated than the Patan Hospital study.

Patient's residency and priorities

The Clinic survey of new patients showed that the residency profile is similar to the inpatient residency profile (Table 28). In both cases about 40% reside in the catchment area. About a third come from Kathmandu. These people who are already utilizing the Clinic are willing to spent their entire day at the Clinic. Their primary priority in health utilization seems not to be quick

Table 26: Initial Provider of Choice
Comparing the UNICEF (1990) and Patan Hospital (1991) Studies
Patan, Nepal, 1991

PROVIDER OF CARE	UNICEF WARD 6 STUDY	PATAN HOSPITAL STUDY
Private Physician	3	39
Compounder	18	22
Patan Hosp. Clinic	20	19
Pharmacy	15	7
Ayurvedic	10	3
Bir Hosp. Clinic		2
Traditional Healers	28	2
Other	6	6
Total percentage	100	100

Numbers represent percentages
N = 310 for Patan Hospital study
N = 156 for UNICEF ward 6 study

Table 27: Literacy by Sex and Study
Patan, Nepal, 1991

SEX	PATAN HOSP. LITERACY (1991)	UNICEF LITERACY (1990)	PATAN CENSUS 1980
MALE	83	53	46
FEMALE	46	14	20

Entries represent percent literate

Table 28: Comparison of Patan Hospital Inpatient and New Outpatient Residencies
Patan, Nepal, 1990

RESIDENCY	INPATIENT (%)	OUTPATIENT (%)
Patan (catchment area)	31	21
Rural Lalitpur (catchment area)	11	18
Kathmandu	37	30
Bhaktapur	6	7
Other Districts	16	23
Total:	100	100

service. Additionally, the primary priority of the local residents using the Clinic may not be quick service either. Perhaps in both cases the Clinic is primarily utilized because of dissatisfaction with their initial provider of care.

These findings are consistent with other studies. The utilization of a health facility is inversely proportional to its distance from the user. Also, the longer one has to wait the less that it is primarily utilized. Obviously, other factors beside waiting time play into a facility's utilization. In this case, language, Westernization, lack of privacy, Christianity, and physical size were not significant factors.

Predicting utilization

Various income indicators (per-capita income, per-adult income, and percent of family income spent on health) were used to predict health utilization patterns. The comparisons were mixed. The annual per-adult income quartile seemed more consistent than others in showing associations, but even these economic relationships were weak. For example, the statically significant linear model relating annual per-capita quartile to the mean cost of the initial provider of care explained only 3% of the actual data. The ambiguity and weakness of these income indicators shows that income may not be the best predictor of health-seeking behavior. A larger sample or fewer strata may have shown associations in these non-significant relationships. At present, the highest R^2 is less than 0.03, therefore the model explains less than 3% of the data. So even though larger studies may find more significant associations, the data from this survey hint that relationships will not be strong.

The socioeconomic indicator of caste had no bearing on predicting the initial provider of choice; however, the area of Patan, another socioeconomic indicator, was useful in predicting the initial provider of choice. Stratified analysis showed that the predominant initial provider of choice remained the private physician for all three areas of Patan and all three caste groups.

There was some associations among the various socioeconomic indicators: the 3 income indicators, caste group, and area lived in Patan. The higher castes and higher annual per-capita income lived in "new" and "old" Patan. "Old" Patan had a higher than expected amount of those who do not spent much of their income on health. Maybe they earn more thereby making health cost a smaller percentage of their expenses. The higher castes had higher incomes.

In this study, the percentage of family income spent on health and per-capita health expenditures were higher for Patan than other studies. Also, the per-capita income was higher than the national average. These factors may reflect the urban influences of this study; whereas, most of Nepal is still rural.

The foremost reason for seeking care at Patan Hospital Clinic was stomach problems, which reflects the high amount of gastrointestinal diseases in Nepal. Infectious disease concerns composed 5 of the top 6 reasons for seeking care at the Clinic. Infectious disease is a major concern in Nepal. However among these 6 reasons, obstetrical care was the only non-infectious reason for seeking care at the Clinic; it was second in frequency. The MCH activities of obstetrical care and immunizations comprise one-fifth of the reasons for utilizing the Clinic. Since the MCH clinics are under-utilized, this may indicate that perhaps the hospital clinics are drawing patients from community clinics.

Reorientation

Clearly the patients who attend the Clinic from outside the Clinic's catchment area need to be redirected. Since only 21% of new patients come from Patan, their catchment area for primary care services, redirecting these patients to the community MCH clinics would affect less than a quarter of the Clinic's load. Redirecting those from outside their catchment area would have a greater impact on the Clinic's burden.

