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Community-Based Health Needs Assessment: Mannan Community of Kozhimala

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Indigenous populations often suffer a disproportionate burden of illness and barriers in achieving health and wellness. In the Indian state of Kerala this population constitutes 1% of the population and little is known about their culture, health beliefs, behaviors, and profile. This lack of information makes the work of NGOs seeking to provide health-related services difficult. Yearoutindia, a volunteer-based NGO, requested a health needs assessment on the Mannan indigenous population in the small rural village of Kozhimala. Using Rapid Assessment Process (RAP) methodology, the researcher conducted the assessment during the summer of 2008. RAP allowed for the collection of deep qualitative information. Data informed the development of health checkup, promotion, and community mobilization activities.

COMMUNITY-BASED HEALTH NEEDS ASSESSMENT: MANNAN TRIBAL
COMMUNITY IN KOZHIMALA

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COMMUNITY-BASED HEALTH ASSESSMENT: MANNAN TRIBAL
COMMUNITY IN KOZHIMALA

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By

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CHAPTER 1

INTRODUCTION

Indigenous populations often suffer a disproportionate burden of disease and illness. Cognizant of this fact, the World Health Organization's (WHO) Commission on the Social Determinants of Health (CSDH) included indigenous peoples' health as a specific part of its work. At a June 2006 conference in Nairobi, Kenya, CSDH suggested and implemented the development of an International Review of Social Determinants of Indigenous Health to meet annually and build "on existing knowledge in the field of indigenous health" (CSDH 2007). Noting the "invisibility" of these populations and their health conditions in both research and in institutional attention, CSDH put forth a call to action on the part of researchers, nongovernmental organizations (NGOs), and international organizations to research, document, and understand: (1) local and indigenous worldviews particularly involving those related to health; (2) various social, economic, and political circumstances often resulting in poverty and marginality and the ways these relate to health; (3) local health institutions as well as prevention and treatment-seeking behaviors; (4) differences and similarities within and between indigenous populations; and (5) opportunities for local participation. The goal of such research is to address the "knowledge gap" and create a global, as well as localized, awareness of the health problems often specific to indigenous populations and to create NGO, national, and international-based interventions involving local indigenous participation and empowerment to alleviate those problems. A report based on this

meeting documented several consistent social themes confronting indigenous populations throughout the world and affecting their level of health and healthcare including consistently high levels of illness and socioeconomic constraints where data does exist, colonization and assimilation, migration, landholding patterns, nutritional deficiencies, environmental degradation, national reporting strategies, and problems of labeling and borders in regards to indigenous populations. Each of these themes has potentially harmful impacts on indigenous health and influences and is influenced by poverty and marginalization (CSDH 2007).

There are an estimated 90 million indigenous people live in India, constituting 8.4% of the total population, and belonging to approximately 700 distinct communities and tribes. In India, indigenous people are referred as “scheduled tribes” or Adivasis, a formally recognized, distinct category of national citizen (Subramanian et al. 2006). The Indian national government defines schedule tribes as those groups with “primitive traits, distinctive culture, shyness with the public at large, geographical isolation and social and economic backwardness” (Indian Ministry of Tribal Affairs 2004). As a result of this status, scheduled tribal communities and members are open to a variety of national and local governmental affirmative action policies as recognized by the Constitution of India. Despite these policies, it has often been stated that indigenous people in India have worse health indicators than other Indians, but no figures have been systematically compiled to confirm such claims. Existing research on indigenous health in India is sparse and often restricted to specific indigenous groups. Consequently, the ability to meaningfully generalize the extent and nature of indigenous health patterns in India is limited.

In Kerala, India, indigenous populations or scheduled tribes account for only 1% of the entire population of the state dispersed across nearly 50 known tribal groups (Roy 2003). Due perhaps to both marginalization and small numbers, relatively little is known about the culture, health beliefs, behaviors, and profile of these populations; both social science and health-related research of this population in this area is sparse. Moreover, Kerala has several unique social, political, and economic features creating both opportunities for and barriers to achieving health and wellness. This lack of information makes the work of local NGOs interested in providing health-related services difficult. Yearoutindia (YOI), a volunteer-based NGO conducting social programs focusing on communities and sustainability throughout Kerala, requested a research study to fill in these informational gaps in the main Mannan village of Kozhimala in Idukki District, Kerala. For a brief introduction to the culture and history of the Mannan people, see Appendix A. The request was precipitated by the recent premature death of the King of the Mannan tribe due to heart attack from hypertension. This event created a heightened awareness of health in the community which responded by requesting engagement of the organization with the community.

Both the researcher and the organization subscribe to the WHO definition of health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (CSDH 2007). The appropriate research questions and methodologies were chosen as complementary to this holistic understanding of health, the researcher’s and organization’s needs and circumstances, and the primary goal of applying the research in the development of an intervention to meet the health needs of

the Mannan community in Kozhimala. The research is an applied research project and the goal has been to create an intervention consisting of providing basic medical services, health education and promotion, and community organization to provide a platform for complete physical, mental, and social well-being in this community. To assist in the development of this intervention, the organization and the researcher chose to pursue a deep qualitative understanding of individual, household, and community health through Rapid Assessment Process (RAP) methodology. In addition, opportunities for community participation were identified and pursued to follow the organization's mission of creating sustainable and community-oriented development programs.

Purpose of Study

The client organization, YOI, expressed interest in creating culturally sensitive health programs and services to complement their focus of environmentally sustainable community development in Kerala, India. This organization is one of the few NGOs working to provide health and social services to indigenous tribal populations, and in particular the Mannan tribal population, in the state. The indigenous tribal population in the state is very small and often marginalized. Furthermore, very little is known about their culture, health beliefs, and health needs. The organization's only recent engagement with this community has not allowed them enough opportunity to develop a significant understanding or level of rapport with the community in order to develop a health-related intervention in the community. In response to the sudden death of the King of the Mannan from a heart attack at only 43 years of age, the main Mannan village of Kozhimala requested assistance from YOI in meeting community health needs. YOI, a

relatively small NGO, requested a community-based health assessment to inform the development of potential health interventions focusing on prevention in order to meet the community's basic healthcare needs. The researcher undertook a community-based needs assessment focusing on health behaviors, constraints, and needs at the individual, household, and community levels in order to inform the development of future community health activities involving both external volunteers from YOI and local community members.

Research Questions

The research questions resulted from negotiation between the client and researcher. The client, YOI, expressed a need for general information on the socio-cultural characteristics and health needs of the research population. The researcher assessed his ability to meet the client's and the research population's needs. It must be noted that the research agenda and goals were very general consisting mainly of description of the population, their health, and health behaviors and the following general research questions resulted from this negotiation. The primary research questions are listed in Table 1:

Table 1. Outline of research questions

Research Questions
1. What are the demographic characteristics of the Mannan population in Kozhimala?
2. What socio-cultural themes are particularly salient in this population?
3. What is the health profile of the community?
a. What health complaints are prevalent in the community?
b. What health complaints account for morbidity in the community?
c. What health complaints account for mortality in the community?
d. What are the perceived causes of health complaints in the community?
e. What are the health-related priorities of the community?
f. What healthcare prevention strategies exist in the community?
g. What healthcare treatment-seeking strategies exist in the community?
h. How is health and healthcare information obtained and dispersed in the community?
i. What are the health and healthcare needs and how can they be met by:
i. The client organization?
ii. The community?
j. How do the health complaints vary by differing demographics within the community such as age, gender, and SES?
4. What community problems contribute to and are associated with health needs?
5. How can the community be empowered to meet their health and healthcare needs?

The above research questions were used to inform the primary question/goal of the research: How can the information obtained contribute to a health-related intervention on the part of the client organization that is focused on prevention and health promotion activities with maximum opportunities available for community participation?

Delimitations

The research was delimited as a community health needs assessment of the adult population of Mannan indigenous tribal members within the geographical boundaries of the village of Kozhimala in Kerala, India. All respondents for individual interviews and focus groups were chosen through convenience, snowball, and/or stratified-quota sampling methods.

Limitations

Possible limitations include but are not limited to the following:

- There was a language barrier due to the researcher being unable to speak either Malayalam, the state language of Kerala, or the Mannan tribal language. The client organization provided multiple translators with varying degrees of proficiency in the three languages (English, Malayalam, and Mannan) for translation during the interview and of the recordings leading to potential translation errors. These translators were all males but of different ethnic backgrounds and ages which may have affected responses. Additionally, only Malayalam speakers were engaged in interviews omitting a small segment of the population (primarily older, uneducated women) from participating.
- The presence of a researcher in the village from a different culture may have influenced behaviors during participant observation and responses during individual and focus group interviews. The age, gender, and ethnic characteristics may have affected behaviors and responses of specific subpopulations in this community.

- The increase in familiarity of the researcher over the course of the research may have created differences in behaviors and responses from the earliest interviews and focus groups to later ones.
- The presence of onlookers during the course of the individual interviews may have influenced behaviors and responses of the respondents.
- Motivations for involvement in the research may have been based on the perception of the researcher as a provider of resources, especially through the researcher's association with the client organization, and responses and actions may have been influenced by this perception.
- Seasonal variations in the population present in the community (there were several in-migration and out-migration trends likely to affect certain subpopulations more than others) and the health profile of the community may have affected the generalizability of the research.
- Respondent selection methods were not random and certain subpopulations may be over-represented or under-represented in the research methods.
- The researcher used rapid assessment procedures, and the results may not be representative over time. Significant acute or short-term events preceding or coinciding with the research events may have influenced the data and may not accurately portray everyday circumstances.

Assumptions

Assumptions made by the researcher consisted of the following:

- The researcher was able to achieve community acceptance and a level of cross-cultural competency sufficient to interpret the research findings.
- All respondents provided accurate and honest information.
- Individual perceptions of health complaints will correspond relatively closely or can be interpreted in terms of biomedical diagnostic categories with appropriate cultural modifications and explanations to aid in analysis.
- Behaviors did not change significantly due to the presence of the researcher in the community.
- The presence of a translator did not inhibit or significantly alter respondent responses.
- There were only minimal translation errors.
- Triangulation, using multiple methods, was sufficient in correcting most validity-based errors that did occur.
- The researcher reached all significant subpopulations within the community through the sampling procedures making the results of the research generalizable to the entire research population.
- The researcher was able to obtain information about health problems and behaviors over time rather than as a snapshot taken during the period of the research through specific lines of research questioning.

- The gaps found in the community members' health and healthcare needs can be addressed by a culturally sensitive intervention.

Definition of Terms

See Appendix B.

Importance of the Study

As has been noted previously and will be shown in the next chapter, very little social science or health-related research has been done or is available on indigenous tribal populations in Kerala. As far as the researcher is aware, no research at all has been done on these issues for the Mannan tribal community or Kozhimala. The client organization has suggested that the Mannan village of Kozhimala suffer from both marginalization and, in relation to this, a potentially high burden of illness and disease. A community-based needs assessment is the only available means to assess this burden through both qualitative and quantitative data for a better understanding of the local dynamics of the community's health. An understanding of such dynamics through research will allow the researcher, the client organization, and the community to explore and design potential intervention strategies to meet those needs.

CHAPTER 2

LITERATURE REVIEW/CONTEXT OF WORK

Rapid Assessment Process and Participatory Methodology

Given the goal and the information and time requirements of the research process, rapid assessment process (RAP) methodology was used to provide a picture of the culture, health beliefs and behaviors, and barriers to health in this particular research setting. RAP methods have arisen from social science-based research on health and development and are gaining increasing importance for organizations, programs, and researchers ranging from small NGOs to large international organizations such as the WHO as an alternative to formal survey, “quick and dirty research,” and long-term ethnographic research methods. The flexible methodology of RAP allows for use in several issues ranging from agriculture to development to general and specific health issues as well as in both developed and especially in developing countries (Scrimshaw and Gleason 1992).

Beebe’s basic concepts (1995) and (2001) introductory guide to RAP methodologies formed the framework of the research. According to Beebe, RAP is defined as “an intensive, team-based qualitative inquiry using triangulation, iterative data analysis and additional data collection to quickly develop a preliminary understanding of a situation from the insider’s perspective (Beebe 2001; xv).” There are several elements of this definition requiring further elaboration. The methodology is intensive, focusing on efficient use of the researcher’s and team’s, organization’s, and community’s efforts,

resources, and time and involving frequent interactions between these actors over the course of on-site fieldwork. These interactions, as well as the direct involvement of researchers from different disciplines and researching different issues, constitute the team-based aspect of RAP methods. The rationale for involving a team is to gain a wider understanding of the issues facing a community, both the emic or “insider” and etic or “outsider” perspectives, as well as the integration between these perspectives and issues. The methodology focuses on qualitative inquiry using a range of specific techniques traditionally associated with ethnography and involving participant-observation, unstructured and semi-structured interviews and focus groups, as well as a range of creative elicitations of qualitative information. Triangulation is a technique of using multiple data sources and elicitation methods, researchers, and perspectives in an effort to increase both the validity and the reliability or “trustworthiness” of the data and research process. For example, although not explicitly a technique of RAP methodology, quantitative data may be used through this technique to compare against qualitative data. As another example, participant-observation may be used to compare against interview responses to determine the reliability of observed behavior compared against responses. Iterative data analysis allows for a continual feedback cycle that acts to focus the findings to continually achieve closer and closer approximations to the desired research results. The researchers may need to explore further data collection methods or may need the flexibility to reorient the research process to focus on important findings during the research process. Last, the primary goal of the process is to understand the emic or insider’s perspective on an issue (Beebe 1995 and 2001). This last element of the

definition arises from the general understanding put forth by Robert Chambers (1997) that the local people are the experts on their community and their needs. By understanding the insider's perspective and tailoring the research process and applications of the research findings through health interventions, locally and culturally-sensitive programs can be created that avoid many of the pitfalls and failures of interventions based on traditional health and development research processes.

RAP methodology is gaining increasing acceptance by the international health research community. Additional frameworks for RAP as a methodology for health research were provided by a status report and lessons learned guide to RAP usage in health research by anthropologists Utarini et al. (2001), a discussion of RAP's relevance to primary health care and health assessments (Rifkin 1996), and a compendium of RAP discussions and projects provided by Scrimshaw and Gleason (1992). Utarini et al. note the increased salience of culture in RAP methodology stating that "the focus on culture has been noted as a strength and divergence from more "traditional" research associated with health and development and RAP can yield descriptions of general cultural patterns of the key dimensions of study" (Utarini et al. 2001; 391). In addition to this important insight, the authors offer a further description of RAP methodologies complementing Beebe's definition by providing five general characteristics of RAP studies including:

(1) a relatively narrow focus on a specific health or social problem; (2) small samples of key informants and other respondents; (3) a short period of field research; (4) interview guides that direct research to specific topics; and (5) multiple methods of data collection (Utarini et al. 2001; 391).

The primary aim of the authors was to propose eleven critical criteria for research studies that are characterized by these five general themes and that follow RAP guidelines. The criteria were an effort by the authors to standardize RAP methodology and outline limitations of RAP according to the guidelines set forth by Beebe and others as they pertain to health assessments. The authors note that, to date, there are a number of problems with research studies claiming RAP methodologies in meeting the criteria involving such processes as subjectivity, training, selection, data collection, and ethics. These eleven criteria were followed closely by the researcher during the research process to avoid many potential dangers associated with too flexible of an interpretation of RAP methodology.

Rifkin (1996) discusses the relevance of RAP in primary health care and health assessment research. The author highlights two additional elements of RAP methodologies in community health: (1) research as a process and (2) community involvement in research. The author identifies a set of six characteristics of RAP research studies stressing these themes:

(1) action-oriented research to be used by planners and managers for problem solving; (2) community involvement in information collection and analysis; (3) emphasis on communication and listening skills; (4) holistic and systematic approaches; (5) multidisciplinary and interactive methods including visualization of information to replace only verbal communication; (6) flexible responses to data collection and interpretation (Rifkin 1996; 513).

The author notes that these characteristics are often at odds with the biomedical worldview and create a number of tensions in RAP research in health (and in a context where the biomedical worldview is dominant). In particular, problems of bias as well as selection and analysis often create difficulties in communicating across these perspectives

and threaten biomedical tenets of reliability, validity, and generalization. However, as the author notes, RAP processes are quickly adapting to provide better measurements of these tenets through communication across perspectives and the continual development of the methodology through application. Ultimately, the author notes that these perspectives are complementary and should be combined in future health assessments. Furthermore, the author provides a useful holistic informational pyramid outlining the integration of health information in a given community. The following table shows the hierarchical relationships between domains of health-related information that can be adapted as potential foci for a research project:

Table 2. Adapted model of Rifkin’s health information pyramid

Health Policy		
Health and Environmental Services		Social Services
Physical Environment	Socioeconomic Environment	Disease and Disability
Community Composition	Community Organization and Structure	Community Capacity

Each of these levels provides important information affecting the health behaviors, profile, and needs of a community as well as the relationships between them. In a health needs assessment, each of these levels should be explored to determine a comprehensive understanding of both the health profile and health behavior of a given community. For instance, a health policy may be dictate universal access to government health care facilities or it may encourage privatization of medical services. In Kerala, there is a mix

of these two policies with repercussions for health and environmental services and social services. In the case of health and environmental services, policies may dictate more support for curative and treatment based services rather than primary and public health programs. Again, this is largely the policy of Kerala and the resulting lack of adequate sanitation in many villages. Health policies and privatization of health services have made it increasingly difficult to afford quality care for individuals of low socioeconomic status as well as impacted the particular health profile of diseases and disabilities within these communities. Last, all of the above filter-down effects, affect the ability of these communities to organize or the capacity to alleviate both socioeconomic difficulties and health problems. In the case of indigenous populations in Kerala, it has proven useful to explore each of Rifkin's domains in order to understand and suggest solutions for each level of problems.

Scrimshaw and Gleason's (1992) collection offers a number of case studies of RAP procedures pertaining to health assessments and located specifically in India. Kanani (1992) used RAP methods to uncover perceptions of health and illness in women residing in a slum in Baroda, India. The research was conducted for a NGO focusing on community-based health services. It was designed to uncover gender and culture-specific perceptions of health as well as how those perceptions shaped health-maintenance and health-seeking behaviors in both traditional and formal health systems. Focus groups, free listing and pile sorting, ethnographic interviews, narratives, and key informant interviews were all used in order to gain a comprehensive understanding of the health issues and the local environment. The research found fifteen priority morbidity domains

affecting the research population with which to focus a future health education intervention. Bently et al. (1992) similarly looked at women's health in India through RAP. Noting that researchers often face an environment in which no information exists prior to the research, the authors conducted training sessions for locally based NGOs for RAP methods to provide qualitative information for health interventions and activities. Again, the focus was on eliciting "explanatory models" or insider perspectives through RAP methods on various health beliefs and how these shape health-maintenance and health-seeking behaviors. The last case study by Mascarenhas (1992) discusses a combination of RAP methods with participatory methods through the experiences of MYRADA, a South Indian NGO. This NGO conducted several village training sessions on RAP methodologies in a direct effort to transfer control over the research process and goals to the community itself. Ultimately, they noted the compatibility of both RAP and participatory methodologies and the increased effectiveness and sustainability of interventions involving such a combination. This compatibility is still developing through creative combinations of RAP and participatory methodologies as each continues to develop and influence one another. There are an increasing number of cases utilizing both of these methods such as the researcher's own project.

According to MYRADA's website (www.myrada.org 2008), "action groups" are a concept that fits well with the culture and history of South India. There is a long history of activism on the part of several marginalized groups in this region. As the organization notes, an intervention that is not focused on community participation, organization, and action will be problematic in the area because these groups will be

unwilling to contribute to the research or to be “passive” subjects. The idea of action groups allows an active role for the research population and the transference of research skills and methodologies such as RAP will allow for more sustainable and successful health interventions in marginalized and developing country populations. As the organization suggests, action groups allow for identification and prioritization of community problems, strategies to overcome these problems, and creates a sense of community ownership of the research as well as accountability for the outcomes.

