Beyond the numbers: Papua New Guinean perspectives on the major health conditions and programs of the country

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SUMMARY

How members of the community perceive and respond to diseases and health problems are important variables to take into account when planning interventions and priorities in a health system. This paper summarizes some qualitative research undertaken in 2001 and 2002 in Papua New Guinea as part of the formative research for health promotion activity development for immunization, maternal health, tuberculosis and malaria services. It provides some highlights of the health beliefs and health-seeking behaviours amongst a range of urban and rural populations in a range of provinces in Papua New Guinea (PNG), and across a range of age groups including young adults. The findings reinforce that these health-related issues are seen by most of the population as important, although maternal health lags behind, especially in male respondents’ perspectives. However, how they respond varies often with the planned health system interventions, and these differences need to be understood and addressed in order to increase the acceptability and efficiency of health services in PNG.

Introduction

If the modern health service is truly interested in bringing health care to all of the people of even the remote areas, professional medical and health care workers need to understand a lot more about the beliefs of people that attend ... (and) must apply their skills without increasing the shame (helplessness) people feel (1).

This paper will briefly take the reader through a journey of health beliefs and health-seeking behaviour in a selection of Papua New Guinean locations.

The identification of the major disease burdens in a country needs to go beyond that of numbers and needs to enter the world of the people of the country. What are their concerns, and what do they rank as the major health problems and risks? How do they prevent disease, and what health-seeking behaviours do they resort to when they perceive that they are not well?

Medical anthropology in Papua New Guinea (PNG) has developed over several decades, but has been limited in numbers when one considers the rich cultural diversity of PNG. The qualitative studies that constitute PNG’s medical anthropology may have resulted from direct enquiry, may have been opportunistic in nature, for example, when observant participants in the health system have noted cultural differences (2,3), may be general ethnographies (4-11) or highly focused studies on a particular disease or behaviours (12-15), or, most recently, may have been part of the increasing wealth of studies on human immunodeficiency virus (HIV) and sexual health (16,17).

This paper analyses some of the data collected from a series of formative research

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Disclaimer: The views expressed in this paper are those of the authors and not necessarily those of the Australian Agency for International Development (AusAID)
activities undertaken by the Health Promotion Branch of the National Department of Health of PNG (18-20). The wide range of people involved in the design, conduct and analysis of the research are acknowledged at the end of this paper. It focuses on the data collected on malaria, tuberculosis (TB), childhood diseases preventable by vaccination and safe motherhood (in which 3 topics were studied). This research series was to form the basis of a succession of health promotion activities from 2002 to 2005. The purpose of this paper’s analysis is to provide some insight into the broad range of Papua New Guinean perspectives on health and illness, prevention and cure, health-seeking behaviour, and the responsiveness and acceptability of the health services provided in PNG.

Methodology

A rapid ethnographic assessment methodology was used for the research. Rapid ethnographic assessment methodologies have developed primarily in response to the requirements of applied primary health care programs, to provide information vital to the design of successful intervention programs (21-25). As Vlassoff and Tanner (26) commented, “Rapid assessment methods are an essential basis for the translation of research results into disease control activities.”

The research was primarily conducted via interviews, focus group discussions and observations (27-31). Using these techniques, qualitative research endeavours to see the social and cultural world from the point of view of the participants, and seeks to explain why people adopt particular behaviours or attitudes (32-35). This technique is particularly useful for uncovering cultural aspects which may cast illness in a completely different light.

Each of the six studies was devised with clear aims, which in turn informed the objectives for each study. The National Department of Health (NDoH) staff and the World Health Organization (WHO) technical advisers to the NDoH provided technical guidance and review to identify key areas of inquiry, technical questions of importance, analysis of the technical aspects of the studies, and prioritization of recommendations. The research questions were finally compiled into an Interview and Focus Group Discussion Question Guide. The research tools, along with a draft question guide, were pre-tested by fifth-year medical students from the University of Papua New Guinea’s Department of Community Medicine in Oro Province.

Field research was undertaken in various localities within a total of 9 provinces (Table 1). The provinces selected to take part in the study were chosen to represent the four regions of Papua New Guinea: Highlands, Islands, Momase and Southern. The research aimed to provide a representative insight into similarities and differences between coastal and highland areas, between rural and urban communities, and the services delivered in these areas. In each province, an attempt was made to survey urban and rural areas equally, as well as to include some periurban localities.