For some reason, many patients from outside the catchment area are attending the Clinic. Even though the long wait is turning the local citizens

to other practitioners, others from farther distances are willing to wait. Thus the Patan Hospital Clinic cannot meet the total demand. Inappropriate usage of the Clinic from outside their catchment area, and inadequate usage of the Clinic from within their catchment area indicates that patients may need reorientating.

Reorientation starts with the patient's expectations. Why do people attend the Patan Hospital Clinic from distant locations? First, Patan Hospital enjoys a history of being among Nepal's first modern hospitals. When surveying near the original site of the hospital, it was clear that the people had fond memories of former days when it was smaller and more personal. Perhaps patients from distant areas are dissatisfied with their local services, and Patan Hospital's good reputation attracts them.

In the Kathmandu Valley, more than 3 hospitals have primary care clinics. Eventually, hospital clinics may have to set and enforce new policies. If Patan Hospital Clinic were to practice only secondary care, the other hospital clinics will be affected. Ultimately, the government will have to involve themselves with coordinating hospital policies. Hospitals acting independently would only unfairly over-burden other clinics.

Health sector reorientation coincides with patient reorientation. The Ottawa Charter for Health Promotion states that health services should reorient themselves away from curative services toward health promotion[45]. The UMN has found it increasingly difficult to raise donors for hospital-based care. Donors are realizing the importance of preventive services in relation to curative services. The Patan Hospital Clinic does do some health promotion where education about nutrition is their primary emphasis. However, this is small compared to its curative services. The Clinic's captive audience could only profit from more health promotion activities.

Patan Hospital's response

It seems clear that the urban health consumer in Nepal prefers seeing physicians over health assistants. Many suggested replacing the health assistants at Patan Hospital Clinic with physicians. The Clinic has known of this desire and has replaced health assistants with physicians through attrition. Due to this community desire, the role of the hospital in primary health care needs to be assessed. A former superintendent who had been with Patan Hospital from before its move in 1982, was concerned by the escalating Clinic growth. The present medical superintendent is still faced with this long-standing problem. Should the hospital-based clinic see only secondary referrals? In a letter to the health minister dated July 1991 the superintendent asked the minister's support in requesting assistance from the WHO for a feasibility study. This study would develop an "integrated health care system" where patients are first seen in the community and then, if necessary, referral[46]. With the under-utilization of their MCH clinics, the CDHP also is interested in increasing utilization.

CDHP

Those who know of the CDHP activities all gave positive responses. Overall, the CDHP activities are not well known. The chlorination of well water was a project that started about 3 months before the surveys. If this project had not been in existence only 21% of the respondents in the target wards would have known of any CDHP activities. In reality, probably more people know about the CDHP programs. The MCH clinics have been in existence for years. Therefore, many may not recognize the MCH clinic as a CDHP program.

Health development

The health of the Patan community goes beyond the scope of this study on patterns of utilization. Important issues such as sanitation, sufficient nutrition, safe water, adequate housing, education, and economic resources all of which affect health, need to be addressed. Many of these determinants were studied by the UNICEF (1990) survey.

The medical resources are a relatively small factor in the health of a community. Although people may think that access to medical care will improve their health, in reality these other determinants will have a greater impact on their health. The respondents recognized the importance that sanitation and water supply had in their health. Some even recognized the need for improved diet. Interestingly, responses for improved access to medical care were minimal. Yet they were overwhelmingly satisfied with their health status. The schools teach the importance of hand washing and boiling water, but even the teachers do not practice it in school. Individual knowledge has not been transformed into attitudes and practice. Individual change and awareness starts from community change and awareness. The WHO believes that improved environmental health depends on community action[47].

Although hospitals lack the infrastructure to adequately deal with these issues, they can address these topics by engaging the community. Hospitals can be partners in community action as the CDHP has been. The CDHP is ideally situated for this interfacing. Their recent chlorination of well water is a small but highly visible effort. Showing that oftentimes smaller community-supported projects are more successful than larger projects initiated and funded by foreigners. Successful community projects usually are simple and locally manageable. Typically, foreign sponsored projects are not long lasting. Too often they are executed hastily expecting health improvement in 2 to 3 years. Slow, careful, and lasting expansion of community health development[48] will foster a sense of achievement.