Health and Health Systems in Kerala

In spite of its low agricultural and industrial development and low per capita income figures, Kerala has made remarkable achievements in health from the 1960s onwards. These achievements include the lowest crude death rates, infant mortality rates, highest life expectancy, lowest birth rates, highest Human Development Index (HDI), and highest physical quality of life (PQLI) index for all Indian states (George and Nair 2004). Moreover, many of these indicators are on par with several developed countries despite only spending roughly \$10 U.S. dollars per capita on health as of 2000 (Varatharajan 2004) leading many health economists and development experts to acclaim a “Kerala Model of Health with good health at low cost” (George and Nair 2004; 319). These health achievements have frequently been related to other human, social, and infrastructural development indicators where Kerala also has achieved the highest rates of all Indian states. There are many examples of these but literacy rates and especially those of women, per capita newspapers and higher education institutions, per capita hospital beds, and public transportation services all deserve mention (Ramachandran 2000) as

potentially related to health. Two of the most often cited rationales behind these achievements of Kerala are: (1) a long history of social activism and unionism as well as democratically elected communist governments (Franke and Chasin 2000); and, related to this, (2) a relative parity between males and females, urban and rural populations, and an almost complete disappearance of the effects of caste. In fact, Kerala has the lowest GINI index measuring economic and income disparities, as well as the lowest proxy indicators measuring gender and urban/rural disparities between states as of 1998 (Parayil 2000).

Despite the above achievements, there are a number of trends that threaten to undo the “Kerala Model” of health and development. First, Kerala suffers the highest rate of morbidity of any Indian state. This high morbidity rate may have to do with high education and awareness, higher reporting rates due to universal access to healthcare, a continuing burden of infectious disease related to a densely forested and waterlogged environment, and an emerging and increasing burden of chronic ailments due to longer lifespan as well as a number of other potential factors (George and Nair 2004). Second, Kerala has one of the highest rates of poverty with approximately 30% of the population living below the state poverty line according to the latest estimates in 1988 (Kannan 2000) and the highest rates of unemployment for men with approximately 20% of the male population having no form of employment including agriculture (Franke and Chasin 2000). Third, Kerala has one of the lowest urban population proportions and a relatively evenly dispersed rural population throughout the state requiring a wider spread of resources and relative difficulties in arranging specialty or tertiary health services to rural

populations (Kannan 2000). Fourth, recent state-level fiscal crises are even further decreasing the amount of state-level funds available for distribution to local municipal bodies for social and health programs resulting in a number of troubling trends such as lack of adequate staffing and medications at community and primary clinics and difficulties in maintaining local water distribution and sanitary systems. Last, there is a rapid growth in private clinics and dispensaries that has the potential to greatly impact the current structure and quality of the government healthcare system, create difficulties in regulation, and will affect equal access to quality healthcare for all Kerala citizens. For instance, government services might be adversely affected by the loss of quality staff and resources to the private sector and lower socioeconomic individuals might be unable to afford access to quality health services (Varatharajan 2004). All four of these trends have the potential to unravel the health and healthcare gains of the Kerala Model by affecting the ability of the state government to provide decentralized, universal care emphasizing primary and preventative healthcare. Adding the “epidemiological transition” phenomenon and the effect on low SES populations to these, Ekbal (2005) notes that there are five important trends affecting the Kerala healthcare system as of 2005:

- (1) The simultaneous presence of the diseases of poverty and the diseases of affluence or life style diseases;
- (2) The decay of the public health system;
- (3) the uncontrolled growth of the private sector;
- (4) escalation of health care cost; and
- (5) marginalization of the poor (Ekbal 2005; 3).

As stated previously, Kerala has a universally available public healthcare system. The state government has adopted the principles of the decentralized, primary healthcare model coming from several international health charters creating a three-tiered healthcare system: the Primary Health Centers (PHC) and the Community Health Centers (CHC)

and local dispensaries, District Hospitals, and the Medical Colleges relatively evenly distributed throughout both urban and rural areas. Treatment at the first two levels is typically free for low-SES and indigenous individuals, however, as will be discussed later in this section, this is not always the case. The local panchayat administrative governments and district governments are primarily responsible for the staffing, funding, and general accountability of these government health institutions (George and Nair, 2004). Looking briefly at the PHC, perhaps the fundamental unit of healthcare in Kerala, Varatharajan et al. (2004) highlight the structure and importance of this basic unit:

Kerala, like many other Indian States, follows a three-tier (village, block and district) panchayat raj (local self-governance) system. PHCs were brought under the control of grama (village) panchayats based on the principle that whatever can be done efficiently at the lower level should be done only at that level, not advanced to a higher level. Various PHC activities should thus be implemented under the overall supervision and control of village panchayats. This has opened up the possibility of controlling infectious and life-style diseases through community involvement. The community can now demand and/or generate resources required for health care, besides having a role in restructuring the existing organization and delivery of health care (Varatharajan et al. 2004; 42).

All of these institutions may practice either allopathic medicine (biomedicine) or Ayurvedic medicine and there are a number of government-affiliated homeopathic clinics, however, the majority of clinics and hospitals are allopathic in nature. In addition to the public healthcare system in Kerala, there are a number of private clinics, dispensaries, and hospitals practicing several different kinds of medicines as well as a wide variety of local, traditional, or “folk” indigenous health systems. Many elements of the folk systems have been incorporated into Ayurvedic medicine, however, the folk systems as a whole suffer from several legal uncertainties making assessment and understanding of the true nature of this system difficult in this setting. Nonetheless, the

overall health system of Kerala can be characterized as pluralistic given the diverse range of medical systems available to the different populations within the state (Ekbal 2005).

The above information paints a very general picture of the macro-level achievements and structure of the health systems in Kerala. The remainder of this section will look at the literature available on several themes relevant to the researcher's understanding of state-level health and healthcare that are likely to have consequences for both the health profile and treatment-seeking behaviors of the research population. First, utilization and the quality of care at primary healthcare clinics will be discussed in Kerala. Second, treatment-seeking behaviors in a medically plural system will be addressed. This theme will rely primarily on literature relating to India as a whole, but with the assumption that medical pluralism exists throughout most Indian states including Kerala. Last, literature on specific health ailments and complaints that are particularly relevant in this setting will be discussed. Again, it must be noted that the research population is a very small percentage of the overall population of Kerala. There is no available literature focusing specifically on indigenous tribal populations (and none that has been done specifically on the Mannan tribal population) on these themes.

Kerala has been noted for its particularly high rates of primary clinic utilization overall (Shenoy et al. 1997), in maternal services (Navaneetham and Dharmalingam 2002), childhood respiratory and diarrheal diseases (Pillai et al. 2003), as well as its vaccination rates (Nair and Varughese 1994) through community clinics. Kerala has been favorably compared with other states in India by the availability and quality primary health centers and community health centers that are the basic units of the decentralized

system of care focusing on primary and preventative health (Shekhar and Rani 2003). Similarly, the general finding of a large national evaluation conducted by Varatharajan et al. (2004) of the performance and management of all primary health centers throughout Kerala did suggest that the healthcare system was continuing to provide accessible and quality care compared to other states. However, the authors found several disturbing trends such as a rapid decrease in utilization levels of PHCs. Performing a second round of more in-depth evaluation, the authors found that local governments were allocating far less resources in terms of technology, medications, and staff pay. Consequently, staff retention was low and the lack of both doctors and medicines led many individuals seeking healthcare services to bypass the PHCs altogether. Instead, these individuals were visiting and increasing the patient-load of the district hospitals or, more commonly, visiting private clinics. Perhaps the most disturbing find was that only 30% of low-income individuals seek care through the PHCs, a number that would be expected to be much higher. However, this does not mean utilization of healthcare is dropping for it is greatly increasing in the private clinics as Kunhikannan and Aravindan (2000) suggest. These authors, discussing treatment-seeking behaviors in low-income individuals, suggest that these individuals often prefer private clinics because they can expect these clinics to have both doctors and medicines at the clinic whereas this expectation does not extend to the PHCs even though the treatment is “free.” The authors go on to further suggest that this trend is beginning to create increasing disparities in the amount of income spent on healthcare with the poor spending 40% or more of their income on healthcare compared to only 2.5% of the highest socioeconomic individuals.

An additional element of healthcare seeking particularly relevant to this setting is the “medical pluralism.” India has a substantial number of allopathic physicians, practicing modern, Western or biomedicine, as well as a comparable number of alternative medicine practitioners, practicing Ayurveda or Homeopathy. The existence of different systems of medicine complicates the decision about seeking medical care in response to illness. Khan (2006) argues that given the general praise in the social science literature of the medical pluralism and the “co-existence” of multiple medical traditions and practices existing throughout India, there is a need to critically assess issues of power that have historically shaped the relationships between these different systems as they exist today. British colonialism in India brought Western-based biomedicine (which was perhaps symbolically termed as “English medicine” in the research community) to India and, combined with the powerful symbolism of “modernism,” rapidly took on a position of dominance throughout India. The symbolism of modernism worked in a variety of different ways, but perhaps in no way more effective than becoming the preferred understanding and method of treatment for the higher socioeconomic populations of India. There was, however, a postcolonial reaction against such dominance on the part of nascent national and state-level Indian governments through the stressing of “indigenous alternatives,” but such discourses were often contradictory and failed to challenge the dominance of the transplanted biomedical system. Consequently, a hierarchy within this medical pluralism was established with biomedicine at the top of the hierarchy and indigenous systems at the bottom and this general health system trend has continued to shape healthcare options and preferences for the majority of populations throughout

India. However, as Nisula (2006) discusses, despite the preference for biomedical treatments in Tamil Nadu (neighboring Kerala), the understanding of health and illness is still very much a product of Ayurvedic principles. Furthermore, the author shows that although Ayurvedic practitioners may only be utilized in the case of failure of biomedicine, Ayurveda as a system is heavily involved in preventative health due to its stressing of dietary instructions and rules for personal conduct—rules that often overlap public health messages.

Pillai et al. (2003) add insight into healthcare treatment-seeking preferences based on demographic characteristics of gender, rural versus urban populations, and socioeconomic status in Kerala. The authors assessed differences in whether the participants sought any form of treatment and whether the treatment received (and preferred) was allopathic or alternative treatment. Looking at such the treatment of children for respiratory and stomach ailments by demographic characteristics of the household, they found that: (1) 20% of the households did not seek treatment because the ailments “were mild and acceptable in a particular setting” (Pillai et al. 2003; 787); (2) both rural populations and, somewhat surprisingly, high SES households were nearly two times less likely to seek treatment; (3) households with children with a non-specific diagnosis (e.g. cough) were two times more likely to seek treatment compared to those with a specific diagnosis (e.g. asthma); (3) overall, households were nearly nine times more likely to choose allopathic over alternative treatment; (4) rural populations are nearly three times as likely, low SES populations are 1.5 times as likely, and men were nearly 1.5 times as likely to prefer alternative treatments to their counterparts—however,

in absolute terms, each of these populations still utilized allopathic treatment more often than alternative treatment. Although not directly dealing with indigenous Kerala populations and not focusing on exploring each of these trends, this research study offered one of the few descriptive studies highlighting several important characteristics of treatment-seeking behaviors by certain demographic variables. In particular, those trends pertaining to low SES and rural populations as well as non-specific (undiagnosed) ailments can be taken as directly relevant to the situation of indigenous tribal populations in Kerala.

Despite having the highest levels of morbidity of all Indian states, there is very little published or accessible information on specific health morbidities for Kerala that can be disaggregated from Indian national statistics. The WHO's, Southeast Asian Regional Office notes abnormally high rates of alcoholism, chikungunya (a mosquito-borne illness), infectious fevers, Japanese encephalitis, childhood nutritional deficiencies especially related to total calories and protein, and hepatitis B for the area in a variety of reports (WHO 2008), but does not offer specific statistics on these complaints. A study by Mohamed et al. (2000) found Kerala to have the highest rates of both suicide and serious mental health disorders in India with an estimate of the latter disorder affecting 300,000 to 500,000 Kerala citizens. The authors found that family problems, unemployment, and loss of social status and the stresses associated with these life difficulties listed as the three main contributors to both of these problems. However, they note the high level of education and the higher likelihood of reporting influence these statistics. Furthermore, Kumar (1993) notes that Kerala was on the verge of an

epidemiological transition fifteen years ago with an equal burden of both infectious diseases and chronic or lifestyle diseases at this time. The author expects that the incidence of cancers, hypertension, diabetes type—II, and asthma all to rise—a situation that has likely occurred. Last, a recent study by Prasanth and Vijayakumar (2008) on the prevalence of hypertension in rural Kerala found extremely high levels of this condition. The authors found that 33.5% of Kerala adults over 20 years of age suffered from hypertension and that women were twice as likely to suffer from this condition. However, there was very little discussion of the causes for these trends. Overall, it was very difficult to find specific statistics by state, demographic factors, or by health conditions. Furthermore, there were no research studies specific to indigenous populations.

Summary

This study will contribute to closing these knowledge gaps in the Mannan indigenous tribal village of Kozhimala in Kerala State, India. To the researcher's knowledge of the available literature, it will be the first use of RAP in this area for outlining health-related beliefs, behaviors, and a health profile for an indigenous tribal community. Methodologically, it will demonstrate the usefulness of RAP methods for describing and understanding local cultural and health-related issues in such a population. It will outline the application of these methods and data in designing and developing a community-based health intervention that will meet the needs and build on the strengths of this community to achieve community health and wellness. Furthermore, it will combine these methods with participatory methods to suggest more sustainable avenues

for this goal relying on active participation of a researcher, an NGO, and a community of Mannan indigenous tribal members.

CHAPTER 3

METHODOLOGY/PROJECT DESIGN

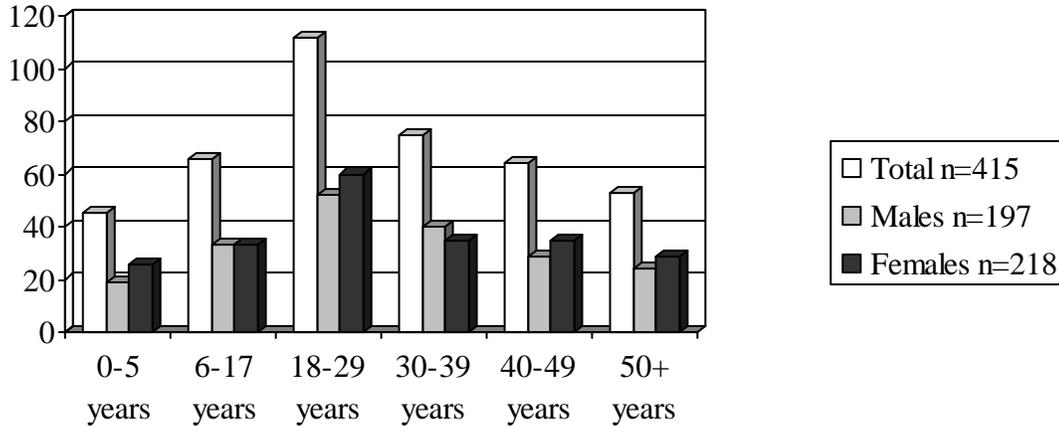
The general methodological framework used was Rapid Assessment Procedures (RAP) as outlined by Beebe (2001). Given the information constraints on the research process, this methodology was chosen for its fit within this specific research context and its ability to respond to the research questions. Specific techniques and instruments used were a census and mapping of the village, participant-observation, unstructured key informant interviews, unstructured site-based conversations, semi-structured individual interviews, semi-structured focus groups, and the facilitation of action groups and training in RAP methodologies of Mannan tribal members. This methodology and these techniques allowed for the generation of both qualitative and quantitative information on the health beliefs and behaviors of Mannan indigenous tribal members in Kozhimala. The specific techniques in the allowed for the fulfillment of fundamental tenets and strengths of RAP methodology: (1) team-based interactions; (2) data triangulation; and (3) iterative analysis. Furthermore, the last two techniques involving action groups and RAP training to tribal members added a more focused participatory element to the research goals. Ultimately, the use and flexibility of this research methodology allowed for a deeper understanding of the local socio-cultural context, individual health-related behaviors, community health needs, and contributed to the capacity of the client organization, YOI, as well as the community members themselves in meeting those community health needs.

Population and Sample

The study was conducted from May 22 to August 26, 2008. The sample population, from a total population of 415 individuals, was composed of adults between the ages of 18 to 95 residing in the village of Kozhimala in Kerala State, India. Only residents who self identified as Mannan indigenous tribal members in this village who were 18 years of age or older were directly included in the study.

To gain both quantitative and qualitative data on the Mannan population in Kozhimala, the researcher with one tribal member of YOI and two tribal assistants/translators conducted a walk-through census of the Mannan population Kozhimala. The researcher had the assistants draw a map with notable village landmarks and to outline the boundaries of the village. Households were then plotted onto the map and information was collected from adult household members about the number of individuals that were “considered part of the household,” their age and gender, and the relationships amongst members of the household. The village consists of 415 tribal individuals residing in 105 households as well as an approximately equal number of general population individuals and households that were not included in the census. The average household size is 3.95 individuals per household with a range of one to eight individuals per household. The census results for age and gender are listed in Graph 1:

Graph 1. Kozhimala individuals by age and gender



It must be noted that the figures for ages of tribal members were often approximations given that primarily those individuals born prior to 1975 have no record of their birth year and could often only guess at their actual ages. Thus, the strongest effects on the validity of age categorization were seen in the age groups of 40-49 and 50+. There was both evidence of over-representation and under-representation of ages in all categories given generational birthing space and other indicators. Nevertheless, the researcher recorded those ages given by the census respondents.

Additionally, the type of occupation and years of education were collected as demographic variables for the individual interviews to get some sense of these structures within the larger community because these characteristics were not included in the census. The two main types of work were: (1) daily plantation wage work at cardamom and pepper plantations with 30% of the individual respondents engaged in this type of work with significantly more females and younger demographics constituting this working population; and (2) agricultural work with 20% of the individual respondents

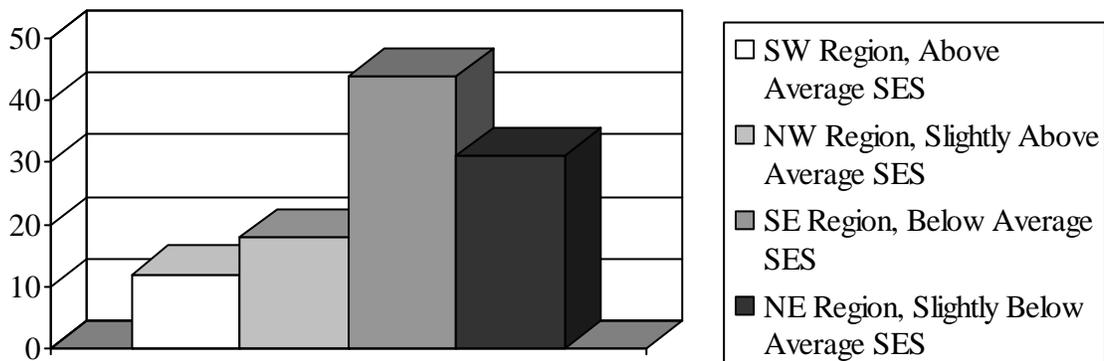
engaged in this type of work with significantly more males and middle-aged demographics constituting this working population. There were also 20% of the respondents engaged in other types of work ranging from a mason to a schoolteacher to a tea shop owner. For all of these occupations, the wage earned for full-time work ranged from 800 Rupees (\$20.00) to 3,000 Rupees (\$75.00) for an individual per month during the height of the agricultural season. The educational attainment was just under 50% completing the 4th standard or higher. However, this educational attainment may be relatively high for the overall village given that educated Mannan tribal members seemed more likely to want to engage with the researcher and all of the most educated members (completed the 10th standard) were interviewed.

The researcher also determined that there were significant discrepancies in those individuals that were actually present in the village over the duration of the research and those that were listed as residents in the census. There were five main trends found to impact the population of Mannan tribal members present in Kozhimala over the duration of the research: (1) there was a notable absence of young males and to a lesser degree young and middle-aged females due to their migration and relocation to work sites during the availability of wage-labor jobs in the high agricultural season; (2) there was a consistent immigration and emigration of primarily elder women who resided with family members in multiple tribal villages at different times of the year; (3) there was a notable absence of school-aged children, 6-17 years of age, due to residence in school dormitories outside of the village; (4) many Mannan individuals lived amongst multiple Mannan villages for various reasons and periods of time; and (5) many Mannan

individuals had married members of the general population and incorporated into their households as generally recognized, “adopted Mannans.” All of these trends can be seen as socio-cultural and economic living adaptations to the environments in which they are living and the migratory behaviors certainly impact health behaviors and the organization of healthcare interventions to meet their health needs.