Study sites were selected and finalized via consultation with provincial, district and local-level government officials. The field sites and respondents were selected purposely by provincial health staff and were not randomly selected. This being the case, the results of the research cannot be statistically analysed or generalized to the wider population. The choice of settlements in urban areas also means that environmental conditions are not necessarily typical of urban areas.

Entry to the field site was negotiated by the Provincial Health Office contact – either through village leaders, councillors or health workers.

The field research was undertaken in two rounds; the second round was essentially a reiteration of the processes adopted in the first but with different topics, personnel and locations involved. Round one, which comprised the field research on tuberculosis, malaria and immunization, was conducted from September to October 2000, while round two topics – related to safe motherhood – were investigated from February to March 2002.

Before embarking on fieldwork, the research teams were trained in rapid qualitative methods, ethics and data collection. Data analysis was taught over the course of the research process. In each province, time in the field – which would generally last a week – was interspersed with periods of training, coding and analysis in
Port Moresby. The return to Port Moresby also facilitated development of further questions or additional lines of enquiry. Approximately the last half of the four-month time-frame for each of the studies was generally devoted to final analysis and compilation of the results.

In each location, information was collected from male and female adults and teenagers. This entailed engaging people in conversation for informal interviews or inviting them to join a focus group, where the interviews were structured according to a prepared question list. To gain an appreciation of the health issues being confronted, information was also collected from staff at the health service centres utilized by the target community. To obtain some basic economic and demographic information about the communities within which fieldwork was carried out, community profile interviews were undertaken with village leaders and other significant figures. In each location, data were collected from health service staff, adult women and men, and male and female teenagers (which included unattached individuals in their twenties). Selection of respondents to take part in focus group discussions and formal interviews was by invitation from the research teams or village leaders. Researchers also engaged in conversations and informal interviews.

The analysis of the information followed the ‘thematic analysis’ or ‘grounded theory’ approach. This presupposes that theory can be built up through careful observation of the social and cultural world (36-38). A grounded theory is inductively derived; that is, it reaches general conclusions by reasoning from particular cases. The theory is created, developed and provisionally verified through systematic collection and analysis of information pertaining to a phenomenon (39). Rather than using deduction (imposing a set of external analytic categories on the primary material), the grounded approach sees theory as emerging from that material (40). Grounded theory attempts to overcome ‘etic’ (outsider’s) problems of interpretation by

**TABLE 1**

<table>
<thead>
<tr>
<th>Province</th>
<th>Round One*</th>
<th>Round Two†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Immunization</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Safe motherhood</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

*Conducted from Sep to Oct 2000
†Conducted from Feb to Mar 2002 with 3 study components but treated here as a single study
staying close to the ‘emic’ (insider’s) view of the world. The information must be sorted into meaningful units and this organizing system is derived primarily from the information itself (38).

Ethical clearance for the research was given by the PNG Medical Research Advisory Committee. Informed verbal consent from study participants was obtained before discussions and formal interviews took place; and responses were noted down. Confidentiality was assured at all times and research data were stored securely at the Health Promotion Branch (HPB). Additional demographic data – including age, years of schooling and number of children – were also obtained.

Data analysis

Data analysis was undertaken according to the following series of six general steps:

1. Data arranging – handwritten notes were taken during interviews, then coded (labelling text) later.

2. Data processing – ordering and coding the field notes according to a coding scheme that was developed after initial interviews and refined during the analysis process. The coded interviews were reviewed by another researcher and recoded if necessary. The coded interviews were then cut and sorted (‘posted’) into envelopes. The material was coded to facilitate the identification of persistent words, phrases, themes or concepts so that underlying patterns could be identified and analysed (38).

3. Data reduction – summarizing the data within each code. Two research team members and two research facilitators analysed the data sets. Codes were sorted into specific ideas, issues and themes which were then summarized on A3 analysis sheets, with selected quotes attached. The frequency of different ideas or themes within codes was also analysed for differences between age groups, gender and urban/rural respondents.

4. Data display – summary matrix display sheets were displayed on a wall and reviewed by the research team and authors. Memorandums and diagrams were used to record discussions and developing issues.

5. Confirming findings – results between codes were compared. Confirmations and contradictions were resolved or explained by re-examining initial summary sheets and coded texts.