Study Limitations

Due to limited resources, systematic informal interviews were not conducted. This would have been useful in validating the data, especially regarding the traditional healers. Attempts were made to engage the respondents by including open ended questions. The male interviewer also found this informal way of data gathering more effective than rotely administering the survey, but the times that he used it were not quantified. The UNICEF (1990)[2] survey of Patan ward 6 used two surveying methods. In addition to the traditional questionnaire, focus group discussions were employed. These groups consisted of people interested in a certain topic such as education.

Since the survey represented Patan Hospital, a "courtesy bias" may have affected the responses for providers of care. This could explain the low responses to the traditional healers.

Selection basis was of major concern. It soon became apparent that there were not enough resources to guard against this fully. The sample was proportionally divided by the wards of interest. However the respondents then were chosen by availability. Refusal was not a problem. During the time the survey was administered, many were busy planting rice. Some may have been away from home in the field before going to their regular job. Therefore, if no one in a household was home, they had no opportunity to be in the study. In the end, this survey employed stratified, systematic, and availability sampling. The UNICEF (1990) survey of Patan used cluster sampling.

Recognizing the fact that women are especially valuable in family health and that more men were being interviewed, the interviewers tried to approach more women. In general, Nepali women are known to work longer hours each day than men. Observations showed that there were more idle men in the communities, and they were more interested in the survey. So women were not as numerous as men, producing another source of selection bias.

Therefore this survey cannot claim that the sample's demographic profile represents the true population. Yet selection bias will not affect the patterns of health seeking behavior according to specific demographics, which was the focus of this study. This study can validly correlate socioeconomic indicators with patterns for health utilization, so these utilization patterns can be generalized for the population. Due to the sampling, external validity is partially compromised.

To minimize interobserver variation, one day of surveying was done together (10 surveys). In addition, attempts were made by the investigator during

accompaniment periods to keep them uniform. When the male interviewer used informal techniques for his data gathering, this introduced interobserver variation. The association of the interviewer's sex and the respondent's sex indicated interobserver variation.

To observe the living conditions and interviews, the investigator accompanied the surveyors on as many as the sessions as possible. The female had more experience in asking the questions and asked them more uniformly. The male's informal approach is consistent with medical anthropological data gathering techniques, but intraobserver variation affects internal validity. Also both of them would, on occasion, ask leading questions. For example, the question on religion practiced was open ended, but often they would ask, "Hindu?" However they were not always right. Therefore information and interviewer bias might have entered the study. Even differences in the ability of the interviewers to translate the responses into English could contribute information bias.

Interpretation bias became evident in the question about which programs the CDHP respondents were acquainted. When we surveyed out of the target area, respondents may have thought that government well chlorinators were from the CDHP. The investigator noted that these respondents outside the target area should not have noted any CDHP programs because the CDHP did not sponsor any programs outside their target area.

Sample size was initially determined assuming two strata and binominial responses. There were more than two strata in many analyses and many open-ended questions were included. This reduced the power to detect significant associations.

The Clinic survey of patient residencies was of new patients only. However it has been noted that old patients who forgot or lost their records are entered in the new patient log. Since the new patients comprise 25% of the Clinic's load, the profile of the new patients resembles the profile for all the Clinic patients.

Chapter 6: Conclusions

In answering the question as to why more people in the target population do not utilize Patan Hospital's Clinic, the survey of 310 people revealed that the major barrier was its long waiting times. The respondents valued quick service and were willing to make sacrifices for it. In order to receive quicker service, people made sacrifices with their money by seeing a more expensive private physician. Although less apparent, they were willing to make sacrifices with their provider's qualifications for quicker service. However, Patan Hospital Clinic was the most popular second alternative, showing they utilized Patan Hospital Clinic when their initial provider of care was not satisfactory.

Language, Western medicine, lack of privacy, Christianity, and physical size were not perceived as significant barriers. Although people said that there should be lower charges, people had no problem with the registration cost. However, people had perceived that the Clinic did not give charity for the poor. The average expenditure for attending the Clinic was comparable to the nearby government clinic, Bir Hospital Clinic.

Various socioeconomic indicators that may determine utilization showed weak and ambiguous patterns. In general, for the initial provider of preference, the people of lower socioeconomic status tended toward the less expensive compounder, and the people of higher socioeconomic status tended toward the more expensive private physician. The respondents valued nearness and quickness in health care providers. Cost and qualifications are of secondary importance in Patan.

Over half of those using Patan Hospital Clinic reside outside the Clinic's catchment area. Also the Clinic is growing at a rate of 6% annually, and is physically at the limit for space. So for the Clinic to meet effectively its primary mandate of providing primary health services to Patan, those residing outside the catchment area need reorienting.