The census also allowed for the recognition, based on quality of housing and land and key informant input, of socioeconomic disparities based on geographic residence within the village. The village was bisected by a main east-west road and north-south pathway that allowed for dividing the village into quadrants that then became proxy indicators for socioeconomic status (SES) within the tribal population. It must be noted that this recognition is based on a very crude analysis and there were certainly pockets of households that do not fit the overall pattern. However, for the purpose of getting a diverse sample of respondents in terms of SES, this categorization was determined to be useful by the researcher. The geographic/SES breakdown is shown in Graph 2:

Graph 2. Number of Kozhimala households by region and approximated SES (n=105)



Based on the census results for these three demographic variables, the researcher purposely selected individual interview participants to allow for proportionate representation of the village. With these prerequisite categories as a guide, the researcher then relied on three tribal men and two tribal women at various times throughout the research to identify potential respondents through this form of “stratified-quota” sampling given that the researcher was aiming for specific quotas along the lines of gender, age, and SES.

Participant Observation

The researcher resided in the village sharing a house with a host family over the duration of the research. Initially, the researcher was involved in a YOI sanitation project for one week as a way of identifying the researcher as a member of YOI and of gaining rapport with the villagers. As part of this method, the researcher regularly took part in family life, recreational activities, domestic chores, food preparation, medicinal herb gathering, agricultural and fishing work, house construction, several social and religious gatherings, government meetings, attended a number of cultural festivals and events, and traveled to other Mannan tribal villages. As part of a regular routine aiding participant observation and rapport building, the researcher walked through the village for one hour every morning, stopping in several households and at the village bus stop for conversation and observation primarily amongst women and stopping in the tea shop for conversation and observation primarily amongst younger men. The researcher also spent at least one hour in the village center every evening talking and observing primarily amongst older Mannan men. Insight gained from such involvement and interactions was

recorded in field notes for each day of research and provided diverse and valuable data on observed social and health behaviors within this specific cultural context.

Key Informant Interviews and Informal Discussions

The initial step was the identification of four key informants chosen because they had some specialized role or knowledge about the health and/or socio-cultural characteristics of the Mannan tribal members in Kozhimala. The village panchayat representative, the recently deceased King's brother, the district Mannan representative of tribal health affairs, and a very socially and politically active cousin of the current Mannan King all provided semi-structured interviews. In addition, conversations amongst a socially active host family, lively gatherings of males the village tea shop on weekends, an indigenous healer, and with both Mannan and non-Mannan members of the client organization, YOI, all served to know the population and inform both sample selection and potential research issues for inclusion in the interview questionnaires.

Individual Interviews

The researcher conducted 24 formal semi-structured interviews. For the individual interviews, the researcher allotted 12 interviews for males and 12 for females. For age, the researcher allotted six interviews each for 18-29, 30-39, 40-49, and 50+ age groups that were further subdivided into three each for females and males. For geographical location (taken as a proxy variable for SES), the researcher allotted seven interviews for the Northeast region (slightly below average SES), ten interviews for the Southeast region (below average SES), four interviews for the Northwest region (slightly above average SES), and three interviews for the Southwest region (above average SES).

These numbers were determined by the proportionate number of households located in these regions compared to the total number of households. However, the researcher ultimately did not end up with these exact numbers due both to the heterogeneity of SES within these regions and the selection process by the tribal assistants. The final SES breakdown for the individual interviews was eight individuals with below average, eight with slightly below average, five with slightly above average, and three with above average SES—the effect of which was to oversample middle SES individuals at the expense of below average individuals. No further attempts were made to purposefully select individuals by gender and age in these geographical regions which led to: (1) an over-representation of young females in the below average SES; (2) an under-representation in the slightly below and slightly above average SES regions; (3) an over-representation of elder males in the slightly above and slightly below average SES regions; and (4) an under-representation of elder males in the above and below average SES regions. With these prerequisite categories as a guide, the researcher then relied on four tribal men and two tribal women to identify potential respondents through a mixture of both convenience and snowball sampling.

These interviews were conducted over a 60 day period involving four different translators: two general population members from YOI, one tribal member on staff with YOI, and one tribal member unaffiliated with the organization. Respondents were asked the questions in Malayalam and responded in Malayalam or in the case of primarily elder women responded in the Mannan indigenous language in which case the unaffiliated tribal member knowledgeable in English, Malayalam, and Mannan assisted in translation.

The respondent responded freely and the translator would only translate to English for the researcher when the respondent had stopped or reached the end of a question. The translator would then give the important themes of the response to the researcher in English. This allowed the researcher to change course within the loose structure of the semi-structured questionnaire to follow up on themes and ask additional questions based on the answers given. All translators were briefed for at least one hour prior to their first interview to ensure that the interview would proceed smoothly and the researcher would have an opportunity to ask additional questions. Interviewing techniques were demonstrated in this period by the researcher, core questions were interpreted, and potential follow-up questions were discussed in these training sessions.

The site of the interview determined by the preference of the respondent and all interviews took place either in their own homes or at the host house of the researcher. Despite the researcher's attempts to ensure privacy for the respondent by involving only him/her, the researcher, and the translator, there were often onlookers consisting of friends, family members, and additional research team members. In each instance, the respondent was asked in private if he/she objected to the onlookers' presence. No individual objected and in asking the respondents after the interview was completed how this affected the interview, Manju, a 22 year-old female, stated "I don't know if I would have been able to talk to you very much without my father and children here...I was nervous when you first came" and Nagan, a 62 year-old male, stated "she needs to be here, she knows my health better than I...her memory is very good" in reference to his wife. As evidenced by both these statements and many other similar ones, the presence

of family and friends was more of a natural setting in this community and acted to diffuse nervousness and suspicion about the presence of the researcher and served to assist respondents in remembering events related to their health.

The individual interview questionnaire consisted of core questions about their own, their family's, and the community's overall level of health and the core questions can be seen in Appendix C. These core questions assessed illnesses, health seeking and preventative behaviors, as well as their perceptions of constraints and problems in achieving well-being in all three of these domains. There were also a number of secondary questions that continually developed as the researcher progressed through the interviews in response to repetitions in certain themes and were deployed when a respondent touched upon that theme. Last, each core question consisted of a number of follow-up questions allowing the researcher latitude in further exploring responses and themes in each individual interview interaction.

Focus Groups

A total of four focus groups were conducted amongst Mannan village members. The goal of conducting the focus groups was to explore variations in the research questions by age and gender as well as to benefit from a more open and interactive setting. Each of these focus groups was constructed along the axes of gender and age. The first focus group was of the tribal elders composed of eight males aged 45 years to 65 years that were all closely related to the recently deceased King. The second focus group was composed of an elder women's work group of ten females aged 33 years to 95 years. Each of these groups of elders were natural groupings of respected individuals

within the community, who met at least once a month, were very involved in socio-cultural organizing, and were noted as holding considerable authority through informal discussions with key informants. They were also conducted at the senior member's house of each of these groups. These two focus groups were conducted simultaneously with key informant interviews and preceding the individual interviews. The purpose of this was to gain rapport and acceptance into the community and to aid in spreading the purpose of the researcher and research throughout the community as rapidly as possible.

The young male—six individuals aged 18 years through 28 years—and young female—nine individuals aged 18 years through 24 years—focus groups were held after the individual interviews had been complete. These groupings, unlike the elder focus groups, were not natural groupings and two tribal assistants/translators selected individuals by convenience and snowball sampling. Focus groups were held at the researcher's host family's house. The purpose of conducting these focus groups after the individual interviews was related to the difficulties in organizing a relatively mobile group, to have more time in gaining rapport with a population that is in less contact with the researcher, and to gain feedback on research findings through methods performed up to that point in the research.

The focus group questionnaire aimed at discussing general Mannan culture, notions of change, health beliefs, and social and community health problems and priorities. The focus group questionnaire was semi-structured and free listing techniques were frequently used especially in regards to tribal medicines and identifying and prioritizing problems and priorities within the tribal community's social and health

environments. In addition, questions were tailored to the age and gender characteristics of the focus groups in order to allow for comparison of these themes by these demographic groups. All four questionnaires were readily adapted to follow up on important themes elicited by the focus group respondents.

Action Groups

After the focus group session had been conducted amongst the young men, this group recognized that the community members themselves must organize to meet the needs and challenges of this community. This spontaneous enthusiasm led to the planning of four consecutive one hour, Sunday meetings at a key informant's home open to any resident of Kozhimala who wanted to participate. The researcher took on a facilitative role discussing the up-to-date results of the research, the methods available for further research, and contributing input to various ideas. However, through the course of the meetings, the researcher became less and less involved as the action group participants themselves took control of the meetings and ideas. The action groups were mainly organized and conducted by Tangachen, a key informant and very active 33 year-old cousin of the King.

The first meeting consisted of an unstructured discussion of research findings and methods. The second meeting consisted of a free listing and discussion of both health and social problems in the community. The third meeting consisted of a prioritizing of the problems in terms of threat to the community and the feasibility of success in the group's involvement with community problems. The fourth meeting, which the researcher was not present for, consisted of organizing the group into roles and

strategizing for meeting the specific need and problem they had chosen to act upon.

There were six tribal individuals present at the first meeting, eight at the second, six at the third, and six at the last. There were a total of 12 individuals, mostly young males, participating in at least one meeting, but with three younger females attending at least one of the sessions.

Deliverables

Prior to entering the field, the researcher negotiated the deliverables to YOI as consisting of: (1) a census of the Mannan population in Kozhimala documenting the tribal name, gender, and age of each member of the population (2) a verbal presentation to the client board and staff of the research findings; (3) a verbal presentation to a group of interested stakeholders in the community; (4) a written transcript of a one-hour long discussion during the elder men's focus groups discussing Mannan tribal history and culture; and (5) a written report on the findings and suggestions of the research. As the research progressed further opportunities for delivering information arose for both the client organization and the community. For the organization, the head of YOI suggested the creation of an intervention program based on the findings of the research. It was determined by both the researcher and the organization that a program involving medical checkups and/or a medical camp would be feasible in this community, would assist in meeting many of the healthcare and informational needs in the community, and could make use of and act as a means of further recruitment of volunteers with basic medical expertise to staff the proposed intervention. The researcher created a webpage on YOI's website outlining the basic structure of the new program, created a link to the

researcher's findings from this webpage which included a lexicon of Malayalam/Mannan terms and idioms for health-related issues, and has since become the volunteer coordinator for the project. In addition, the researcher acted to identify children that might be suffering from malnourishment during the course of the research (especially through the census-taking activity), in order to enlist them in a new YOI program providing the funds to a local shop for dispersing one egg daily to the parents of these children. For the community, further deliverables took the form of individual and group level training in interviewing techniques for the purposes of future activities planned by the action groups.

Data Analysis

All responses to interviews, focus groups, and action groups were translated from Malayalam to English with the assistance of three general population YOI staff. Translations took place at the head office of YOI in Kochi, India during two periods: July 23-26 and August 22-26. There was a continuing analysis conducted in the field informed by the English translations at the time of the interview with the main themes recorded into interview notes and from the results of the first batch of complete translations. This allowed for a constant adaptation of interview questions and interpretations based on emerging themes.

The English translations and all field notes were then transcribed and coded in the qualitative software program Atlas.ti 5.0 back in the United States. Data were further grouped by question and type of response and then analyzed by systematically interpreting and categorizing phrases and concepts. This allowed quantitative

frequencies of certain responses that were then coded and entered into the quantitative software program SPSS 15.0 along with demographic variables. The purpose of this was to break down and compare trends along demographic axes. Census data were entered into a Microsoft Excel spreadsheet for quantitative analysis of collected demographic information.

Protection of Human Participants

Approval for this study was obtained from the Institutional review boards for both the University of North Texas and the University of North Texas Health Sciences Center. In addition, the permission of the 1st Ward, Kanchiyar village Panchayat was received for conducting research in this governmental administrative district as well as from YOI's board of directors. All researchers involved have completed the appropriate human subjects training courses: Health Insurance Portability and Accountability Act (HIPAA) and Collaborative Institutional Training Initiative (CITI).

All respondents were asked to provide verbal informed consent, and a clear understanding of the purpose and methods of the study was established before interviews were begun. All respondents were given the option of setting for the conduct of the interviews and were allowed to determine who was present at the time of the interview. No direct identifiers were requested from the respondents and were not recorded. For the purposes of coding and analysis, each respondent was randomly assigned a gender-appropriate "tribal name" from a list of potential names provided by key informants. All data was stored according to compliance with HIPAA and CITI standards in a password-

protected electronic file on the researcher's private laptop computer. No personal health information was collected from any outside sources.

Summary

Using modified RAP and participatory methodology, the researcher performed formal interviews involving four key informants, 24 individuals in the individual format, and 33 individuals in the group format. Thus, 61 separate Mannan tribal members gave input for the research study out of the 415 tribal members of the total population for a coverage rate of 14.7%. Even more importantly, the researcher ensured that only one member of a household was eligible for the individual interviews and aimed at minimizing the number of individuals from the same household being involved in the individual and group interviews. There were only three instances of two individuals from the same household being involved in the individual, group, and key informant interviews. Thus, the researcher received information from at least one individual in 58 of the 105 households for a coverage rate of 55.2%. Combined with the purposeful selection of respondents by the demographic variables of age, gender, and geographical/SES, the researcher is confident that the results of the research are generalizable for the entire Mannan population in Kozhimala. In addition, the large amount of informal and unstructured conversations served to validate and provide feedback for the research findings. Last, the technique of participant-observation allowed for the testing of validity from respondent's responses as compared to their observed behaviors. Ultimately, the methodology of RAP and the flexibility in research techniques for this specific context allowed for a team-based process involving the primary

researcher, YOI organizational members, and Mannan tribal members. This allowed multiple opportunities for data triangulation and iterative analysis.

CHAPTER 4

RESULTS

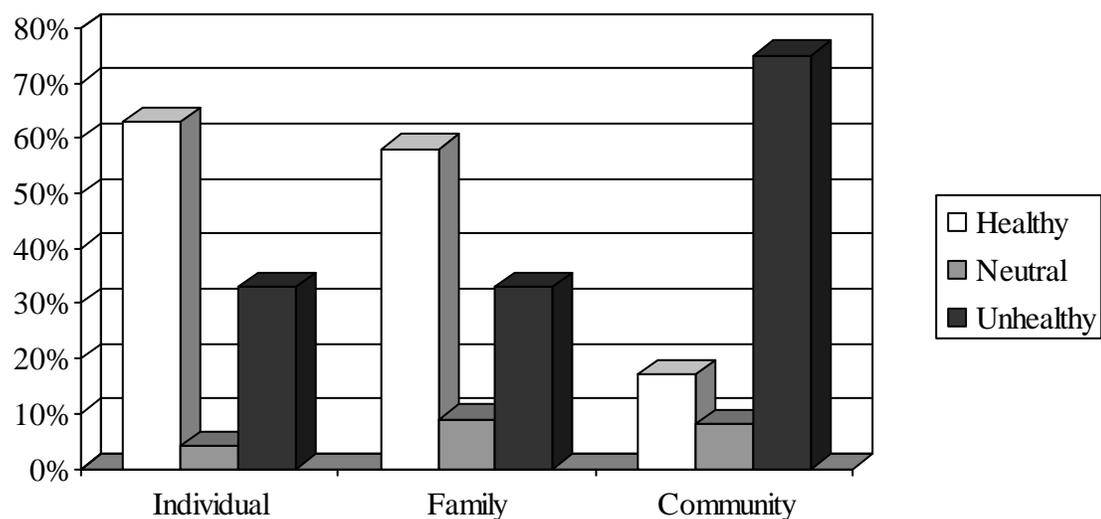
This section, based primarily on the individual semi-structured interviews and focus group meetings but with frequent comparisons to other methods such as participant-observation, discusses the findings of the research project. The research set out to describe and understand Mannan Kozhimala resident's health beliefs, behaviors, and community health profile. The following findings are those that the researcher and YOI determined to be either particularly salient at the individual, household, or community level and that would be useful in designing and implementing a future health intervention. First, respondents in the individual interviews were asked to rate each of these levels of health as healthy, neither healthy or unhealthy, or unhealthy. They were then asked the reasoning for each of these perceptions. The respondents were then asked to discuss how often they think about their health or how much of a priority it was in comparison to other issues and what caused them to think about it or what prevented them to think about it. Next, the respondents were asked to discuss health complaints for both themselves and their family members over the last year as well as cause and age of mortality for any family members who have died over the last five years. Focus group respondents were also asked to list and discuss health complaints at the community level. Five health complaint domains were chosen as both highly prevalent and highly salient within the community. Each of these health complaints are discussed in terms of perceived cause, methods for prevention and treatment, monetary cost, and their effects

on the individual, the household, and the community. The individual and focus group respondents were then asked to discuss how they receive and disseminate health and healthcare knowledge and how health decisions are made as well as perceived problems within the clinical encounter. Last, both the individual and focus group respondents were asked to discuss community problems and their relation to community health. Three community problems were focused on due to their frequent mention by focus group respondents as well as for their high level of perceived effects in relation to individual, household, and community health.

Perceptions of Individual, Household, and Community Health

Each individual respondent was asked to rate the level of health in each of these three levels as (1) healthy, (2) not healthy or unhealthy, or (3) unhealthy. The purpose of focusing on these perceptions is to assess the need for an organizational health program in the community. The results of this question are shown in Graph 3:

Graph 3. Percentage of respondent perceptions of self, family, and community health



As can be seen in this table, two-thirds of the respondents believe themselves or their households to be healthy whereas three of every four individuals believe the community as a whole to be unhealthy.

Another informative question asked in relation to individual health was “how often do you think about your health?” Only one in every four respondents noted thinking about their health on a daily basis, one in four thought about their health occasionally, and half of the respondents replied that they never thought about their health unless something happened. Those respondents that did mention that they think often about their health often discussed that they did so in response to a family member having a particular health complaint. For instance, one young man valued his health and frequently thought of it in relation to alcohol and tobacco usage which he noted had greatly affected his father’s health. Another woman noted that her sister had died from a heart attack and she frequently thought about her health in relation to the foods she ate to avoid high blood pressure. Even more information was added to this line of questioning by following this question up as to why the respondent does not think about his or her health. Nearly every respondent noted that there were too many other things to “worry” about, especially money, that personal health became a much less significant priority. As Damodryan, a 60 year-old male, states:

I have one daughter who can’t get married and a son that drinks, I have a new house to be built...I need to work everyday and keep my employment so I don’t lose my land, there is my son’s children school fees...I worry about the younger generation losing our old ways and becoming ‘general people’...how can I think about my health when there is no money?

This quote highlights many of the general findings and informs many of the more specific findings highlighted by the researcher in the following sections.

Individual and Household Health Complaints and Community Health Profile

A primary objective of the research was to outline the health profile of the Mannan in Kozhimala and to document specific health complaints of the research population. To achieve this goal, the researcher opened with such inquiry in the individual interviews and focus groups. In the individual interviews, the respondent was asked to free list those health complaints over the last year for: (1) themselves and (2) members of their household. The definition of “health complaint” and “health problem” was left up entirely to the respondents’ perceptions and categorizations and was only prompted by the precursor that “this is a problem for your or your household’s daily life.” Each member of the focus groups was asked to contribute one or more health complaints they perceived as being “highly prevalent in or problematic for the community.” These health complaints were then discussed and the top five were prioritized as particularly relevant to the community’s overall level of health. The action group, similarly, listed health complaints in their priority listing of community problems and their listing of “feasibility for action.” In addition, the individual respondents were asked to provide the ages and discuss the causes of death for any household member over the last ten years. These questions and techniques provide a good indication of the overall morbidity and mortality characteristics of this population’s health profile, allow for comparisons of such characteristics between the individual, family, and community levels, and allow for the prioritizing of health complaints as a basis for community action.