Chapter 7: Recommendations

1. To address the major barrier, the large crowds creating long waiting times, the Clinic could do patient-flow analysis. Areas of the Clinic where the waits are the longest could be identified and addressed. Perhaps the collection of fees could be streamlined. Instead of using several cashier lines, a tally sheet could be given upon arrival and fees collected upon departure. Those who find the fees too burdensome could be referred to the social worker.
2. However, while the crowds are waiting, media could be used constructively to attenuate the frustration of waiting. Presently, television is a fascination in Nepal and can be afforded only by the more well-to-do. So, videos may captivate the attention of bored patients. Monitors could be placed in waiting areas with presentations promoting health objectives such as self-care, sanitation, accident prevention, and smoking cessation. Initially, the CHDP videos could be shown. These measures could make waiting more tolerable and even beneficial.
3. The media could also be used innovatively to direct the illiterate who may find the large hospital Clinic imposing. To them, written signs directing them to the correct lines are meaningless. Alternative signs could incorporate appropriate drawings to direct the illiterate, thus making the Clinic more user-friendly.
4. The Clinic needs to redirect effectively the excessive amounts of patients from outside their catchment area. The media also could be employed in this. To start, merely an audio system could educate the waiting patients in more appropriate health-seeking behavior. Messages could emphasize more effective home remedies and the appropriate practitioner to attend.
5. The services at the four MCH clinics could be highlighted by this multi-media approach. Patients who need prenatal or postnatal care, immunizations, depo-provera injections, or well-baby care could be encouraged to attend these local clinics. Potentially at least one-fifth of the patients' concerns could be dealt with in these MCH clinics. One approach might be to put these as advertisements interspersed in the health promotion segments.
7. To make this more attractive, resident doctors could be rotated through these MCH clinics. This would promote a better community image of these clinics, and expand the doctor's experience in urban primary health care. Eventually these MCH clinics could be the basis for establishing future urban primary health care centers.
8. The CDHP could continue on projects that improve the city's sanitation. There is greater potential impact on a community's health from improving sanitation than from improving most medical care.

   Several representatives from each tole could be sought out to ascertain their perceived needs and what role they see Patan Hospital and the CDHP contributing to local health. Even though their desires may be contrary to a Western thinking, high consideration ought to be placed on achieving them, thereby fostering community participation and empowerment.
9. The Patan Hospital Clinic could still function as primary health care site. To make hospital's primary health care less costly, health assistants could be kept instead of replacing them with physicians. However, the physicians could function in a different capacity. Instead of physicians seeing only the difficult cases, the physicians could see all the patients by briefly going to every patient the health assistant sees. The physician could concur with the health assistant in most cases. By merely "laying hands" on all the patients the physicians could improve the image of the Clinic. Thereby, all are seen by a physician without depleting the Clinic's budget on more physicians. Perhaps in the presence of the health assistant, the temptation for physicians to refer Clinic patients to their private practices could be lessened.
10. Dialogue and networking with other practitioners in the area could be initiated. This could include the traditional healers, TBAs, compounders, pharmacists, ayurvedic, and even the private physicians. The other hospitals in Kathmandu ought to be involved also. Discussion of relations and expectations would benefit all involved. Referral patterns could become more uniform. The

practitioners could be enlightened about each other's strengths and weaknesses. Forums of continuing education could be established for the Western practitioners.

The traditional healers have their own unique role in the health care system addressing different needs than the Western practitioner. So it would prudent to train them in Western methods of medical care. However their role in the heath care network needs to be made clear to the other practitioners, so that a spirit of partnership rather than competition is fostered.

11. Finally, once a program is initiated or changed, an on going evaluation process ought to be in place to quantitate its impact on utilization.

Future studies

A significant barrier to care in the local community is the Clinic's long waiting times. The Clinic's long waiting time is due in large part to the large number of patients from outside of Patan Hospital's catchment area. This raises question as to why some travel significant distances to Patan Hospital Clinic. It is evident that these people are willing to spend their entire day in traveling and waiting to attend the Clinic. Maybe there is a barrier at their local health facility. Maybe these people are more well-to-do than the local community and can afford to miss a day of work.

Therefore, a study elucidating reasons why those outside the catchment area prefer Patan Hospital rather than their local health facility could be done. The Clinic's waiting patients could be surveyed for this. The results would benefit not only Patan Hospital but also other health facilities in encouraging these people back.

Another study focusing on the MCH clinics could be done. Factors contributing to its under-utilization need elucidating. Perhaps the Patan Hospital Clinic is usurping patients who could attend there.

Going through other years of the new patient log, one could determine any trends in the new patient's residencies. This paper only dealt with one year. Perhaps the percentage of new patients from outside the catchment area is decreasing annually.

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37. Niru Laxmi Shrestha

38. Deepak Sharma

39. Initially, there were two groups that were of importance, the group within Community Development and Health Project target area and the group outside the target area.

40. Within the first 31 surveys.

41. The three income indicators (annual per capita income, per adult income, and percentage of income spent on health) were not categorized into quartiles but were calculated as continuous variables for each survey.

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Appendix I: Survey

This questionnaire is to help Patan Hospital Clinic provide better services for your neighborhood. Would you help us by answering these questions for us? Your answers will be kept confidential.

Demographic: Language ___
Code: ____ Date: _____ Ward: __ Tole: _____
Caste: _____ Ethnic group: _____ Age: __ Sex: _
Position in household: ____ How long lived in Patan: __ yrs. from: _____
How many in this house are your family? adults: __ children: __
Main source of income: _____ other: _____
Annual family income: _____
How much does your family spend on health in a year? _____
Can you read? Yes No _ Education level: _____
Religion practiced: _

General:
These are where some people go for health service in this area: relatives, TBA, dhami, pharm., private clinic, ayurvedic (vaidhyas), homeopath, Patan hosp., compounder, Bir Hosp.

1. Where does your family go for health services? _____ _____ _____ _____
   a. How much does it cost? ___ ___ ___ ___
   b. Why do you prefer it to Patan Hosp.? _____
2. What change(s) would improve your family's health?
   _____ _____ _____
   a. Are you satisfied with your family's health? Yes No _
3. a. Where does your family go to when they get ill? _____
   b. Where does your family go when they get injured? _____

Patan Hospital:

4. Has your family ever been to Patan Hospital clinic? Yes No _
   a. If "Yes", for what reason(s)? _____ _____ _____ _____
   b. Were you satisfied with the fees at the clinic? Yes No _
      1) If not, what is a fair fee? __
   c. Did you feel that you can fully communicate with the staff? Yes No _
      1) If "No", why? _____
   d. Would you go back? Yes No _ Why? _____
5. Has your family been exposed to any hospital community programs? Yes No _
   a. If "Yes", what? well chlorination, video, MCH, home visit _
      other _____
   b. What is your impression of it? _____
6. Do people without enough money get treatment at Patan Hosp.? Yes No _
7. What is your general impression of the clinic? _____
8. What would encourage more people to use the hospital clinic?
   _____

Notes: _____
_____
_____
_____ _____
length of interview in minutes: __

अन्तरवार्ता गरेको भाषा:- Nepali Newa

यो प्रश्नावली पाटन अस्पतालको सेवा र सुविधा उचित मात्रामा यकलव्य गराउने उद्देश्यले सोधिएका छ कि तपाईं यसको उत्तर दिएर हामीलाई सहयोग गर्नुहुन्छ ?

तपाईंका उत्तरहरू गोप्य रहने छन् ।

रैंक II मिति 10 July बार्ड नं. 7 टोल Nuga (Sundhara)

जात Chipalu जाति NEWAR उमेर 35 लिङ्ग M

घरमुली संगको नाता Son पाटनमा बस्नु भएको कति वर्ष भयो ? By birth

कहाँबाट आउनु भएको ? X तपाईंको परिवारमा कतिजना सदस्य हुनुहुन्छ ? 10

उमेर पुरुष adults .6 केटाकेटी 4

आम्दानीको मुख्य श्रोत के हो ? प्रथम Shop सहायक X

वार्षिक आम्दानी कति छ ? 24,000

एक वर्षमा तपाईंको परिवारमा औषधि खर्च कति लाग्छ ? 1400

के तपाईं लेखपढ गर्न सक्नु हुन्छ ? अक्षर सक्दिन

शैक्षिक तह High School

तपाईंले कुन धर्म मान्नु हुन्छ ? Hindu

यस ठाउँमा कहीँकतिहरू स्वास्थ्य उपचारको लागि निम्न स्थानहरूमा जान्छन् जस्तो:- नातेदार, सुदेनी, धामी, औषधी पसल, प्राइभेट क्लिनिक, आयुर्वेदिक (वैद्य), होमोप्याथिक, पाटन अस्पताल, कम्पाउण्डर, वीर अस्पताल, अन्य .....