In the individual interviews, there were 30 unique health complaints pertaining to their personal health and 36 unique health complaints pertaining to their household's health. There was an average of 4.3 personal health complaints and 3.1 for the household. Both women and older respondents and those with education over the 5th standard were more likely to have higher number of both personal and household health complaints. In addition, and somewhat surprisingly, lower and slightly below average SES individuals had an average of two complaints less than slightly above average and higher SES individuals although this might have something to do with education levels. The ten most prevalent personal and household health complaints are listed in table 3:

Table 3. Top ten health complaints for individual respondents and respondents' families

Respondent Health Complaints	% Affected	Respondent's Family Health Complaints	% Affected
Fever (n=17)	71%	Fever (n=10)	42%
Body Pains (n=14)	58%	Body Pains (n=7)	29%
Headaches (n=10)	42%	Injuries (n=5)	21%
(High Blood) Pressure (7)	29%	Stomach Problems (n=5)	21%
Injuries (n=6)	25%	(High Blood) Pressure (n=4)	17%
Arthritis (n=5)	21%	Mental Illness (n=4)	17%
Chikungunya—a mosquito-borne infectious fever (n=5)	21%	Childhood Ear Problems (n=3)	13%
Anxiety/Stress (n=5)	21%	Headaches (n=3)	13%
Cough (n=3)	13%	Arthritis (n=3)	13%
Jaundice (n=3)	13%	Malnutrition (n=3)	13%

Again, it must be noted that the researcher took the exact wording of the respondents except for the category “body pains” which included two or more specific sites of pain such as “joint pain” and “back pain” or more often the idiom of “body pains.” The effect of this literal assessment is that many respondents mentioned well-known symptom combinations such as chest pain, lightheadedness, and body weakness without mentioning a diagnostic category such as high blood pressure. The importance of this effect will be discussed later in the discussion of diagnosis and healthcare. Additionally, there were many related health complaints such as stomach problems and dysentery, jaundice and yellow fever, and asthma, cough, and breathing problems. For the sake of analysis and not to introduce bias into the research, the researcher chose to focus only on the exact responses to better understand the health-related perceptions of the population. The Malayalam/Mannan words or idioms for many of these health complaints are located in Appendix B.

In order to explore mortality amongst this population, the respondents were asked the ages and the perceived causes of death for any household member that has died in the last ten years. There were 16 unique causes of death as well as combinations amongst these causes mentioned for 34 deaths. The top five perceived causes of death—identified solely or as the contributing cause of mortality—are listed in Table 4:

Table 4. Perceived cause of community mortality for the last five years

Perceived Cause of Mortality for Last Five Years (n=34)	Sole Cause of Death	Contributing Cause of Death
Pressure	3	7
Old Age	7	2
Heart Attack/Heart Problems	2	4
Diabetes	2	2
Kidney Problems	3	0

The group interaction in the focus groups allowed the researcher a more in-depth understanding through additional elements not present in the individual interviews.

These additional elements were: (1) a more intense focus on community rather than the individual; (2) prioritization; (3) rationales and justifications for priorities; (4) and a more direct analysis along the lines of age and gender. The top five health complaints and problems that “affect the health of the overall community” according to their perceived priority are listed in table 5.

Table 5. Top five community health problems listed by focus groups

Elder Men	Elder Women	Young Men	Young Women
(1) Pressure	(1) Alcoholism	(1) Fever	(1) Alcoholism
(2) Fevers	(2) Pressure	(2) Asthma	(2) Diabetes
(3) Cough	(3) Arthritis	(3) Mental Illness	(3) Body Pains
(4) Anxiety/Stress	(4) Fevers	(4) Pressure	(4) Dysentery
(5) Oral Problems	(5) Mental Illness	(5) Alcoholism	(5) (Heart) Attacks

The above data on health complaints as well as the data gathered through participant observation gives a cursory analysis of the health profile, involving both perceptions of morbidity and mortality in this population. For the purposes of analysis, it also allows the researcher to discuss the health profile in terms of general disease/illness themes or domains useful for action by both the client organization and the community through the action group. These domains, included for their prevalence and salience in terms of impact on the community and the individuals within the community are as follows: (1) fevers and infectious diseases, (2) body pains, (3) injuries, (4) mental illnesses, (5) blood pressure and heart ailments. These five illness domains are general categories that often encompass one or more of the above-named health complaints as well as symptoms associated with those health complaints as perceived by the researcher through notes taken during the interview. Alcoholism will be discussed later as a good example of a health problem that translates directly into a social/community problem. The researcher posed questions in the interview and will discuss many aspects surrounding five of these domains such as perceived cause, prevention techniques, treatment-seeking strategies, cost, impact on daily personal and family life, and impact on community health for each of these general domains in an effort to better understand health behaviors at each of these levels.

Health Complaint 1: Fevers and Infectious Diseases

Fevers in Kozhimala are ubiquitous during the summer months or rainy season, and the most commonly listed health complaint by respondents with nearly three out of every four individual respondents noting they had suffered from fever in the last one year

and nearly half noting that someone in their family had suffered from fever over the last year. In addition, three of the four focus groups noted that it was a significant community health problem. This health complaint, furthermore, allowed the researcher ample opportunity to observe health-related behaviors to compare with information obtained from the interviews. In addition, there are periodic epidemics of chikungunya, a mosquito-borne infectious disease similar to dengue fever causing severe fever and joint pains the most recent occurring during the rainy season of 2007 which accounts for the large number, nearly one in four, of individual respondents noting that they have suffered from this type of fever.

Fevers have been “the enemy of the Mannan since the olden days” according to Nagan, a 62 year-old male, and nearly all of the respondents associated the cause with the rainy season. However, there were three interrelated additional causes to this primary cause noted by at least three respondents in each case. The first was associated with Ayurvedic theory and had the body storing up “cold” through cold foods, cold drinking water, and cold baths. The fever occurs when the “imbalance [of cold] in the body is too much” noted Manju, a 22 year-old female. The second is that a weak body is susceptible to fevers during the rainy season. A weak body can occur primarily through eating “bad foods” and overwork. The third is the association between foods eaten and susceptibility for getting fevers. Certain foods, and especially those that are associated with cold or bought rather than grown locally, are mentioned as causes for respondents or their household members coming down with fever.

Slightly less than one-quarter of the respondents having suffered from fevers explicitly mentioned a specific health-prevention methods when asked how they protect themselves and their families from getting fevers. Not surprisingly, the primary form of prevention in the case of fevers is manipulating the amount and type of food and water intake. Several respondents mentioned proscriptions on certain types of curries and the timing of the day in taking baths and it was stated that a diet of “just rice and late afternoon bathing” are the best way to keep from getting fever according to Nagama, a 45 year-old female.

Nearly two-thirds of the respondents that had suffered from fever mentioned seeking medical treatment as the primary action taken after getting fever. However, there was wide variation in the forms of medical treatment and the majority of respondents mentioned trying multiple and combined forms of treatment. Diagnoses were largely based on self-diagnosis or diagnosis by a family member based on symptoms such as body weakness, high temperature, and lack of appetite. Respondents visited a yearly medical camp run sporadically in the village (last in the rainy season of 2007), the Kozhimala village healthcare center, the primary government clinic in Lebekkeda, the district government clinic in Kattappana, the Mannan Ayurvedic clinic in Muttakutti, the private missionary clinic on the outskirts of Kozhimala, and a number of private clinics throughout the district for treatment. The treatments given at English-medicine clinics consisted primarily of tablets and injections with the latter being preferred by the majority of respondents as more “effective.” Only three respondents mentioned the doctor giving advice for treatment and dietary proscriptions while five respondents

indicated that the doctor gave them no information at all. In addition to “formal” treatments, respondents often noted the use of traditional or local medicines as well as Vics—the only over-the-counter medication located in the two main village shops. Overall, treatment for fevers demonstrated the widest variation in healthcare-seeking strategies, but there were a few consistent patterns in these behaviors although much appeared to have come down to individual and family-level characteristics and preferences. All but three of the eleven respondents who suffered from fevers and sought medical treatment first went to the primary healthcare clinic in Lebekkeda as the first point of formal healthcare. Only one of the respondents attended the health camp and no respondents attended the village healthcare center as the first point of contact. However, respondents with household members suffering from fever reported a much greater utilization of these more local forms of healthcare on the part of their household. After visiting the primary healthcare clinic, only half suggested that the treatment was effective and the other half were either referred for further treatment at other government hospitals, chose to go to private clinics or the indigenous Ayurvedic clinic instead or in addition to the primary clinic, or simply gave up treatment. For those who suggested the primary healthcare clinic was ineffective for treating their fevers or those who gave up treatment, the primary reasons are hinted at by Goban, a 30 year-old male, with the following statement: “there are many times I go to the [primary healthcare] clinic at Lebekkeda and there are no doctors and no medicines...there is just some reason we can’t see them and I go home feeling worse.” Other factors frequently mentioned were the interrelated ones of both cost and transportation/distance. Another consistent theme was that fevers, more

so than any other health complaint, were noted as amenable to more informal “house treatment” which consisted predominantly of traditional and local medicines and rest from work and daily chores. Just over half of the respondents mentioned using six different types of traditional or local medicines for treatment of fever and of those eight respondents, six combined house treatments with formal healthcare visits and only two used house treatment as the sole means of treatment while the rest used it in conjunction with more formal treatments.

Costs for treatment for fevers were generally low in comparison to other health complaints. The village and district health care clinics and the medical camp were all free of charge if the doctors were present and they had a supply of medicines. As mentioned before however, in half the cases, the respondents were referred outside the government healthcare system, and they paid up to 60 Rupees (\$1.50) for treatment and medications with the average being around 30 Rupees (\$0.70). For those that went directly to the private clinics, the costs were similar. However, most of the respondents mentioned transportation costs of 10 Rupees to go to the clinic at Lebekkeda and 40 Rupees for the district clinic in Kattappana by bus with the majority having to visit these clinics two or more times over the duration of the fever. Two respondents had to take emergency transportation outside of the bus hours that consisted of an auto-rickshaw and cost 200 Rupees (\$5.00) because the “pain had become unbearable.”

At the individual level, fevers are often seen as a nuisance lasting between one and three weeks. Two of the respondents mentioned fevers lasting for over one month citing inconsistent and/or inability to get regular treatment as the cause for so long a

duration. Many of the respondents mentioned missing labor work or farm work for up to a week, but did not portray this as particularly problematic for the household's economic health. However, one respondent did specifically mention and two others alluded to the difficulties caused when two or more wage earners from the same household come down with fever. Two longer-term fever sufferers mentioned that their earnings were cut by two-thirds for the month they were ill. Another further effect on individual health was noted when two respondents commented that fevers "weaken the body" making it susceptible and other health complaints more likely. Furthermore, fevers were often paired with many more specific forms of body pains, but rarely with the cultural idiom of "body pains."

At the community level, over 20% of the individuals listed fever as a community problem, however, none went on to add more information to this perception. The focus groups added a great deal of insight on the community level impact of fevers. Fever was listed as a community problem by three of the four focus groups and each was further asked why they believed this and what specifically, was the impact of fevers on the community's level of health. The elder men's group suggested that fevers affect farmers most "because they are out in the rainy season on their land and they always get fevers...this makes it so they can't plant their crops and feed their families, I think this keeps us from getting good use out of the little farmland we have left" contributed one member. A member of the young men's group added "so many people miss work, and when there is no work there is no money...it is important that we get all of the money we can because we are poor." Finally, a member of the elder women's group commented

that “it is we [women] who suffer from the fevers and we are unable to do collection of water or firewood...and we suffer more because this is difficult for our family.” Each of these three focus groups added important dimensions to the community impact of fevers.

Other infectious diseases mentioned by the individual respondents or the focus groups were chikungunya, yellow fever, malaria, typhoid, and tuberculosis. However, only chikungunya was mentioned by more than two respondents while there is some question about the connection between three young men who had suffered from jaundice and a possible diagnosis of yellow fever. As mentioned before, chikungunya was mentioned as “coming into the community about every three or four years” by the elder men’s group. It is uncertain whether this is a relatively new disease to the community because of confusion with “bad fevers,” but it was said to be increasing in recent memory by the elder men. Several respondents mentioned that it is mainly in response to outbreaks of chikungunya that the medical camps come to the community though no one was certain about this observation and the camp did not come to the village while the researcher was present. Of the five respondents who suffered from chikungunya, all mentioned having it during the previous summer and of using the camp as the primary means of treatment. This health complaint was described by Sindhu, a 25 year-old female, as “being much worse than fever because it causes your body and your joints much pain and it lasts much longer.” The community impact was not discussed and it seemed that few in the Mannan community knew much about the disease because none of the respondents could even guess at a cause for this ailment perhaps testifying to its recent introduction into the community. However, it was mentioned by two respondents

as the cause for mortality in their household—a 45 year-old man and a 7 year-old girl—showing to the vulnerability of the young and elder members of this population for this type of ailment.

Health Complaint 2: Body Pains and Headaches

In discussing potential issues for including in the individual interview with Rageny, a 29 year-old female, key informant, she stated:

Don't forget that we [Mannan] have difficult lives...we work in the fields hurting our backs and knees, we work at home hurting our necks...we have this problem called 'chattam vedena' which is like body pains coming from hard work.

The researcher had many opportunities to discuss “chattam vedena” with several tribal members over the course of the research and found that it was a generalized idiom often used by members of the tribe to describe pains accumulating from hard work which then present themselves when the individual has an opportunity to rest. For example, Saratha, a 65 year-old female, mentions that “it is only on Sundays and late at night when I get chattam vedena...when I am working I do not feel this but only when I am not.” In addition, Manju and Laxmi, the mother and grandmother in the host family, would often warn against resting during water and wood gathering “because chattam vedena will make you not want to finish what you are doing.” During the first interview, it was still uncertain how the Mannan viewed the range of health complaints, whether health complaints such as body pains and headaches caused any significant actions or alterations in health behaviors, or whether these caused significant effects in the life or household of the respondent. In short, the researcher was uncertain as to whether headaches and body pains constituted health complaints. However, the first respondent, Sindhu, a 25 year-old

female, conjectured that “every Mannan suffers from these things...it is part of life but for me, I cannot work at wage work or get water when it is bad.” The researcher decided to explore this idiom as well as the prevalence and effects of headaches on the levels of individual, family, and community health. During the course of the interviews, several respondents mentioned site-specific pains such as back pain or knee pain. For the purposes of organizing the category and exploring the idiom, if a respondent mentioned suffering from two or more site-specific pains they were then asked whether they believed this to be “chattam vedena” if they hadn’t already mentioned suffering from this idiom. After this preliminary understanding of body pains was explored, it was found that body pains were the second most listed health complaint for both individuals and households affecting 58% of the individual respondents and nearly one in three of their households. For headaches, these figures are 42% and 13% respectively and in all but one case were paired with body pains suggesting that they may be seen as a symptom of body pains. There was little demographic patterning of these two health complaints along the lines of age, gender, or SES. However, all but one respondent was either employed in plantation wage work or not employed—which in many cases, the body pains and headaches were often cited as a reason for unemployment.

The higher prevalence of body pains and headaches in both the plantation wage work and unemployed population indicates the causes identified by the respondents for both these health complaints. For the plantation wage working population, the strenuous nature of “plantation work” was often cited as the reasons for body pains. The researcher had an hour-long opportunity to observe such strenuous activity and noted the

almost continuous bending at the back and carrying of heavy loads on the head at the cardamom plantation site as well as the complete absence of any worksite regulation or education messages to prevent or lessen damage done to the body and joints. Every respondent in plantation wage work noted the nature of this work as the cause of their body pains. In addition, two of the respondents engaged in wage-work noted that their headaches were caused by “the chemical ‘poisons’ they put on the [cardamom] plants...you breath them and get them in your body and you get bad headaches” as Ajayan, an 18 year-old male, working in a local cardamom plantation. Adding to this perceived cause, the researcher questioned Nayan, a 28 year-old male farmer, about the relative absence of headaches among cultivators. He replied “we do not use the chemicals they use on the plantations so we do not get the headaches because of this.” The rest of the respondents noted that the carrying of heavy loads on the head were the main cause of headaches that were frequently described as brief but very painful. The nature of “household work” is also listed as the cause of body pains and headaches noted by two respondents listing their occupation as “housewives” as well as the population of largely female wage-workers that are engaged in both plantation work during the day and household work in the early mornings and evenings. The researcher observed and participated in such household work activities as gathering wood and water, carrying produce to the market, and house repair and maintenance all of which involved strenuous physical activity and the transport of heavy loads on the head for long distances often up to two kilometers.

The main economic effect of body pains and headaches noted in both the individual interviews and in the focus groups was the loss of income-earning opportunities. Two respondents noted being unable to work this agricultural season and one noted being unable to work over the last three seasons as a result of body pains and headaches. All three of these female respondents elaborated on the difficulties in family finances as a result of having one less adult contribute to the family income. Linking both these family difficulties, gender dynamics, and the implications for treating these health complaints, Elsie, a 38 year-old female, states “I can’t work because of the bad headaches and back pain I am having, I have tried but it becomes too much...I don’t want to be a burden to them so I just don’t tell my husband or son that I am having pain because I don’t want him to worry about money.” Moreover, both body pains and headaches were frequently cited as reasons for missing work. In many instances this accounted for at least two days a week of missed wages and all of the plantation wage workers noted missing at least two days during each of the months the researcher was present. On a smaller scale, body pains also affected cultivators, but accounted for much less of missed working days. The young women’s focus group noted that this created both community problems and family problems because as one respondent noted “these pains affect our families and they affect our money...for many families this is a big problem and nothing can be done to help us women that have these problems.” Though there are few indirect financial costs associated with each of these health complaints, there is a very significant indirect cost in the form of lost income earning opportunities for both individuals and the community as a whole. The researcher has conducted a

crude estimation of 110 number of days lost to work through both body pains and fevers for the individual respondents, multiplied by the standard wage of 100 Rupees for a day's work, for a total of 20,600 Rupees (\$515.00) for only one month and only for the 24 individual respondents.

There were few prevention strategies discussed by the respondents who suffered from body pains and headaches. As suggested by a respondent quote previously, body pains and headaches are considered a normal part of life to be either ignored or endured. As Aragan, a 58 year-old, male notes "there is nothing to be done about these things and even rest will not do because the work will not get done." As shown by this quote, rest was not considered a viable prevention strategy by any of the respondents given that there were work and money considerations that prevented this strategy. However, massage with either Ayurvedic oils or with local medicines or an herb-infused bath was frequently cited as both a method of prevention and treatment of body pains. Additionally, two respondents did note the use of a local medicine, a plant-based stimulant, that gives energy and two respondents noted the use of marijuana, a local medicine in this culture and allowed by the government that can be used to prevent or counteract the effects of both body pains and headaches.

Similar to prevention, very few of the respondents suggested that they seek formal treatment for either body pains or headaches. Only three of the 14 sufferers of body pains and only one of the sufferers of headaches mentioned pursuing formal treatment for these health complaints. All four of these individuals mentioned that they had gone to private clinics because, as noted by Lakshmiamma, a 67 year-old female, "the

government clinics will just tell you to go home and rest...there are no good [English] medicines for these things and we must use our own [traditional] medicines.” As shown by this quote, traditional or local medicines are the predominant form of treatment for both body pains and headaches. There were four separate tribal medicines for headaches and many more for body pains. The predominant tribal medicine for headaches was a mixture of mud and ground up shallots or onions which is then applied to the forehead. All respondents noted that this was a very effective medicine for less severe headaches, but not necessarily for those that are more severe or that the respondent has been suffering from for long periods of time. Medicines for body pains were much more diverse and usually consisted of a mixture of local herbs with a shop-bought Ayurvedic paste which is applied to the painful areas of the body. The most consistent method of treatment, and consistent with the local understandings of body pains, however, was to “just keep working until it is time to sleep and your body will hurt only when sleeping” as noted by a respondent of the young women’s focus group.

Arthritis was a health complaint noted by 21 % of the respondents and in an additional 13% of the respondents’ households. Exploring the meaning of this health complaint for the respondents, a member of the elder women’s focus group, which listed arthritis as a major community health problem, noted that “I think ‘wadum’ for us is pain in the hands or knees that comes many times in a day...whether we are working or we are resting and this pain is very severe” and another member added “it has usually lasted many seasons.” There was much less elaboration on this health complaint in the individual interviews, but it appears that the effects on the individual, family, and

community as well as treatment are very similar to both body pains and headaches.