१. तपाईंको परिवार औषधि उपचारको निम्ति कहाँ जानु हुन्छ ?

१) Clinic doc + compounder २) Patan Hospital ३)

a. उपचारको निम्ति कति पैसा लाग्छ ? १. 5 - 2 - 30

b. पाटन अस्पताल भन्दा अरू ठाउँमा जान मन पराउनु हुन्छ ? quick sevice in clinic.

२. तपाईंको परिवारको स्वास्थ्य राम्रो (विकास) बनाउन कस्तो परिवर्तन गर्नु पर्ला ?

c. तपाईंको परिवारको स्वास्थ्य प्रति तपाईं सन्तुष्ट हुनुहुन्छ ? हुन ~~छैन~~

३. तपाईंको परिवारमा बिरामी पर्दा साधारणतया तपाईंहरू कहाँ जानु हुन्छ ? Clinic

तपाईंहरू चोट पटक लाग्दा कहाँ जानु हुन्छ ? injured Clinic

४. तपाईंहरू कहिले पाटन अस्पताल जानु भएको छ ? ~~छ~~ छैन

a. यदि जानु भएको छ भने कुन कारणले ? Stomach pain, Headach.

b. के तपाईं त्यहाँ लिइने रकमबाट सन्तुष्ट हुनु हुन्छ ? ~~छ~~ छैन (कारण)

१. यदि छैन भने उचित रकम कति हो ?

c. के अस्पतालका कर्मचारीहरू तपाईं संग राम्रोसँग बोल्छन् ? ~~बोल्छन्~~ गर्दैनन्

१. यदि गर्दैनन् भने किन ?

४. के तपाईं फर्केर त्यहिआन चाहनु हुन्छ ?

आउँछन्छु चाहन्न

किन ?

PH. Near, always ?ge to there. Past

५. के तपाईंको परिवारमा अस्पतालको सामुदायिक कार्यक्रमबारे केही जानकारी छ ?

छ छैन

क. यदि छ भने के ? पानीमा औषधि राख्ने, भिडियो, मातृशिशु कल्याण, अन्य दुने:-

ख. त्यसबारे तपाईंको के विचार छ ? good for all people

६. औषधि गर्न पैसा नपुगे औषधि अस्पतालबाट पाइन्छ कि पाइन्दैन ?

छ छैन

७. अस्पतालको बारेमा तपाईंको के विचार छ ? good.

८. अस्पतालमा बढी मानिस आउनको लागि अस्पतालले कस्तो किसिमको उत्साहित हुने कार्यक्रम गर्नु पर्छ ? Emergency is careless.

Appendix II: Additional Data

Table A: Caste Groupings

CASTE GROUP	CASTES
HIGH	Newar: Amatya, Baidhya, Bajracharya, Brajacharya, Joshi, Karmacharya, Malchu, Maleku, Pradhan, Rajbhandari, Shrestha, Rajopadhya, Shakya, Mulmi Others: Brahmin, Chetri
MIDDLE	Newar: Awali, Chipalu, Kansakar, Malakar, Suwal, Tamrakar, Tandukar, Tuladhar, Silpacar, Benjancar, Bijulicar, Chitracar, Dangol, Maharjan, Prajapati, Ranjit Others: Gurung, Limbu, Magar, Rai, Tamang
LOW	Newar: Khadgi, Napit, Pode, Rajak, Shahi, Nakarmi, Newa Others: Chudra, Damai, Kaluwar, Razak

Table B: Literacy by Area of Patan
Nepal, 1991

	AREA OF PATAN			
LITERATE	INTERMEDIATE	NEW	OLD	TOTAL
YES	115 (53)	62 (28)	42 (19)	219 (100)
NO	78 (86)	8 (9)	5 (5)	91 (100)
TOTAL:	193 (62)	70 (23)	47 (15)	310 (100)

N (Row Percent)

Chi-square = 30.2 , df = 2 (p-value = 0.00000028)

Table C: Combined First Two Choices by Per-Adult Income
Patan, Nepal, 1991

PER-ADULT QUARTILE	COMP. THEN P.H.	COMP. THEN PRIV.	P.H. ONLY	P.H. THEN PRIV.	PHARM. THEN P.H.	PRIV. ONLY	PRIV. THEN BIR	PRIV. THEN P.H.	PRIV. THEN TEACH.	OTHER	TOTAL
LOWEST: 1	11 (13)	4 (5)	4 (5)	3 (4)	3 (4)	3 (4)	4 (5)	17 (20)	0 (0)	34 (41)	83 (100)
2	6 (7)	2 (2)	4 (5)	1 (1)	3 (4)	3 (4)	4 (5)	19 (23)	1 (1)	23 (28)	66 (100)
3	10 (12)	3 (4)	5 (6)	7 (8)	3 (4)	0 (0)	0 (0)	19 (22)	4 (5)	34 (40)	85 (100)
HIGHEST: 4	6 (8)	3 (4)	10 (14)	5 (7)	1 (1)	4 (6)	5 (7)	18 (25)	7 (10)	13 (18)	72 (100)
TOTAL:	33 (11)	12 (4)	23 (8)	16 (5)	10 (3)	10 (3)	13 (4)	73 (24)	12 (4)	104 (34)	306 (100)

N
(Row Percent)

Kruskal-Wallis = 21.1 ; df = 9 ; p-value = 0.012

Table D: Combined First Two Choices by Per-Capita Income
Patan, Nepal, 1991

PER-CAPITA QUARTILE	COMP. THEN P.H.	COMP. THEN PRIV.	P.H. ONLY	P.H. THEN PRIV.	PHARM. THEN P.H.	PRIV. ONLY	PRIV. THEN BIR	PRIV. THEN P.H.	PRIV. THEN TEACH.	OTHER	TOTAL
LOWEST: 1	8 (11)	3 (4)	3 (4)	4 (5)	3 (4)	2 (3)	4 (5)	20 (27)	0 (0)	28 (37)	75 (100)
2	12 (15)	3 (4)	7 (9)	3 (4)	3 (4)	2 (3)	1 (1)	13 (16)	2 (3)	33 (42)	79 (100)
3	6 (9)	4 (6)	7 (10)	3 (4)	2 (3)	2 (3)	4 (6)	19 (28)	2 (3)	20 (29)	69 (100)
HIGHEST: 4	7 (9)	2 (2)	6 (7)	6 (7)	2 (2)	4 (5)	4 (5)	21 (26)	8 (10)	22 (27)	82 (100)
TOTAL:	33 (11)	12 (4)	23 (8)	16 (5)	10 (3)	10 (3)	13 (4)	73 (24)	12 (4)	103 (34)	305 (100)

N
(Row Percent)

Kruskal-Wallis = 14.1 ; df = 9 ; p-value = 0.12

Table E: Combined First Two Choices by Percent of Family Income Spent on Health
Patan, Nepal, 1991

% SPENT ON HEALTH QUARTILE	COMP. THEN P.H.	COMP. THEN PRIV.	P.H. ONLY	P.H. THEN PRIV.	PHARM. THEN P.H.	PRIV. ONLY	PRIV. THEN BIR	PRIV. THEN P.H.	PRIV. THEN TEACH.	OTHER	TOTAL
LOWEST: 1	10 (13)	1 (1)	6 (8)	2 (3)	4 (5)	3 (4)	6 (8)	17 (22)	4 (5)	28 (37)	76 (100)
2	7 (10)	3 (4)	7 (10)	2 (3)	2 (3)	1 (1)	1 (1)	20 (28)	6 (8)	33 (42)	71 (100)
3	9 (12)	4 (5)	5 (7)	5 (7)	2 (3)	2 (3)	2 (3)	18 (24)	1 (1)	20 (29)	74 (100)
HIGHEST: 4	5 (7)	4 (5)	3 (4)	7 (9)	2 (3)	3 (4)	3 (4)	17 (23)	1 (1)	22 (27)	74 (100)
TOTAL:	31 (11)	12 (4)	21 (7)	16 (5)	10 (3)	9 (3)	13 (4)	72 (24)	12 (4)	103 (34)	295 (100)

N
(Row Percent)