However, the major findings in relation to this health complaint are that (1) there is an unusually high prevalence of this health complaint and (2) three of the respondents were in the unusually young age group of 30-39.

Health Complaint 3: Bodily Injuries

Bodily injuries were a frequently cited health complaint amongst this population and ranged from simple contusions (for which the respondent visited a health clinic) to the loss of a leg in the individual interviews. One-quarter of the individual respondents noted suffering from some form of bodily injury over the last year and just under one-quarter noted that a household member had suffered an injury over the last year. This was another highly visible condition in which the researcher was able to observe many of the health behaviors related to bodily injuries. One important clarification for this health complaint domain was the site in which the injury occurred. There was a nearly even split of injuries occurring in or near the village and injuries occurring at the work site.

As stated previously, the village is located on mountainous and hilly terrain, relatively densely forested, and the frequent rains make the paths very muddy and slippery. These characteristics were noted to have contributed to the large number of falls in the respondents who were injured in the village. The other causes listed more than once were the ricochet of an axe or other cultivation/household work implement and the fall of a tree branch on the head of a respondent. Worksite injuries were more often listed as a result of the impact of a work implement. More information is provided by a particularly telling comment by Babu, a 46 year-old male:

I was cutting with my machete and when I was cutting the wood, it bounced back and cut my arm real bad right here (showing a raised four inch scar on his wrist to the researcher)...they [his employer] did nothing to protect me and even told me I can no longer work. I was making good wages and my family was doing well in the community...I was working on building a new house and buying more land for cultivation. Now, I have nothing but a continuous pain in my hand and arm. I can't work because I can't lift anything heavy...I can't even gather stones for my house. I can't ask my wife or my friends to do this for me. The situation is very bad for me and my family has nothing.

Although not always as severe as this particular case, bodily injuries frequently resulted in missed plantation wage work and especially in missed cultivation work. The researcher noted a field that had not been planted near the host family's land and after having asked why the field was not yet planted obtained the following reply from the father in the host family: "that man had a tree branch fall on him and he hurt his neck badly...it is very unfortunate, he will not be able to plant and if he does it won't be good...I will try to help him because his family will suffer, but I do not know that I will be able to help." Similar to body pains and headaches, the major effects of bodily injuries at the individual, household, and community levels are seen by the respondents to be related predominantly to employment and income.

Again, there is little organized or systematic prevention activity focused on avoiding bodily injuries other than individual "care and caution." The necessity of strenuous work in this environment very conducive to bodily injuries makes prevention activities difficult. Furthermore, many of the wage-work respondents noted that there is little to no emphasis on the prevention of bodily injuries at their work sites. Tangachen and Rageny, two key informants familiar with governmental legislation, note that there is worker prevention and protection legislation "on the books" such as the "National and

Kerala State Head Labourers Act,” but it is very easy for wage-work employers to ignore such legislation.

All of the respondents reported seeking formal treatment for bodily injuries. The primary clinic at Lebekkeda was the first point of institutional contact in four of the six respondents who suffered from bodily injuries. Simple bandaging was done and an assortment of medications was provided at this clinic. In half of these respondents, there was further referral to the district hospital in Kattappana and to the Kottayam medical college (three hour bus travel) for hospitalization. Two respondents relied solely on private clinics and in both instances, this reliance was explained as resulting from the familiarity with a clinic or a doctor from a prior health complaint. Similar trends were seen in the treatment of household members suffering from bodily injuries. For over half of both the individual respondents and their household members, the injury continued to cause problems for the sufferer after the end of treatment at these sites. In these instances, the respondents chose to visit the Muttakatti Mannan Ayurvedic clinic or to purchase Ayurvedic treatments at dispensaries in Swaraj or Kattappana for longer-term treatment. In addition, to Ayurvedic treatments, many of these individuals also used tribal or local pastes for recurring pain at the site of the injury.

Costs for injuries were very dependent on the type of injury sustained by the respondent. The majority of the injuries were of small scale, but required multiple visits to the hospital and dispensaries for checkup on bandaging or to get further medications. One man who had a minor injury on his calf from a falling rock noted that his treatment through the government hospital cost about 200 Rupees (\$5.00). Another man who was

struck in the head and visited a private clinic noted a cost of 160 Rupees (\$4.00) for all doctor fees, medicines, and travel expenses. However, Babu, the respondent noted earlier with the deep cut on the wrist mentioned direct costs exceeding 6,000 Rupees (\$150.00) for treatment at the Medical College. Furthermore, over three-quarters of the respondents noted that the injury required emergency transport by auto-rickshaw for an average of 200 Rupees (\$5.00) for this expense. Again, there are significant indirect costs relating to lost income that compound the overall cost for this particular health complaint.

Health Complaint 4: Mental Health Problems

Although not necessarily highly prevalent in the population, mental health was a particularly salient issue in the community during the period the researcher was present. This increased community awareness of mental health problems coincided with a spike in the incidence of acute mental illness episodes. During the period of researcher, there were three new cases of mental illness in the community. In addition, there were four more chronic cases of mental illness and three individuals who had recovered from mental illness episodes for a total of ten known mental illness cases in the community over the last five years. There was an unintentional oversampling of respondents and households involving these individuals. A mother of a recent mentally ill daughter, a mother of a man who had recovered from mental illness, a son of a man who had recovered from mental illness, a brother of two mentally ill men in his household, and a man who had recovered from mental illness were all interviewed. In addition, the host family became very familiar with and involved in a female cousin's mental illness often including the researcher in discussions and activities related to her case and treatment.

The researcher was uncertain how to classify these cases according to biomedical models of mental illness, but was aided by the local cultural idiom of “chitham vithraasam” or “mind fear” that was attributed to all of these cases and that distinguished it from other cases of depression, stress, and anxiety that will be discussed later in this section. Mind fear was differentiated from other mental ailments such as depression and anxiety by symptoms as well as by, as will be seen, perceived cause. The symptoms of mind fear noted by the respondents largely revolved around disassociation with the family and even lack of recognition of family members, shuffling of the feet when walking, blank stares, and occasional outbursts directed at family members.

Due to this increased salience and discussion, there was much speculation as to the cause by the community and the researcher was involved in several informal discussions, individual interviews, and focus groups all regarding the issue of cause of mind fear. A key informant, Chakkan, the brother of the former King, was very informative on this issue making the following statement

You know, we have never seen these mind fear problems. When my brother first became King 15 years ago, there were no Mannan suffering from this, this was a problem of the general people not the Mannan. We were more of a community at this time and people helped one another and now the community is dying from alcohol and no unity and no Mannan listens to the elders or the gods.

As this quote suggests and as much of the informal discussions support, the problem of mental illness is a newly emerging health complaint for the Mannan community in Kozhimala. Chakkan pointed to several potential causes including community disunity and discord, a problematic relationship with the general people, alcoholism, generational

gaps, and the loss of protection from traditional tribal gods. Adding to this, a member of the elder men's group stated that:

I think maybe there is worry about money and people have too much time for bad thinking because there are no jobs or no good jobs and no land for cultivation. There are now family problems between men and women and fathers and sons and political divisions within the family. I think this is the cause of more mind fear in the community.

This respondent adds family problems revolving around gender, generational, and political divisions as well as around the issues of unemployment. Family problems or "vamsam prasnam" was noted as a contributor in at least three of the cases of mental illness. Also, and as will be seen in the discussion of community problems, money problems or "paisa prasnam" is a very significant explanation tied to a number of general and specific health complaints and listed as a contributor in all but two of the sufferers of mind fear. It must be further noted that the rapid increase in incidence of mental illness and the relative acute nature of many of these new cases lent themselves to more supernatural explanation of mental illness within the community as suggested by Meenashi, a 55 year-old female, with a daughter suffering from a recent episode of mental illness:

We are no longer paying attention to the gods and they are angry with us. They are taking this anger out on the community and my family and my daughter. I think the gods are making us want what richer Mannan have and people give the "khanndana kanna" [evil eye] to those they want from or are upset with...I think this is how my daughter became ill with mind fear.

As all of these extended discussions of cause suggest, mental illness or mind fear is seen as the result of a number of factors all significantly related to events and circumstances located outside of the individual and more from problems residing within the household or community-level problems.

There are a number of potentially debilitating effects on the individual, family, and community levels created by mental illness. Rather than merely listing the effects at each of these levels, the researcher will present two cases illustrating this theme at the levels of individual and family health from slightly different angles. The community level will be discussed through comments made in the younger men's focus group.

Anil, a 33 year-old male, was directly mentioned by the elder men's focus group as having recovered from a mental illness. The group explained that he was the sole male in a family of two sisters both of which had children and whose husbands had left them. They stated that he was worried about money and could find no job to support his sisters or his family. When both his mother and father—a well known Mannan medicine man—died in the same year, Anil was said to have developed mind fear and disappeared from the community. He was found a week later wandering in the forest which was explained as a means of “gathering your strength back through living in the forest” by a member of the elder men's group as a culturally acceptable response to certain individual problems. However, over the course of the individual interview with Anil he did not mention suffering from any mental illness. The researcher, upon learning more about his case chose to re-interview him to discuss why he omitted this health complaint from the original interview. Demonstrating one potential effect of having a mental illness as an individual, he stated:

I have been trying for marriage for many years now. Having this mind fear is very bad for marriage. If families know this they will not want me to be part of their family. I am worried I will have no wife and children if the community knows of such things and this will create many difficulties for me...I think this is why I am not married.

Anil went on further to discuss the reduced status of a man without a wife or children in the community and suggested that his mental illness would lead to such a reduced status. Moreover, he noted that he was trying to restore the status of his family that had been brought down by the loss of the husbands of his two sisters. Last, he suggested that he could easily suffer again from mind fear because all of the interrelated pressures bearing down upon him.

Goban, a 30 year-old male, is the sole wage earner in a family of five adults in which two members, his two brothers, suffer from chronic mind fear. Goban was frequently a subject of empathy in a number of informal discussions given his extremely difficult family circumstances. Being the sole income earner of the family, Goban must make difficult money and family decisions as he suggests:

My mother is losing her hearing and suffering from body pains. My wife is suffering from stress and body pains. I have no money and must travel far distances for wage work and be away from my family. I have no money for any treatment for my brothers...their treatment has taken all of my money and I can't make my family better...it will only get worse. I know there is nothing that can be done, that there is no hope for my brothers...what can be done to save my family? I think the only reason I do not suffer to from mind fear is that I know I must do the best I can to protect my family.

Goban's case illustrates the breakdown of the health of a household as a result of mental illness and the difficult decisions that a family must make in order to pursue the costly (in many respects) route of treating a mentally ill family member.

The younger men's focus group, listing mental illness as the third most consequential community health problem, emphasized the link between individual mind fear and community fear with unknown but certainly significant community-level social effects. A member of the focus group stated:

This [mind fear] is something which causes fear in the community. I think it might be something like mistrust of people because a person with mind fear and the family will be suspicious of others in the village. There will be mistrust in our people and there will be less help given from community members because of this.

As suggested by this quote, mental illness and the often used interpretation of social causation involving “evil eye” may contribute to increased mistrust within the community and a host of further effects. With the recent rapid rise in individuals suffering from mind fear, the result may be a further breakdown in community support and integration.

Similar to other health complaints, there was a wide range of treatment strategies utilizing the same range of informal and formal/institutional treatment. However, all family members of mental illness sufferers noted their dissatisfaction and perceived failure of government and private “English Medicine.” Part of the failure was attributed to the inability to continue regular treatment. As Goban mentions “my brothers have never had continuous [clinic] treatment so they will not get better.” In further assessing the cause of this dissatisfaction, however, some insight was given by the key informant, Nayan, the district Mannan representative of tribal health affairs, about the institutional state of mental illness understanding in this particular setting in the following statement:

I don't think our government health has as much knowledge of mental problems as there is in America. This is a new problem here and there are no specialty doctors...I do not personally know, but I think there is nothing to be done here for those kinds of problems except go to Kochi or Delhi and pay large amounts for treatment. No Mannan can do such things so we must keep those that have mental problems here in the community where only the family can take care of them.

Over the course of the research, there was very little information available on formal treatment options for mentally ill individuals. Even those family members that had some

interaction with this aspect of the health system knew very little about the course of treatment given or options available. Ultimately, the researcher could only conclude that formal treatments for mental illnesses in this setting were relatively undeveloped and information was not readily available. In addition, Ayurvedic, homeopathic, and traditional medicines were not even considered as alternative treatments because these systems were not conducive to mental illness treatment or explanation. Nonetheless, all of the family members mentioned that they would continue to pursue formal treatments if they knew what kinds of options were available and/or had the money to pay for these options.

The main treatment strategy that respondents mentioned as having more enduring effects for mind fear were spiritual/religious in nature. All those individuals with recent or chronic mind fear as well as those who individuals who have recovered mentioned attending the local temple during auspicious celebrations, praying to the tribal god, and making pooja offerings (usually consisting of relatively large sums of money) as an occasion to pray or show respect to the gods. In two instances, mind fear sufferers explicitly mentioned converting to Christianity as a treatment strategy. Overall, in both formal and informal discussions, such treatment strategies appeared to be looked upon as more effective compared to more biomedical forms of treatment. A member of the elder men's focus group shed some light on why this may be in reference to mind fear:

It is because we know these things, we have been praying to the gods for thousands of generations and it has worked for us as Mannan. These English medicines and hospitals are new to us...we do not know them and who is to say they will work for us? Look at Anil (discussed case previously)...if he has fever, he will not bother the gods with such things but will bother doctors but he did not get better from mind fear because of doctors but for his respect of the gods.

As this quote suggests, there is recognition of a qualitative difference between mind fear and more physically based health complaints such as fevers. This qualitative difference has been shown previously in the discussion of perceived causes of mind fear. Having causes that are more social and supernatural in nature, it is no surprise that effective treatments are perceived to also exist within those spheres.

The respondents had a number of difficulties accounting for costs associated with mind fear. Given the numerous and multiple strategies, each with associated costs—for example, those poojas mentioned averaged 3,000 Rupees (\$75.00)—the respondents found it difficult to discuss costs for each strategy of treatment. Instead, four respondents estimated the total direct costs for treating their family members ranging from 8,000 Rupees (\$200.00) to more than 17,000 Rupees (\$425.00). These sums are very large given that the income range is only 800 to 3,000 Rupees a month for fully employed individuals. Consequently, there were numerous instances of borrowing large sums of money from extended family, the community, and moneylenders in the area frequently putting land and other assets as guarantees of such loans (to be discussed later).

To a lesser degree, stress and anxiety were mentioned as affecting a large number of individual respondents and household members: 21% of individual respondents and 17% of their households. These problems, more so than mind fear, are directly related to both money problems in three of the five respondents and in two of the four households and family problems in two of the five respondents and three of the four households. Furthermore, the elder men's group listed this as a significant community health problem. There was some relation seen between these health complaints and that of mind fear by

Thevi, a 45 year-old female, when she stated “if I am not careful with my worries I may become like them [mind fear sufferers].” Those prevention strategies consisted of, paradoxically, rest and activity by two respondents each and through manipulation of diet by three respondents to promote “better body balance” as Panchanti, a 42 year-old female, states. More so than any other health complaint, stress and anxiety treatment was more focused on prevention rather than treatment and no respondents noted seeking formal treatment of these health complaints.

Health Complaint 5: Blood Pressure and Heart Ailments

Perhaps the most surprising and significant finding was the high perceived prevalence of hypertension for which the Mannan use the English term “pressure.” Pressure was one of the main health complaints causing both morbidity and mortality in the research population. Nearly one in three of the respondents suffered from pressure, one in six respondent households had at least one member suffering from pressure, and pressure, in combination with (heart) “attack” and heart problems, were involved in nearly half of the deaths occurring in respondent households over the last five years. The respondents suffering from pressure ranged from 38 to 67 years of age and were nearly evenly split by gender. Related to the prevalence of pressure in the community, this health complaint is a good example the complexity of diagnosis and health education and awareness in the research population. Pressure is, perhaps, the most systematically diagnosed health complaint next to fevers in this community due to recent government-sponsored health screening and promotion activities. The researcher witnessed several postings in the main district city of Kattappana announcing free screenings and

informational brochures. However, it is not clear that these activities and information sources are reaching the Mannan villagers in Kozhimala. As the key informant Rageny states:

There are many opportunities like the government health camps and checkups at Lebekkeda [government primary clinic] to learn whether you have pressure...the problem is that many Mannan just don't know of these things, they don't know the importance or just won't travel to them and don't learn of their pressure until it is too late or they learn of it through Lebekkeda after becoming ill...I think there are many people with this problem here that just don't know they have it.

During informal discussions, the researcher frequently discussed pains with tribal members and often the discussions revolved around chest pains. In many instances, these villagers mentioned suffering from chest pains and other symptoms such as dizziness, fatigue, and headaches that suggest a diagnosis of pressure. However, there were very few instances of the discussants recognizing these symptoms as pressure. For instance, during the course of one informal conversation, a woman stated "I have not been told by a doctor that I have pressure...I don't think these chest pains are pressure." In addition, two respondents noted suffering from severe chest pains but did not mention pressure as a health complaint. In fact, these respondents explicitly doubted that they suffered from pressure. For the majority of those that mentioned a diagnosis of pressure, that diagnosis rested upon a medical expert's diagnosis of pressure after the respondent visited a clinic for another health complaint such as fever or for a particularly painful symptom of pressure. It does not appear that the respondents were aware of a possible diagnosis of pressure resulting in a preventative visit to a screening site rather than the more "accidental" discovery of the diagnosis. In one instance, a respondent suffered a heart

attack before being aware of her high blood pressure illustrating the potentially very harmful effects of the lack of diagnosis as well as the need for awareness of available prevention and screening activities.

The main cause of pressure was nearly universally recognized in this community as due to the consumption of large amounts of heavily salted fish and tapioca. These two foods, along with rice and various curries, are the main available in this community. Both freshwater fish and tapioca are traditional foods of the Mannan. Nearly every member of the village has a large amount of land devoted to tapioca and nearly every male fishes in the local river on the weekends. The village has only recently been provided a connection to the state electricity grid and less than 10% of the total households in the village have an electricity connection. Reasons for this low connection rate include: only about 20% of the houses are near enough the main road to be connected to this grid, several houses are of the traditional style without the infrastructure for electricity connection, and the initial cost of electricity connection is prohibitive for the majority of Mannan villagers. Additionally, the cost of purchasing a means of refrigeration is even more prohibitive. The result is that the fish and the tapioca must be salted for storage for future consumption. Furthermore, even if purchased in stores, the shopkeepers have similar problems with the costs of storage and choose to salt the fish or the tapioca rather than rely on refrigeration. There are several health and monetary tradeoffs as noted by a member of the elder women's focus group in the following statement:

Why do we have pressure? It is because we are unable to keep our food for long unless it is salted. We cannot do it like they do in Kattappana for these things are too costly for us. If we try to do these things for our families than we will have no money for food and will go hungry. We must eat these salted foods everyday unless there is something fresh like the fruits and vegetables for curry. Some families eat this everyday but most must eat the things from our fields or must buy foods they have money for at the shops...those foods are the dried and salted fish and tapioca. We know we should not eat them with the salt because it will make us ill, but we have no money for better foods and we can no longer gather them from the forest because they are no longer there.

Another member added the following to the above statement:

She is saying the truth, but my youngest daughter's daughter has problems with not enough meat [protein] in her foods. She [her daughter] has been told her daughter will have pressure problems in her future if she continues to eat the salted fish but will have meat [protein] problems if she does not eat the fish. What is to be done for this?

Apart from the recognition of diet as a cause for pressure, stress, a general "weakening of the body," not eating enough, and pregnancy were all listed as potential causes for pressure by one respondent each.

With the understanding of diet as the main cause of pressure, the main prevention and pressure mitigation method listed by nearly 60% of those respondents suffering from pressure and those with household members suffering from pressure was manipulation of diet. This manipulation primarily meant eating less salted fish, tapioca, and using fewer oils in the preparation of curries. In addition, just over one-quarter of these respondents suggested that they are less likely to sell the fruits and vegetables on their land for profit so that they can substitute these foods in their diet for the salted foods in response to a family member's or their own diagnosis of pressure. The preventative focus of these methods was much clearer through the elder women's focus group when several members stated that they undertook these methods because they were worried about getting pressure rather than undertaking these methods in response to a diagnosis of

pressure. However, as noted previously, these prevention methods often require other health and monetary tradeoffs in order to prevent pressure. Another form of prevention was the willingness to seek and attend government and private opportunities for free blood pressure screening. As mentioned previously, these screening activities are usually associated with other health complaints such as fevers, but a number of respondents noted that they took advantage of these opportunities. One such program, alluded to several times already, are medical camps that are periodically set up in the village. Of the seven individual respondents noting pressure, three of them had mentioned visiting this camp and it was frequently cited in both the elder and younger women's focus groups. These camps are welcomed by the majority of the community as Ponu, a 34 year-old female, suffering from pressure states:

We wait for these camps because they are easy for us to get treatment and to see doctors. It is good that they come to us because I can't always go to the hospital for my problems. This [camp conducted two years ago] is when I found that I have pressure. I would not know if there was not this camp in Kozhimala.

However, Ponu would go on to suggest that: "it would be good if they came here more often and they don't tell us when they will come...I do not know if I am getting better and medicines are expensive." As Ponu and a number of other respondents suggest, it is difficult to rely on these camps as a regular source of preventative screenings. However, overall, pressure generated extensive discussion on perceptions of the cause and on preventative strategies suggesting the importance of this health complaint in the community as well as highlighting several potential preventative strategies.

Treatment-seeking strategies, more so than any of the other health complaints discussed thus far, relied on biomedicines or English medicines. Other than treatment through altering foods, there was no discussion of either local and traditional medicines or Ayurvedic treatments for this health complaint. All respondents desired pressure medications from either government or private clinics. Similar to other health complaints, the majority of the respondents sought treatment and medications through the primary clinic at Lebekkeda. However, respondents noted that this clinic was frequently out of the medications resulting in all of the respondents having to seek medications through private clinics and dispensaries at least once and four of the seven respondents suffering from pressure having come to rely on private sources for the medications. One respondent did mention a government program to dispense free pressure medications on alternating Saturdays, but she noted that they quickly ran out of these medications and she rarely succeeded in getting these free medications through this program.

During the course of the research an important event occurred that deserves mention as allowing the researcher to observe what may possibly be a typical event for a Mannan villager suffering from pressure and seeking emergency treatment. Nagama, a 45 year-old, female who was of slightly below average SES and whose family members were participating in migrant agricultural work, appeared to suffer from a mild heart attack coming to the researcher with fatigue and painful chest pains. Preferring to rest rather than spend money on an emergency visit to the primary clinic, she returned to her home stating that she “did not want to bother anyone with her difficulties.” The researcher notified her neighbors who lent 250 Rupees (\$6.25) for the emergency

transportation and the elder male accompanied her to the clinic. She returned in the morning and discussed her case with the researcher. She showed the medications, of six different types including vitamins and antibiotics, for which she paid 80 Rupees (\$2.00) and waited one hour for at a local dispensary, to the researcher and asked advice on how to take the medications. The researcher and the host family father could not understand the directions and Nagama mentioned that she had been given no information on how to take the medications, what foods to avoid, and had not been told what had happened to her. She merely stated that the doctor had said “something about pressure and attack...but nothing more.” Nagama ultimately decided on a system of taking the medicines that had more to do with shapes and colors of the medications than the medication types. In response to the protests of the researcher of this method, she simply stated “I can’t borrow more money to go back and I must work today.” In discussing this case with her neighbors who appeared to be of higher SES, they stated “she should visit the private clinic [in Swaraj] if she wants better treatment.”

Overall, costs were very difficult to tabulate or average for pressure. Respondents mentioned very divergent sums of money ranging from 100 Rupees (\$2.50) to 2,000 Rupees (\$50.00) a month, but did not elaborate on specifically what these costs covered. When they did elaborate, respondents again noted very divergent costs for medications, for hospitalizations, and for emergency transportation. Furthermore, many respondents noted that they were unable to regularly take the pressure medications either for cost or availability reasons and their taking of the medications depended upon these factors in addition to the severity of symptoms.

Similar to many of the other health complaints, the respondents as well as the focus groups continually noted days of work lost as the significant individual, household, and community effects of this health complaint. Two younger sufferers of pressure noted that it frequently prevented them from engaging in socializing activities and traveling to visit family members of other villages. One of these respondents mentioned a growing sense of isolation as a result of suffering from this health complaint while the other noted that it was increasingly causing stress and family problems within her household. However, the elder men's focus group did mention an interesting beneficial effect of pressure on the community when a member stated that:

I think pressure may be the gods telling us to go back to our old ways of making food. These new foods are poisonous and we must grow foods without them so we do not suffer from these things. Many of the younger generation see this and my son is growing more organic foods for his family so they don't become sick.

Returning to the days of work lost, the researcher again made a rough estimate of the household and community loss of income due to pressure. The researcher asked five employed sufferers how many days of work they missed as a result of pressure in a given month. The five respondents noted an average of four days of work missed in a month. Multiplied by the standard wage of 100 Rupees (\$2.50) a month, each household with an employed individual suffering from pressure could expect to lose 400 Rupees (\$5.00) out of their total wages a month and all five of the 24 respondents would lose out on 2,000 Rupees (\$50.00) a month for only a small fraction of the total community.

Clinical Encounters, Obtaining Information, and Decision Making

In an effort to understand the sources of health and healthcare information and the dynamics of household decision-making in relation to health, the individual respondents were asked to list their sources of information and discuss how individual healthcare decisions are made. The overwhelming response in both the individual interviews and in the focus groups was that elder women—wives, mothers, and grandmothers—were the main source of health and healthcare information. Nearly three-quarters of the individual respondents listed an elder woman as the main or one of the main sources of information particularly on the subjects of which clinic to visit and what tribal or local medicines are available. Friends were noted as the one of the main sources of information in nearly one-quarter of the respondents and “community talk” was noted in 13% of the respondents contributing to a wider network of information sharing outside of the immediate household. However, when it comes to health and healthcare decision-making, over half of the respondents noted that it was a combined household venture involving all of the adults within the household. Somewhat surprisingly, there were no respondents mentioning that healthcare decisions were dominated by men or the head male of the household. In fact, there were numerous cases in which the men appeared to easily concede such decisions in the favor of the women of the household.

A finding related to the flow of health and healthcare information in the community was found in the discussion of respondents about their interaction with clinical staff and service providers. The nature of this relationship was largely alluded to in the discussion of the sharing of healthcare information between the medical expert and

the villager. The researcher had a number of difficulties discussing health complaints with the respondents. Part of these difficulties may have stemmed from different cultural backgrounds and understandings of health and illness between the researcher and the respondents. However, the respondents were mostly well aware of biomedicine or “English Medicine” understandings of health and illness. This led the researcher to look at the lack of information provided to the respondents in the clinical or service provider encounter. The respondents were often unable to convey specific information about their diagnoses, treatments, medications, and many other healthcare factors. There were a number of times that a respondent would mention symptoms that the researcher would recognize as leading to a certain diagnosis, but the respondent was unable to recognize the diagnostic category when questioned. For instance, in questioning Nagama, a 45 year-old female, about whether she had suffered from a heart attack, she stated “maybe it was ‘attack,’ I do not know these things...I am uneducated and they [clinic staff at the government primary clinic] did not tell me my problem...they just gave me medicines and told me to come back.” In another instance, Nangi, a 49 year-old male, with a daughter presenting the symptoms of epilepsy and whose family had a long history of interactions with a number of healthcare providers, did not use or recognize the Malayalam term for epilepsy, but rather attributed it to a Mannan language term that was associated with fainting (and likely the indigenous term for epilepsy). In short, none of the healthcare providers presented this diagnosis for his daughter to him. There was a definite problem with official diagnoses of health complaints in many if not most cases leading to the respondents perceptions of health complaints being largely based on self-

diagnosis with the information available within the community or household. Over one-half of the respondents noted in some manner that there was little to no health information transferred at the formal institutional level. Two-thirds of those respondents mentioned this absence as directly leading to dissatisfaction with the overall treatment, three respondents noted this absence as leading to the visit to another clinic, and at least two respondents directly attributed this to the failure of the treatment. A key informant, Tangachen, noted that it would be important to discuss this in the individual interviews stating “I don’t think it is like this in other places, but here the doctors are good but they don’t tell us things we need to know.” The young men’s group offered some important insight into why this might be the case with a member noting “they believe we are uneducated because we are tribal peoples and that we should not know these things [health information].” Although, very few of the respondents or focus group members noted any direct discrimination on the part of healthcare providers, many touched upon this issue of the withholding of health and healthcare knowledge as a potentially disempowering but silent form of discrimination.

The researcher personally observed two events that demonstrate the dangers of the withholding of health and healthcare knowledge. In the first, Nagama, a 45 year-old female, had just returned from the primary clinic after being sent by the researcher’s host family for what appeared to be a heart attack. She returned with an assortment of six different medications with very brief instructions written in Malayalam on a scrap of paper. The researcher performed an informal follow-up interview on her experiences and determined that she had not been given a diagnosis, had not been instructed on how to

take the medications, and could not read the instructions on the slip of paper for the medications. The host family interpreted the instructions, and it was still uncertain how to correctly take the medications. Nagama ultimately decided just to take the medications as she believed they were supposed to be taken with advice from the host family although there was a great deal of uncertainty. In another the case, the researcher, while performing an interview with Manju, a 22 year-old female, questioned whether giving a certain cold medication for her infant son every half an hour was the correct procedure relayed by the doctor. In this case, neither herself nor her mother could read the brief instructions on the medication bottle, and her mother had determined that this was how she was supposed to be giving the medicine. The researcher, with the aid of the translator, determined that the medication was supposed to be given three times daily instead of every half an hour and notified her of this finding. It is clear that there are several potential dangers of the withholding or the improper communication of health and healthcare information as these two cases demonstrate.

Apart from the healthcare providers, the withholding or improper communication of health and healthcare knowledge also appears to be the case in the relationship between the Mannan villagers and the government. The researcher found that there were several opportunities available to the Mannan people such as government-run fever and blood pressure camps, food subsidies tied to healthcare utilization, a free Ayurvedic clinic devoted solely to the Mannan tribal people, and a bi-weekly free distribution of blood pressure and diabetes medications. However, there was no systematic knowledge of these government-run health promotion activities on the part of the Mannan population

in Kozhimala and utilization of each of these activities was low perhaps of a direct result of this relative lack of awareness.

Broader Community Health: Social, Political, and Economic Influences

As mentioned previously, 75% of the respondents perceived the Mannan community in Kozhimala to be unhealthy or in “aaryapoomaaya illa” (“negative health”). The Malayalam term and the perception of what it means for a community to be healthy appeared to take on a much wider meaning than merely bodily and physical health. When asked to respond to why the community is unhealthy, respondents mentioned significant diseases and illnesses as well as social, economic, and political problems that existed within the community and kept the community from “progress and developing as a people and community” as the key informant Tangachen commented. Moreover, the respondents seemed particularly insightful about the connections between all of these problems and the reciprocal influences that these different levels of problems have on each other.

The individual respondents were each asked to identify at least three perceived community problems, but there was no respondent that did not end up listing less than five distinct community problems. After discussing the community problems, the respondents were asked to prioritize the top three problems and discuss how these might impact their own, their household, and the community’s overall level of health. Every single respondent noted the “paysa prasnam” or money problem and this was combined with the problems of unemployment, underemployment, and lack of government jobs 83% of the time. Nearly 80% and all of the women respondents noted alcoholism as a

major community problem. In addition, the elder women's and younger women's focus groups listed this as the most significant health problem in the community while the younger men's focus group also listed this as a significant community problem. Last, 63% of the respondents noted lack of education and particularly lack of good education opportunities as a significant community problem. There were a number of other frequently listed problems such as transportation, chemicals in the foods, loss of Mannan culture, lack of good medical facilities and doctors, relationship with the local government, lack of land for cultivation, and disunity within the community—all by at least four of the 24 individual respondents. However, many of these were frequently discussed in relation to the three previously mentioned problems of money, alcoholism, and education.

Money Problems

During the course of the research and the participant-observation, the “money problem” became a familiar phrase and was frequently evoked as a shared community expression and understanding in response to a number of individual, household, and community problems. The researcher frequently interacted with the general peoples residing in Kozhimala and never heard the expression used in regular conversation. However, in conversing with the Mannan residents, this expression was rarely left out of the informal discussions and had wide-ranging applicability. When discussing the treatment of a woman with brain cancer with her son, he stated “she will die from the money problem...it will not be the cancer”; when discussing three cases of fever in a relatively wealthy neighboring family with Aragan, a 65 year-old male respondent, he

stated “they do not have the money problem so this many fevers will not be bad for them...they go to the best private clinics, if this were to happen to my family we either would not get treatment or we would not eat”; and when discussing the future of the Mannan community with the owner of the tea shop, he stated “it is difficult to see the future when the Mannan suffer from the money problem...if there was money in our community we could get doctors and medicines here so we could be healthy in the future.” Each of these comments demonstrates a strong understanding of the connections between the money problem and their health consequences. The first alludes to the difficulties of getting tertiary and specialty care giving prohibitive costs and questions the root causes of the death of his mother he is imagining to come soon, the second alludes to both SES disparities within the community, how these relate to access to quality care, and the difficult decisions that must be made by those with the money problem, and the third alludes to the community-level aspect of the money problem as it hampers the development of more locally based health resources.

At the individual level, the individual respondents were asked whether they ever had to interrupt, cease, or avoid treatment because of the money problem. Nearly 60% of the respondents noted that they had. Of the remaining 40%, half said they had struggled but maintained continuous treatment for their health complaints and the other half mentioned that they had to make decisions such as choosing to spend money on treatment rather than on buying land, building a house, or sending their children to better schools. Respondents did frequently mention raising money through the borrowing from extended family, borrowing from local general people money lenders, selling land and family

jewelry, traveling for short-term wage labor jobs, and through periodic community drives to assist a particularly hard hit individual or household. When asked if the respondents had ever been able to take a formal loan through local banks, a key informant Tangachen simply stated “that is impossible for us” and went on to discuss that no Mannan had ever received or even attempted to get a formal loan because they simply could not pay it back. However, all of the available means of raising money were frequently associated with equally significant drawbacks and the selling of land was an especially sensitive area for many of the respondents. Although this cursory glance at the money problem certainly does not exhaust what can be said about the money problem in this community, it does open the door to discussion about the impact of this problem on a number of health behaviors and constraints existing within this community.

Another facet of the money problem was its relationship to perceived community support. The first five respondents were asked whether they could rely on community support in the event of a health emergency. All of them answered that they could not rely on the community and instead could only rely on their household or extended family though a few respondents mentioned being able to rely on their friends for support. The researcher discontinued this line of questioning for the remainder of the interviews but not before discussing this phenomenon with the key informant, Tangachen, who stated:

They are thinking only of money help. There is other help that we can do, but we can only think of help as money for these things and if you are Mannan you have no money to give...but even though we do not think there is help in our community, this is not true. I have personally helped to raise money for at least 20 members of this village whether they are general people or Mannan. The village does not see these things because they are not easy to see. Because the way things are going for us, if you get 50 Rupees you will not see it as help because this money will not last, but no Mannan can give more than this even if we want to.

The researcher concluded that perception of community support is, in general, that no support exists. However, through Tangachen's discussion and the observance of several instances of both monetary and non-monetary support given, especially in Nagama's case with her neighbors, the researcher suspects that there is more community support available than generally acknowledged by the respondents.

Alcoholism

The second most frequently listed community problem was alcoholism. Through discussions with key informants, community members, individual and focus group interviews, and participant-observation, it would be fair to conclude that the problem of alcoholism is epidemic amongst the Mannan tribal members in Kozhimala. In particular, their seemed to be a high prevalence among men of all ages while it was generally commented that women never drink. When asking female respondents how many men in the community drank, their replies ranged from "three of every four men drink" to "every Mannan male drinks." When asking male respondents, the prevalence was believed to be a little lower ranging from "maybe one man in every household" to "we all drink...but it is not a problem for all of us." Furthermore, alcoholism offers an interesting case of a problem perceived to be both health-related and social for the community as shown by several of the focus group discussions. Three of the four focus groups—all except the elder men's group—listed alcoholism as a top health problem for the community with both women's groups listing it as the top problem health problem for the community. In the individual interviews, respondents frequently mentioned alcoholism as both a health and a social problem.

Despite the money problem in the community, most Mannan respondents noted the easy availability of alcohol in the community. This was the main cause cited for the alcohol problem in the community. A number of respondents gave further insight on the reasons for this availability. Alcohol can be brewed from fermented coconut milk into “toddy” and has been for generations by the Mannan community. However, it is the illegal “local brewing” that was cited as the real source of the alcohol problem in the community. Every respondent noted that this local brewing was done either by general Indians in Kozhimala or by the Udali indigenous tribal members in the village across the river rather than by the Mannan. This alcohol is very cheap and respondents note that it is easy to borrow money for drinks accumulating a great deal of debt in the long term. However, a few respondents, and most notably the key informant Tangachen, went even deeper into the causes of alcoholism in the community with the following statement:

We have no work and no money. You can see that our lives are hard...I think much harder than yours in America. We are simple people and since coming out of the forest we have had to catch up with the rest of the world. We have no education...this, I think, makes us easily taken advantage of by these [illegal brewers] people.

This statement goes deeper than the easy availability and instead, focuses on social and economic problems as the root of the alcohol problem. Another frequently cited cause was outlined by Elsie, a 38 year-old female:

Even our King drinks too much. If the King drinks then the younger generation will see this and follow him. He should not be doing these things because it is bad for his people...he should be stopping it. If the King is drunk, our people will follow him, but the general Indians will just think he is a fool...there are no good elders to lead us and now the younger generation must do something.

For Elsie, the cause of the problem is the breakdown of authority, leadership, respect, and the institution of the King that traditionally guided the Mannan tribe. To this, Anil a 33 year-old male, added “because of alcoholism we are a generation without aim.”

An interesting research find was that respondents rarely discussed alcoholism as an individual problem and instead focused on discussing its effects on the household or on the community. Only two of the male individual respondents directly discussed their personal drinking of alcohol (both mentioning only the “occasional drink”) while a number of others alluded to alcohol consumption as a factor in or cause of “weak body” leading to fevers and headaches, jaundice, stomach problems, and in one case pressure. For the individual, alcoholism was seen to cause both additional health problems. At the household level, alcoholism was much more freely discussed. A number of women respondents noted that their husband’s or son’s consumption of alcohol had contributed greatly to “family problems.” Two of the women noted that their health complaint of stress originated from family problems due to a household male’s consumption of alcohol. In a rather interesting case, Ajayan an 18 year-old male in discussing his father’s drinking stated:

My father began drinking four years ago after my mother lost her third child [at childbirth] and he could not find work. We tried to make him stop but there was nothing that could be done. My mother became [mentally] ill because of family problems and my father’s drinking of alcohol. He quit drinking because he had bad stomach problems and the doctor told him he would die if he continued drinking...but I think he quit because my mother was ill and because he saw that I had to leave school because there was no money. I will not drink because I have seen what it has done to my family and I am the only child they have to support them.

This case illustrates several important themes and is a good example of both the cause for drinking, the individual health effects, household health and economic effects, household

dynamics, the nature of family problems, as well as an interesting sequence of events leading to an individual ceasing to drink alcohol. At the community level, nearly every respondent that listed alcoholism as a major community problem had something interesting to say about the potential effects of alcoholism on the community, but many of the respondents would agree with Aragan's, a 58 year-old male, statement that "we Mannan have been a people for many years, but since alcohol came to us in this last generation we are dying...alcoholism will be the death of the Mannan!" Overall, the effects of alcoholism on the community that were noted more than twice by individual respondents were: (1) it exacerbates the money problem; (2) it causes family problems; (3) it prevents community development; (4) it causes disunity and discord in the community especially between generations and genders; (5) it contributes to domestic violence (including two events that were personally witnessed by the researcher); (6) it keeps the younger generation from getting education and especially further education; (7) it promotes and maintains unemployment; (8) it makes the Mannan complacent or forgetful about their culture; (9) it robs the Mannan of leadership and direction especially given the two most recent King's alcoholism; and (10) it contributes to the general Indian's negative perceptions of the Mannan.