Kruskal-Wallis = 12.9 ; df = 9 ; p-value = 0.17

Ethnic Groups in Survey
Patan, Nepal, 1991

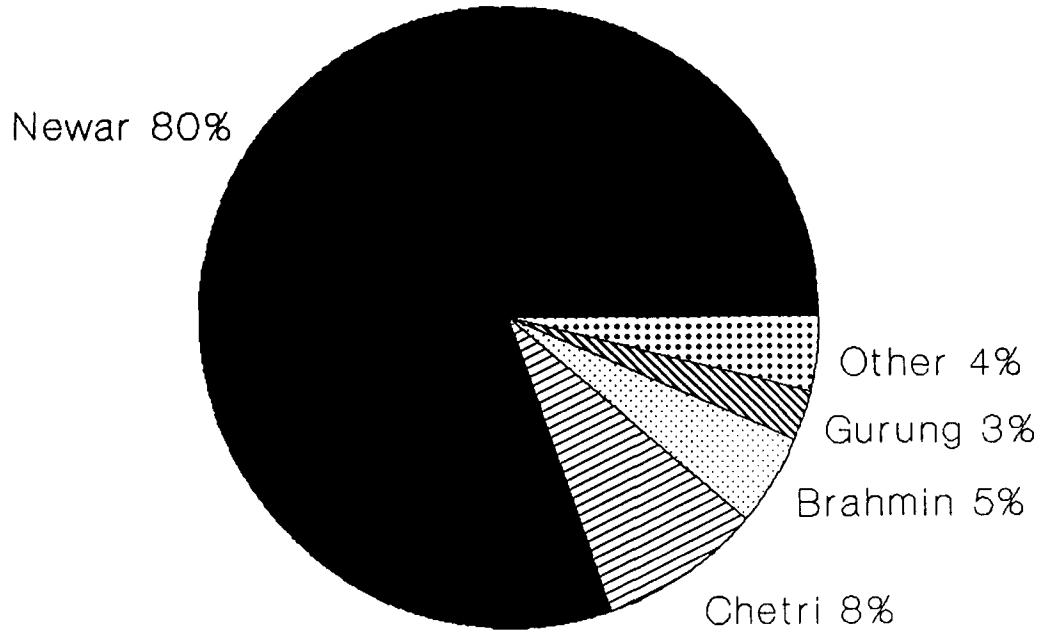

Figure A

N = 310

Castes Surveyed
Patan, Nepal, 1991

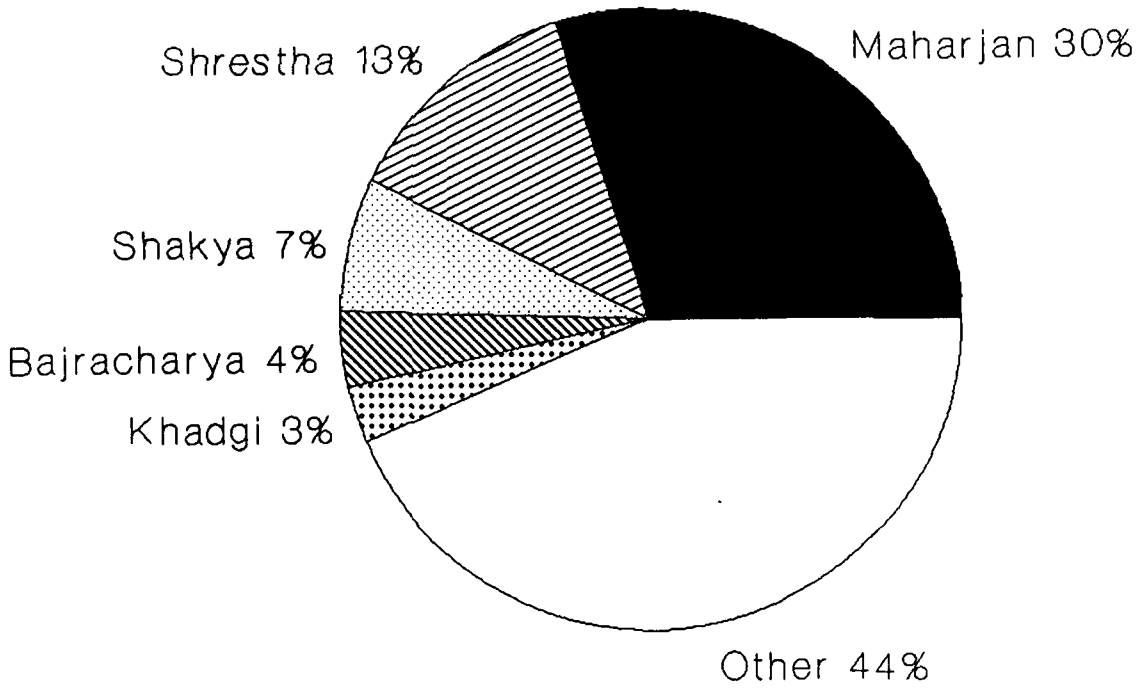

Figure B

N = 309
Listed are the castes that had at least 10 responses.

Picture A: Female Interviewer and Investigator

Patan, Nepal 1991