When discussing what could be done for the alcoholism problem in the community, it was nearly universally acknowledged that nothing could be done. The elder women's focus group noted that a number of women had organized to fight this problem, but the men would not listen to the women and the groups disbanded. Furthermore, in the previous year prior to the research the government and the police

force had conducted a crackdown on illegal brewing and discussed what could be done in the community to stop the alcohol problem, but several respondents noted that there were few long-term effects of this and that illegal brewing had quickly begun again. In a discussion with a young woman during a community walkthrough, she stated that “even the government could do nothing [about alcoholism] so how could we?” At the individual level, there appeared to be even less options available for the treatment of alcoholism. There was no mention of individual treatments or services and the only anecdotes pertaining to the cessation of drinking were significant life events or changes such as that noted in Ajayan’s story. Ultimately, alcoholism in the Mannan population of Kozhimala is a complex community problem requiring equally complex strategies and solutions to avert this potentially destructive force within the community.

Lack of Education

The last community problem to be discussed is lack of education. Interestingly, the majority of respondents noted that this meant both formal and informal education. For the former, respondents mentioned the lack of money, availability of good local schools, inability to afford school uniforms, and the need of children to earn wages for the household were all cited as causes of children having low-quality, incomplete, or no education. The average education of the individual respondents was the completion of the 4th standard (usually until nine or ten years of age), five respondents noted no formal education, one respondent had gone to plus-two standard (10th standard plus-one and plus-two are college preparatory), and one respondent had attended college. It should be noted that these last two individuals were the only members in the entire community to

go beyond the 10th standard and, as discussed earlier, the researcher suspects that there was an oversampling of more educated individuals for the individual interviews.

There are a number of effects of low education in this community with the foremost among them noted by the researcher's host family's father who has been working as a park ranger for ten years but has been unable to receive a promotion to a government-level job:

I am unable to get a government job that is the only good job in this area for income because I do not have the education. People in the community think I am rich because I do not go for wage labor, because I am one of the few Mannan that makes salary, but I have been earning even less of a salary than when I began and there are younger men that become my supervisor because they have more education.

As this man notes, the only available option for most Mannan given their level of education is either cultivation or wage/plantation work. Both of these positions are characterized by low wages and the latter is characterized by no advancement opportunities as well as a host of health-related problems. Moreover, there is some recognition of a divide in the community based on education as noted by Rajamutu, a 28 year-old male:

I have completed the 7th standard and this makes me educated. I think I understand more than my mother and uncles, but they do not always like this. I want to listen to them but there are many times they tell me things I know are wrong. I try to respect their words and advice, but this is not good if it leads to bad things for my family.

In an even more direct fashion, Sasi, a 28 year-old male, notes:

Nearly everyone in this community has no education. Even our King only finished the 4th standard. The elder Mannan people do not think that education is good for the younger generation because it is what general Indians do and it makes us not want to listen to them. This is a stupid idea and our community will not get better in the future if we listen to our elders...there will be no development for our community. The old ways will not lead to development and we must change.

In a less confrontational manner, Ponu, the village school assistant, notes “it is because we are uneducated that we do not value education.” As these respondents and others suggest, there are several community causes and effects as well as wider social and economic causes and effects involved in the education problem listed by a number of respondents. However, it is generally noted, even by elder respondents—despite some of the statements above—that education is one of the best ways to achieve development and well-being in the community.

In addition to formal education, many respondents noted the need for more informal education on specific topics. For those topics listed more than once, respondents and community members suggested a desire and need for knowledge on: (1) tribal culture and history; (2) health topics such as pressure; (3) job-related and technical information such as use of computers; (4) agricultural methods; (5) housing construction; and (6) government programs and opportunities for scheduled tribal members.

Several members of the tribe recognized the connection between education and health. For instance, the researcher often heard the phrase “I am uneducated and I do not know such things” in response to health-related information and decisions. Particularly for those members of the village that have no or only little formal education, there is a recognition that lack of education may be negatively contributing to the prevention, diagnosis, and treatment of health complaints, their ability to find adequate and affordable healthcare options, and their ability to interact with health-service providers. These negative effects of the lack of education were even noted by several of the “more

educated” members of the village. For instance, Rageny, a key informant and the only village member to have achieved any education beyond the 12th standard, stated that:

Health for us is very difficult to understand because these things are so new to us...living in the village does not help us to understand and only now that I am in university and interact with general Indians do I understand better but this is not available to all the village.

Summary

This chapter has provided a great deal of both qualitative and quantitative information pertaining to the research questions and relevant to the research goals. It has discussed several aspects of health behaviors in this community at the three levels of individual, household, and community. Twelve of the most important findings for the sake of potential health interventions on the part of the client organization are:

1. There are high burdens of fevers, body pains and headaches, bodily injuries, and high blood pressure in this community. The high burden of these health complaints also translate to financial burdens in terms of money directly spent on treatment and lost income through missed work. High blood pressure may account for the majority of premature mortality in this community and frequently goes undiagnosed. The researcher also suspects that both diabetes and asthma prevalence would be much higher if there were ready means to diagnose them in this community.
2. Food selection and preparation and traditional or local medicines are the primary forms of preventative health actions taken by Mannan tribal members in Kozhimala. Prevention is often conceptualized more in terms of the Ayurvedic

(and indigenous) worldview of illness rather than the biomedical worldview of disease.

3. Elder women in the household such as mothers and grandmothers were frequently relied on as sources of health-related information and often deferred to in health-related decision-making. These women were also those most frequently involved in preventative health decisions.
4. There is both over-utilization and under-utilization of institutional health services. Both of these situations create a host of potential problems for both bodily and economic health.
5. There are significant problems with the community health center and the primary clinic at Lebekkeda, the major first point of contact into the government (and private) healthcare system, in terms of frequently mentioned lack of medications, lack of doctors, long lines, and prohibitive costs of transport.
6. In general, there was little direct discrimination noted by the respondents in the clinical interaction between doctor and patient. However, there was a severe lack of communication of important health information on the part of most local doctors. The withholding of such information created several potentially dangerous situations regarding medicine use observed by the researcher. In general, the respondents frequently mentioned desiring health information about their health complaints but being unable to access such information. This lack of access to information may be due to a number of reasons in addition to the

relative lack of communication on the part of the doctor such as through barriers of language and literacy as well as understanding.

7. In general, the respondents tended to prefer both English medicines and private hospitals if cost was not prohibitive to such treatment. However, this did frequently vary by type of illness where either government clinics or Ayurvedic medicines were preferred for a specific type of health complaint.
8. Direct and secondary cost of services is the primary barrier to both quality and regular treatment in this community.
9. There are several government health and social programs available to the Mannan population as tribal individuals. However, there is little awareness of such programs for a wide variety of reasons.
10. Health is a significant priority of households as well as one of the main expenditures of household income. In many respondents' cases, the high percentage of expenditure allotted to healthcare for one or more household members created difficult decisions that often resulted in less money available for foods, cultivation needs, children's education, and housing and sanitary improvements.
11. There is an unusually high recent incidence of mental health disorder in this community. This incidence has created some amount of community alarm and very little is known about the treatment options available for such cases.

12. The “money problem,” alcoholism, and lack of education are three interrelated community problems hampering the ability of the community to achieve sustainable health and development. If these problems are not addressed and if they continue to get worse, as the majority of respondents suggested, the likelihood of achieving successful and sustainable interventions redressing any of the above findings is questionable.

The last finding suggests that all twelve points are interrelated and tied to both the community’s and the Mannan indigenous tribe’s placement within and relationships with “general Indian” society and state and local governments. The extensive discussion of the findings with frequent quotes from respondents and community members illustrates the community’s own understanding of these relationships, and most importantly, how these relate to health behaviors, constraints, and needs of the Mannan community. The spontaneous formation of the action group during the course of the research (only minimally involving any action or input of the researcher) is a further illustration that the community members understand the nature of their own community health problems and recognize that, though an organization can certainly help facilitate better community help through addressing the previous eleven findings, there are limits to what an organization can achieve in this community given the scope and complexity of problems such as alcoholism, the “money problem,” and education-related problems. For these more intractable community problems, community action through such means as community action groups are necessary for more sustainable and community-oriented health solutions

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Recommendation 1

Develop a door-to-door or medical camp-style health intervention.

Government, private, and church-based health camps have been run in Kozhimala intermittently over the last five years. Several respondents mentioned utilizing these camps for fevers and high blood pressure because they were readily accessible through their location in Kozhimala and for their free cost. Such camps are an important means of bringing healthcare directly to the people in need and can bypass several barriers for receiving health care such as cost and transportation. Furthermore, these camps were frequently noted as the first site of diagnosis for “hidden” ailments such as high blood pressure and diabetes. In the case of the former health complaint, several respondents noted visiting this camp for fevers and learning of a diagnosis of high blood pressure. The researcher frequently suspected that community members were undiagnosed with particular illnesses. The danger of this uncertainty can be seen in the case of the Mannan King who went undiagnosed with high blood pressure and died of a sudden heart attack at a relatively young age. The problem with the camps, however, is that they are irregular and often only respond to certain infectious disease or fever outbreaks, not well publicized, do not make wider attempts to engage with the community, and are frequently run over the course of one day. Consequently, though these camps are useful, they can not necessarily be relied upon to be a regular source of preventative healthcare.

The researcher suggests utilizing and recruiting volunteers with basic medical knowledge and expertise such as nurses, doctors, allied health practitioners, and students of these fields to conduct either door-to-door checkups or a continuous camp over the course of the volunteer's stay in the village. The camp should focus on those relatively simple-treatment health complaints such as fevers, body pains, headaches, and small injuries. Also, these volunteers should be able to do simple diagnostic procedures such as for high blood pressure, diabetes, and asthma. There should be a good relationship on the part of the organization, the volunteer, and the community and primary clinics for a referral system for these and other health complaints.

The researcher expects that these volunteers will be widely utilized by community members and appreciated. Many respondents agreed with the statement by Panchanti, a 42 year-old female, when she said "give us doctors and medicines in our community and we will use them." However, it is essential that these volunteers gain some previous understanding of the culture, health profile, and treatment-seeking characteristics of the community such as through the deliverable document outlining these characteristics provided YOI by the researcher. The researcher further suggests a brief but intense period of rapport on the part of the volunteer and that volunteers are always on site in the village over the summer months creating a sense of regularity and reliability for the program in the community.

Such a program could supplement the healthcare options of the community members, could decrease costly or unnecessary trips to primary clinics, could reach underserved sections of the community, and could act to promote the transfer of much needed health and healthcare information.

Recommendation 2

Recruit volunteers for health education and health promotion activities.

In addition to providing direct medical services such as basic diagnosis, treatment, and health information specific to the individual, the organization can recruit and enlist volunteers to provide more general health education and health promotion activities. These activities could cover a wide range of topics such as nutrition, basic illness prevention, and those health complaints discussed in the findings of the research such as blood pressure and fevers. These activities will do much to provide the health information frequently mentioned as desired by respondents and community members. The volunteer can also act in the capacity of answering specific health questions and concerns, as well as bringing these concerns to YOI, in an effort to remedy the information asymmetry noted by many Mannan community members.

In addition to providing health education, these volunteers could also act with and engage community members in health promotion efforts. For example, community members could be organized to discuss the community problem of alcoholism. Potential strategies and solutions for a community approach to this problem might be discussed, planned, and implemented. Such organization could also be utilized to spread prevention

messages, discuss government programs, and provide a general forum for discussing treatment opportunities and alternatives.

Recommendation 3

Train and involve elder women in health education and health promotion activities.

One of the main findings of the research was the central role played by elder women—mothers and grandmothers—in giving health advice within the household, transferring health knowledge especially regarding local and traditional medicines and preventative health practices, and contributing to household health decisions. The central role of these women can be strengthened by providing health education on additional preventative practices and on opportunities for health promotion within the health system and the community. Training in these methods can be provided by volunteers offering weekend classes. Another research finding was that such classes have been provided by outreach activities coordinated by the primary health clinic. However, these outreach activities have been irregular and not well publicized within the community. Despite this, respondents have noted that these classes were well attended by elder women. By systematizing these classes and activities, providing a wide range of health-related subjects based on the priorities of the local community, and providing more community involvement and participation, the role of these women can be strengthened and could greatly benefit the entire Mannan community in Kozhimala in terms of sustainable health education and promotion activities.

Recommendation 4

Further research and documentation of local and traditional medicines is needed.

Through interaction with the community and especially with the elder women, the volunteers could learn from the community the local and traditional medicines used within the community. These medicines are frequently utilized by the community members for simple health complaints and often as alternatives to more formal treatments and services given both cost and availability. The researcher has determined that these medicines are an important element of the community, especially as one of the main methods of illness prevention, and are perceived as effective by the majority of respondents. Furthermore, several respondents have expressed concern that the traditional medicines, a central element of Mannan culture, is disappearing. By assisting in the documentation of these medicines, the organization can aid in preserving an important part of Mannan cultural knowledge as well as providing this knowledge as a means of basic prevention and treatment.

Recommendation 5

Further research is needed on available government-funded health and social programs and opportunities for indigenous tribal groups and individuals.

Over the course of the research, the researcher found several government programs available to indigenous tribal members such as the medical and fever camps, community health clinic, food subsidies, and free dispensing of pressure medications through the primary health clinic. However, many tribal members were not aware of these opportunities and they were not general knowledge in the community. The

researcher suspects that there are several more social and health-related opportunities available to this population. It would greatly benefit the community to research these opportunities and provide a venue to make the community on these opportunities.

Recommendation 6

Further research is needed on mental health and substance abuse treatment options.

Mental health and alcoholism are two community health problems perceived as particularly devastating for the Mannan community in Kozhimala. Part of the reason for this perception, as noted by several of the respondents, is that there is uncertainty on how to treat these conditions. For mental health, as was stated previously, respondents appeared to prefer more religious-based treatments. However, the majority of these respondents also noted that they were open to medical and institutional treatments as well but were uncertain what opportunities were available within the formal healthcare system, were unable to sustain regular treatment due to cost, and were often dissatisfied with the lack of results of such treatments. For alcoholism, there was little discussion of individual level treatment with the general perception that this particular illness was more of a community one rather than an individual one. Whether the households and communities would accept such treatment services or not, it would be important to understand the opportunities for such treatment and to transfer this understanding to the community through key members and groups within the community.

Recommendation 7

Create a partnership with a local auto-rickshaw driver to provide emergency medical transport.

There is no emergency transportation system for the village of Kozhimala and the public transportation system does not run after 6 pm. However, health complaints requiring treatment at the primary clinic or the district hospital often occur outside of the hours of the public transport which will often be inappropriate even if during these hours. The only alternative available is hiring a private auto-rickshaw driver at high prices that often constitute the majority of health-related expenses for a given health complaint. Several respondents noted that this expense was often 200-300 Rupees (\$5.00-7.50), a very large expense for individuals in this community.

Over the course of participant-observation, the researcher noted that one Mannan villager of Kozhimala owned his own auto-rickshaw. YOI might be able to negotiate subsidized prices for emergency health-related transport through this individual. Making this service available would do much to decrease the total health expense for Mannan households as well as removing a potentially dangerous barrier to emergency treatment.

Recommendation 8

Create a partnership with the local shops to provide small emergency food loans.

Over the course of the research, YOI staff frequently made small contributions of money for eggs or rice to tribal individuals suffering from malnutrition or the threat of malnutrition. This individual phenomenon could be systematized through a relationship with shopkeepers to provide certain foods to certain members of the population. For

example, the researcher noted six village children as suffering from what looked to be protein-deficiency during the village walk-through and the census-taking activities.

These children's families could be notified that they could receive one egg per day from a local shop to increase the amount of protein in these children's diet. The shopkeeper could offer this service and receive payment from YOI at the end of the month for the food disbursements.

Recommendation 9

Support the goals and actions of the community action group.

The community action group has discussed several issues and strategies for action. For instance, one such discussion involved raising money from the annual Mannan tribal festival to make available for small loans for community members. YOI could support the actions of this group in many ways such as providing a bank account for these funds and could contribute in many creative ways to the work of this group. One tribal staff member is involved in the action group and could act as a liaison between the organization and the group. The action group and future related community ventures fit into the organizational goal of sustainable health and social development of this community and the assistance of YOI would contribute to making this mission and goal a reality. As well, such activities will contribute to a greater sense of perceived support on the part of the organization and the community for all Mannan tribal members in Kozhimala.

CHAPTER 6

PERSONAL REFLECTION

This research project, of course, was my first intensive use of anthropological and public health methods, theories, and case studies. I now can see that you can't really be an anthropologist or even a good community health researcher without an intense fieldwork experience. I had traveled to India previously, learned much of the culture(s) and history of the region through articles and books, and spoke with a number of individuals from the area preparing myself for this project. Surprisingly, and perhaps attributable to this, I did not feel the level of "culture shock" that I might have expected before entering the field. I can't say I was ever entirely surprised at the cultural practices and behaviors amongst this community. What did surprise me was when I reflected back on how "strange" my own cultural practices and behaviors were. Aside from this, my shock was more with the research process. Most of the articles and books I had read portrayed the research process as a completed and systematic process with one method or technique seamlessly flowing into the next and information relatively effortlessly flowing from the data—or this may be how I naively perceived them. I doubt I am the only researcher to experience this "research culture shock" although many of the particularities of this were likely unique to my research situation.

First, rapport was surprisingly easy to gain. I did not have to buy a cow and rarely if ever felt that any of the community members were suspicious or trying to take advantage of me. I only had to listen to individuals or a community that wanted to tell

their story and occasionally throw in my thoughts—this was done more through gestures and an evolving but very crude Malayalam vocabulary. I was given the Mannan tribal name of “Periman” and, in the words of Sasi, the male head of my host family, and Tangachen, a socially active and well-respected Mannan community member, “adopted into the Mannan community of Kozhimala” very early in the research process. After this induction into the community I became wrapped up in gaining rapport through fishing with the men and doing laundry with the women at the lake on the weekends, talking American and Indian politics with men at the tea shop, going to death rituals and performing pooja at the temple, assisting in the preparation of food and more than assisting in the eating of it at countless Mannan households, playing cricket and soccer and teaching at the primary school, and many, many more activities. In short, I almost forgot that I had come to this village to do research I was enjoying the process of rapport so much. Despite this worry, I believe that the interactions greatly assisted in the technique of participant-observation.

Nevertheless, I was worried of the distance necessary to conduct good research. Through these intense interactions, I had come to view nearly every community member as a close friend and had to remind myself on a daily basis what life was like back in the United States where electricity and running water were taken for granted. I was worried that my ability to distinguish between etic and emic worldviews had gone over the hybridization necessary for good research or perhaps had even reversed. Moreover, I was taken aback when I heard that the tribal name given to me was a forest god who “helped the Mannan in times of trouble,” when community members would ask me if I would

bring doctors to Kozhimala, or when ill community members would come to me for medical advice. For instance, there was the event when I observed a neighboring woman who had showed symptoms of a heart attack, but was unable to afford the emergency transportation necessary to get to the primary clinic. I did not question whether I should intervene by giving money for the trip at the time, personally I did not feel the least bit uncomfortable about it; professionally, however, I worried if there was some sort of ethical dilemma here as well as a larger dilemma of raising expectations within the community that went beyond my skills and capacities as a researcher.

It was Tangachen who reoriented me to the role I came to this community to play. He continually added an epithet to my name of Periman. I asked him one day what he always added to my name and he said: “you are Periman, the American researcher who wants to know about our health.” Feeling better now and ready to do research, I asked him if he could help me to ask community members about their health, we put together a team of people to assist in this process, and set to work. This would not be the last time that the community itself seemed to know more about the research process or the necessary solutions to their problems than I did. The research then proceeded in fits and starts and rather chaotically due to lack of translators, uncertainty in communications between myself, the translator, research team members, and informants, leaving the community to contact local universities in an effort to gain IRB approval, fulfilling organizational duties, trying and failing to contact service providers, narrowing down a very generalized research agenda and consequent uncertainty in the interview questionnaires, interview settings becoming public gatherings, interview cancelations,

time crunches, and uncertainty in how to achieve “community participation.” Again, I had not read too much on the frustrations and setbacks that inevitably accompany the research process, still expected the research process to be polished and flawless, and was surprised when it was not.

This uncertainty about the research process lasted until I began translating the data from the research. Prior to this, I was still uncertain as to the final shape of the data due to the reliance on translators and interpreters to give me only broad outlines of what had been said. However, in getting the literal translations, I was amazed at the words, observations, and understandings that the informants had about their health, community, and surroundings. That an informant would say they were uneducated and could not talk about some things but then go on to analyze their health problems and discuss political-economy so that it was more understandable to me than even the greatest of Western theoreticians, greatly increased the confidence I had in the research process. In many instances, there were questions I should have asked but did not, but the informant added this information anyways because they knew it was important. Similarly, in trying to include community participation, I did not have to try too hard because it appeared that the community took it upon themselves to make sure they had an active say in the research process—e.g. the research team and the action groups. In short, what came out of this seemingly “chaotic” research process was the fulfillment of the research goals I had come here to achieve. Methodological concepts such as participation, rapid assessment process, triangulation, iteration and “theoretical” concepts such as marginalization, indigenous tribes, and culture all began taking shape in my mind as more than just concepts but real

processes occurring in research and real-world settings. Moreover, as “Periman, the American researcher who wants to know about [Mannan] health” continuously guided and greatly assisted by my research team, we were able to put these concepts in practice to achieve the research goals. Last, given my critical nature, it was surprising (but certainly welcome) that the research findings were quickly perceived as valuable by the client organization and rapidly put into effect for the creation of a medical volunteering program bringing medical experts to assist community members in achieving optimal health for a community in what many respondents noted was “a time of great need for such things.” As I was leaving the community, Manju, the wife of Sasi, thanked me on behalf of the community for “wanting to know about the Mannan people,” she told me that I “would now be a Mannan and a valued member of the Kozhimala community,” and she said that I “must let America know about our people.”

CHAPTER 7

EPILOGUE

Yearoutindia

Since completing the data-gathering stage of the research, there have been several new developments within the organization and within the community. Based on a preliminary analysis of the data, YOI decided to adopt the medical checkup and health education recommendations by the researcher. Through a series of discussions between YOI, the researcher, and several key community members, a program plan was outlined appropriate to the setting and to the needs of the community as outlined in the research. The director of the YOI requested that the researcher continue his affiliation with the organization as a volunteer coordinator responsible for the active recruitment and training of local, national, and international volunteers with some level of medical and health education experience to staff the program for one month or greater time commitments. In order to recruit volunteers, the researcher and the organization have pursued several strategies including the creation of a webpage to publicize the program activities and opportunities. A full description of the new program can be found at http://www.yearoutindia.com/mannan_medical_project.htm.

Since leaving the field, the researcher, now in the capacity of program volunteer coordinator, has recruited and begun training three individuals—two nursing students from the United Kingdom and one nurse from Germany—for placement in the program from February 2009 through August 2009. In addition, the researcher is negotiating with

a local optometrist based in Kochi, India to provide free eye exams for the entire Mannan population of Kozhimala involving diagnoses for potential eye ailments, provision of eyeglasses, and cataract removal surgeries.

In addition to its expanding focus, YOI has also begun to expand to other Mannan settlements. It has recently begun a sanitation program and primary school program in Murikattu Kuddy settlement approximately five kilometers from Kozhimala. YOI is hoping to engage this new community through these programs and has already requested the researcher return to do a similar health needs assessment and community health promotion activities in this village.

Action Groups

A fuller discussion of the action group meetings and an update on their activities since the researcher has left the field will be discussed as an unexpected but welcome outcome of the research, a demonstration of the importance of community participation and mobilization in any research project, the interrelationship between health and wider social, economic, and political influences, and a potentially more sustainable means of community interventions.

The researcher, as noted previously, was at most a facilitator and was more often a passive observer over the course of the action groups. The researcher was present for the first three meetings: the first meeting consisted of an unstructured discussion of research findings and methods; the second consisted of a free listing and discussion of both health and social problems in the community; the third meeting consisted of a prioritizing of the problems in terms of threat to the community and the feasibility of

success in the group’s involvement with community problems; and the fourth meeting, which the researcher was not present for, consisted of discussing and planning strategies for acting on the three prior issues. In the second meeting the following list of eight health and seven social problems was generated as shown in table 6:

Table 6. Community health and social problems listed by action group

Health Problems	Social Problems
Mental Health	Alcoholism
Fevers	Education
Skin Problems	Unemployment
Pressure	Community Unity
Emergency Transportation	Loss of Mannan Language
Body Pains	No Soccer/Cricket Field
Information on Medications	No Mannan Sources for Small Loans
Nutrition	

In the third meeting, five problems were chosen and prioritized according to what the action group could feasibly achieve. While discussing the feasibility of action in these areas, these problems were broken down into specific actions the group could take on a specific aspect of the problem (rather than as a whole) generating the following list:

- (1) Conduct a collection of small amounts of money from the community for school uniforms and ask YOI to match this collection given that many children are unable to attend or have problems with attendance based on the lack of uniforms (which cost only 80 Rupees (\$2.00)).

- (2) Create a small charge or donation structure for the tribal festival in March which usually has over 30,000 attendants to be available for small community development loans such as a drinking water project.
- (3) Form a social network for counseling individuals and households with alcoholism and mental health issues.
- (4) Bring together cultivators for a monthly discussion on agricultural methods and education on organic farming methods.
- (5) Rebuild the decaying old King's house/community meeting center and plan cultural activities to take place at this site.

The action group has continued to meet on alternate Sundays to discuss further activities that it can undertake. The researcher has been notified that this group successfully raised 1200 Rupees (\$30.00) and, matched by YOI, was able to purchase 20 school uniforms. These uniforms have been given to students at various levels of schooling as well as new students and a system of reusing them has been established. In addition, an elder Mannan woman has offered to wash the uniforms if any of the families are unable to take on the extra load of laundry to ensure that the children are consistently provided with clean uniforms. The action group is now exploring their ability to fundraise at the annual Mannan festival in March (expect more than 30,000 visitors). They hope to establish a small community savings fund with the assistance of YOI. As Tangachen, a key informant and leader of the action group says "we are both a young people and an old people...give us a little time to determine how we want to change with what is going on outside of us and we will be a successful and happy people."

APPENDIX A

DISCUSSION OF GENERAL FEATURES OF MANNAN CULTURE AND HISTORY AS TOLD BY THE ELDER MEN'S FOCUS GROUP

The precursors to the Mannan people originally resided in the central region of what is today Tamil Nadu state bordering Kerala to the east. This region is on the leeward side of the Western Ghat Mountains marking the boundary then and now between Tamil and Malayalam (Kerala) peoples. The land is flat and fertile aided by both the monsoon climate dropping rain at the base of the mountains and the adoption of irrigation techniques by the indigenous peoples residing here. The pre-Mannan were settled agriculturalists mainly growing rice, tapioca, and banana crops and forming a trading link between the Tamil kingdoms to the east and the Malayalam kingdoms to the west. The pre-Mannan contained a unique culture involving a Dravidian language closely related to Tamil, an annual gathering bringing together all of the pre-Mannan people for marriage and death ceremonies, an indigenous religion influenced heavily by Hinduism combined with Animism, and a King.

The King of the pre-Mannan peoples was a frequent and valued ally of the Tamil Kings contributing food, trade goods, basketry, and prized warriors and gaining a relative amount of independence and protection in return. In the early 14th century, the pre-Mannan King allied with the Pandya Kings against a Muslim force of the Sultanate from modern-day New Delhi pushing down from the north seeking the expansion of their empire. The Pandya King was defeated and rather than face the wrath of the Sultan and

to maintain their independence, religion, and culture, the pre-Mannan fled over the Western Ghat Mountains into the dense forests of what is modern-day north and central Kerala.

In response to this migration and ever since, these people became the Mannan or “the people of the forest.” The way of life and culture of the Mannan became very different in this vastly different environment. Residing in high-altitude and dense forest, many Mannan became hunters and gatherers while many more became slash-and-burn horticulturalists planting mainly tapioca which became the staple food of the Mannan diet. In addition, however, this diet was supplemented by the vast products available in the forest—a region that is still recognized today as one of the most bio-diverse in the world. The Mannan population became more dispersed and mobile with the basic unit consisting of the household. Villages or hamlets, when they existed, were very small and only resided in depending upon the season. Any population concentration was likely to consist primarily of extended family. The Mannan retained the custom of the annual gathering or festival centered at the permanent residence of the King and taking place in the first week of March. This festival continued to be an opportunity to socialize, arrange and conduct marriages, speak to the King and the elder’s council and honor the forest gods and goddesses—and especially the Mannan tribal goddess protector Devi. Owing to the environment, the Mannan people were relatively isolated from surrounding populations which were concentrated in the coastal regions of Kerala.

The Mannan structure of authority was fairly rigid and the King's authority was revered as law for formal pronouncements. Social order was maintained through cultural rules of authority passing from the King to the age-grade Kings to the elder council and disseminated through the tribal police who were typically cousins of the King. However, the social structure was fairly egalitarian and the hut of the King could not be distinguished from that of any other Mannan. As well, the King worked like any other Mannan to provide his family with food and other necessities. There was also a relative equality of the sexes. Marriages were arranged and were approved by both the potential bride's and the groom's families. Marriages were generally between first or second cousins and the groom would live with the bride's family for one year, doing household chores such as cooking and cleaning to prove that he could ensure the care of the bride—a form of "bride price." After this year, the bride and groom would be married during the festival and moved to the groom's family's residence. However, there did exist the custom of "menstruation huts" where women were isolated during menstruation and were not allowed to gather or prepare food because of potential "pollution." However, elder women that were post-menopausal, though not having formal seats on the council, were very influential in the community as well as on members of the council and even the King. Today, this custom of isolation during menstruation is still largely observed but without the huts. There was some specialization in both religion and medicine. Medicine men or women practiced traditional tribal medicine that included "rice diagnoses," readings of the hands and eyes, and the chanting of mantras. The tribal pharmacopoeia consisted largely of secret herbs gathered from the forest that were usually dispensed to

the ill with the precise formula for ritual to accompany the herbs. The philosophy behind these treatments is a mix of indigenous, Ayurvedic, and Homeopathic principles. One of these medicine men, Suryen, a man of over 100 years of age, continues to practice traditional medicine in a village neighboring Kozhimala. The holy man is the head of the main Mannan temple to Devi and is responsible for conducting the ceremonies associated with the festival, performing poojas, and treating more supernaturally based illnesses and problems.

With the independence of India, there was once again a drastic change to the Mannan way of life and culture. In 1950, the Periyar Wildlife Sanctuary was created out of 800 square kilometers in Idukki District of northern Kerala. The Sanctuary encompassed the land that the Mannan had been living in for over 500 years and the government began efforts of resettlement of the Mannan. The majority of Mannan were removed from their lands at the heart of the Sanctuary and relocated to rapidly constructed villages of inferior lands along the periphery of the park. This was the beginning of a more intense interaction with what the Mannan people call “general Indians” and with the state and national governments. In 1975, the Sanctuary became the Periyar Tiger Preserve and this status combined with the creation of the Idukki Dam, one of the largest in Asia, which flooded out much land for the reservoir, finished off the former lifestyle of the Mannan people. All of the Mannan who had eluded the government and continued to live in the forest were now removed from the Preserve and resettled to surrounding villages. It was this second wave of Mannan holdouts, including

the King of the Mannan, who came to what is now Kozhimala and established it as the main village of the Mannan people.

The King has continued to reside in Kozhimala despite larger Mannan settlements in other parts of Kerala and the festival takes place here and main temple devoted to Devi and another to Ayapan are located here. There are 52 recognized Mannan settlements with an approximate total of 12,000 Mannan individuals. There are large concentrations in Kumily and Adimali—where they live as a minority population on the outskirts of these cities. All other concentrations classify as rural villages in which the Mannan are either the majority population or the only population of the village. Villages were said to be “conservative” or “modern” depending on the amount of contact they had with general Indians or the amount of integration they had with government. However, there is still extensive interaction between the villages and relations that may span all of the villages. The Mannan continue to be mobile and travel from one settlement to the rest in search of such things as job opportunities relying on extended family.

With the relatively new and intense interaction with these new populations and new forces, the Mannan are now having to deal with a host of new challenges to and changes in their old cultural ways. There are increased opportunities for such things as education and “modern” development and there has recently been a position in the Kattappana panchayat allotted to the Mannan, but there are potentially harmful things coming to the Mannan too. Moreover, as part of the original settlement for leaving the forest, the Mannan were allocated land plots to each male head of household. Shortly after this allotment, the demand for sandalwood, rosewood, and teak rose and the Mannan

found themselves the “owners” of a number of these trees. However, the government forbade individual selling of these trees and has been encouraging, instead buying them from the landowners. The Mannan, for whom these trees are sacred, refused to sell the trees. For the past few decades, the state government has been encouraging privatization of Mannan land which was once viewed as communal land in order to find landholders more willing to sell the trees. Consequently, the Mannan are losing their landholdings at an alarming rate being forced to sell one of their few tangible assets to raise money for housing, health, and education. Perhaps owing to this respect for the sacred forest, the government has relied on the Mannan tribe to act as stewards for the Periyar Tiger Preserve a task in which they have performed well having one of the lowest poaching rates for all Indian national parks. Nonetheless, the Mannan are only infrequently rewarded for this service in the form of development projects or government services.

Other potentially destructive forces confronting the Mannan are: alcoholism and mental health problems were things the Mannan had never seen only ten years ago, a breakdown in the authority structure of the tribe with the disbanding of the police force, the loss of respect for the King (the last two of which heavily drank alcohol), and the loss of respect for elders who do not have advice or do not always understand the changed conditions facing the younger generation. There are high rates of unemployment and the still low achievements in education do not allow the opportunity for government jobs. The only available jobs are those involved in plantation work that are of low pay and cause significant health problems. Cultivation continues to be an alternative to plantation work but only offers a meager profit above subsistence. The younger generation knows

little about the former cultural ways of the Mannan and the indigenous language is rapidly dying out. Last, there is the desire for a better future on the part of both the community and the individuals within the community, but no money for bringing about the creation of a better future. Asking the elder tribal council what it is that makes the Mannan unique, they responded: (1) “we are the only tribe in all of India with a King;” (2) “we are the people of the forest...it is the forest that makes us who we are;” and (3) “our language.” Whether it will be possible to maintain these unique features in the future, the brother of the former King ended the meeting with this quote:

We Mannan have dealt with change and emergencies before...these new changes are very fast and very destructive for us...there is no respect for our King in the community or in the government, the forest is disappearing, and our language exists only with the elders...it remains to be seen whether we will continue as Mannan in the future...whether we can stay the forest people or just become like the general people.

APPENDIX B
LIST OF TERMS

Scheduled Tribe—status given to indigenous populations in India by the Indian Constitution for purposes of census and affirmative action policies

Panchayat—the administrative level of local government

Tribal Name—Mannan indigenous name given from the pantheon of indigenous gods to each tribal member at the birth ceremony and typically only known to the family

General Indian—term used for any non-Mannan or non-indigenous tribal member

Pooja—a ceremonial offering and prayer given at the temple

Local/Tribal/Traditional Medicine—system of medicine indigenous to the Mannan people focusing on herbs and pooja

Ayurveda—system of medicine native to India and very influential throughout the nation; based on humoral philosophy and treatment and prevention based on body balance through breathing and food consumption

Homeopathy—system of medicine based on vitalist philosophy and treatment based on “like cures like”

Hypertension—“pressure”

Diabetes—“sugar”

Stress—“tension”

Cancer—“cancer”

Health—*aarogyam*

Illness—*vayya*

Disease—*asukham*

Prevention—*pradhirodham*

Fever—*pani*

Arthritis—*wadum*

Body Pains—*chattam vedena*

Headaches—*tala vedena*

Bodily Injury—*muriva*

Cough—*chuma*

Asthma—*vallivu*

Mental Illness—*chittham pranthu*

Mind Fear—*chittham vithraasam*

Stomach Problems—*vayaru vedena/ilakam*

Money Problems—*paisa prasnam*

Alcoholism—*kalutti*

Family Problems—*vamsam prasnam*

Lack of Education—*parittum illa*

APPENDIX C
INDIVIDUAL INTERVIEW QUESTIONNAIRE

Demographics

Gender

Age

Education

Income (SES determined by research team)/Type of occupation

Education

Number of children

Household members and relationships

How long lived in Kozhimala

Individual and Household Health

1. Do you think you are healthy or unhealthy?
 - a. Why do you feel this way?
2. Do you think your household is healthy or unhealthy?
 - a. Why do you feel this way?
3. How often do you think about your health?
 - a. What causes you to think of your health?/What causes you not to think of your health?
4. What health complaints have you had over the last one year?
 - a. What do you think is the reason for these health complaints?
 - b. Was anything done to prevent or avoid these health complaints? What, in general, do you do to prevent health complaints?

- c. How do you treat these?
 - d. Why do you treat them this in this way?
 - e. What effect or what problems have these health complaints created for you or your household?
 - f. What was the cost for these health complaints?
5. What health complaints have you had over your entire life?
6. What health complaints have members of your household had over the last one year?
- a. What do you think is the reason for these health complaints?
 - b. Was anything done to prevent or avoid these health complaints?
 - c. How are these health complaints treated?
 - d. Why are these health complaints treated in this way?
 - e. What effect or what problems have these health complaints created for you or your household?
 - f. What was the cost for these health complaints?
7. Has anyone in your household died in the last five years?
- a. What was their age?
 - b. What do you think caused their deaths?
8. From where do you get your health information?
9. How are health and healthcare decisions made in your household?
10. What problems have you or your household members had in preventing or treating these health complaints?
11. Do you use any tribal or local medicines?
12. If you or a member of your household has a health-related emergency, can you receive any community support?

13. If a neighbor has a health-related emergency, what kind of support can you give them?

Community Perceptions

1. Do you think the Mannan community in Kozhimala is healthy or unhealthy?
 - a. Why do you feel this way?
2. What health problems do you feel are in the community?
3. What do you think is the reason for these problems?
4. What general problems do you feel are in the community?
5. What do you think is the reason for these problems?
6. How can an organization, like Yearoutindia, help with these problems?
7. What can the community do about these problems?
8. What do you think the future will be like for the Mannan community in Kozhimala?

APPENDIX D

FULL LIST OF HEALTH COMPLAINTS IN INDIVIDUAL INTERVIEWS

Table 7. Full list of health complaints in individual interviews

Individual Health Complaints over Last Year	Number of Respondents Listing	Individual Household Complaints	Number of Times Listed
Fever	17	Fever	10
Body Pains	14	Body Pains	7
Headaches	10	Bodily Injuries	5
High Pressure	7	Stomach Problems	5
Bodily Injuries	6	High Pressure	4
Chest Pain	5	Mental Illness	4
Arthritis	5	Ear Problems	4
Chikungunya	5	Headaches	3
Anxiety/Stress	4	Arthritis	3
Jaundice	3	Malnutrition	3
Cough	3	Dysentery	3
Stomach Problems	2	Cough	2
Typhoid	2	Chickenpox	2
Breathing Problems	2	Kidney Problems	2
Skin Problems	2	Deafness	2
Stroke	1	Diabetes	2

Heart Attack	1	Anxiety/Stress	2
Diabetes	1	Asthma	1
Urinary Infection	1	Chikungunya	1
Body Weakness	1	Alcoholism	1
Reproductive Problems	1	Reproductive Problems	1
Ulcer	1	Physical Handicap	1
Malaria	1	Flu	1
Insomnia	1	Uterus Problems	1
Flu	1	Brain Cancer	1
Dysentery	1	Chest Pain	1
Malnutrition	1	Skin Problems	1
Mental Illness	1	Breathing Problems	1
Throat Problem	1	Depression	1
Eye Problem	1	Tuberculosis	1
Physical Handicap	1	Epilepsy	1
Breast Tumor	1	Oral Problems	1
		Ulcer	1
		Pneumonia	1
		Allergies	1

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