6. Drawing conclusions – conclusions, key concepts and ideas for health promotion were discussed and recorded in memorandums and whiteboard diagrams. Analysis also included compilation of demographic characteristics of respondents, and a breakdown of types of interview method by type of respondent, urban/rural source and province.

Findings

Malaria was reported by respondents to be the most common and most important illness in the community, followed by, in order, TB, diarrhoea and cough.

Terminologies and taxonomies

Local names reflect a common phenomenon of naming illnesses by their symptoms. In Tok Pisin, malaria is commonly referred to as ‘sik hat’ or ‘sik kol’. When people use the term malaria or the local name, they may simply mean the symptoms of malaria – fever or feeling cold.

“People know malaria as deanam, which refers to ‘skin hat’ or fever. Another term used is nangi, which refers to mosquito sickness.” (Male adult, urban, Western)

Both rural and urban respondents showed widespread knowledge and understanding of the common signs and symptoms of malaria. There did not appear to be any significant differences between males and females and between adults and teenagers in the type or range of signs and symptoms given (Table 2).

The key Tok Pisin terms used for TB are ‘TB’, ‘strongpela kus’, ‘kus wantaim blut’, ‘kus na sotwin’, ‘kus longtaim’. Strong cough, cough with blood, shortness of breath and prolonged cough are the types of cough most frequently associated with TB. ‘Strongpela kus’ (strong cough) can mean any cough
producing sputum or phlegm. However, there was no consistent period defined for a prolonged cough, which ranged from more than one week to one or two years, or was a cough that does not finish.

Cough and weight loss were the dominant symptoms identified. Cough with blood was the most frequently mentioned, followed by strong cough, cough with shortness of breath and prolonged cough. Adult women provided more responses for children’s symptoms than males or teenagers, which suggests that they have more experience in observing different coughs and weight loss, plus perhaps more exposure to health information.

There are a number of different names used for immunization in PNG, almost all of which focus on ‘sut’ (injection) (Table 3).

**Causation**

There are multiple beliefs (frequently many held by the same individual) pertaining to the transmission of malaria. Very few responses indicated knowledge of a parasite life cycle phase in mosquitoes. Many people appear

| TABLE 2 |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| **Signs and symptoms of malaria reported by Papua New Guinean respondents** |
| **In adults** |
| Cold/shivering | Fever | Headache |
| Sleeps a lot by fire or sun | Loss of appetite | Joint pain |
| Pale | Dizziness | Loss of weight |
| Unconscious | Yawning | Watery eyes |
| Vomiting | Cough | Weak |
| **In children** |
| Fever | Loss of appetite | Convulsions/fits |
| Cold | Sunken eyes |
| Irritable | Not breastfeeding | Pale |
| Crying | Diarrhoea | Cough |
| Weight loss | Weak | Skin dusty |
| Sleepy | Yawning | Big spleen |
| Watery eyes | Headache | Stomach ache |
| **To take children to clinic** |
| Not eating/drinking/breastfeeding | Weak | Crying a lot |
| Not playing | Shivering | Fitting ('ai tanim') |
| Shortness of breath/fast breathing | Skin goes yellow |
| Loss of weight | Fever |
to believe that malaria is instantly transmitted by the bite of a mosquito. Although most respondents knew of the link between malaria and mosquitoes, the exact nature of transmission was not clear to many, was not clearly specified or was simply not known (Table 4). Except in the Western Highlands (due to the higher elevation and cold), mosquitoes were perceived as being a big problem, particularly by urban respondents. Principal breeding sites mentioned were tins, coconut shells, swamps, water pools, wet places, toilets and rubbish sites. Trees were also recognized as resting places for mosquitoes. Dark places and the bush were associated with places where mosquitoes rest and bite. Mosquitoes were thought to bite mainly at night after sunset. Daytime, early evening and early morning were only occasionally mentioned as biting times.

The wide variety of causes of TB mentioned reflects different levels of causation – microscopic, personal and environmental. TB is known to be a contagious sickness, spread by direct or indirect contact with an infected person and their environment. Coughing ('kus') and spitting ('spet'), and sharing food and utensils with infected persons were most frequently mentioned. Generally, any contact with
sputum is thought to be directly infectious, although a few respondents specifically mentioned droplet spread. There are thought to be many ways of contracting TB through contact with people with TB and materials contaminated by them. Contaminated materials that can spread TB include eating and cooking utensils, food and leftovers, betelnut and lime, cigarettes, bedding and clothes. Environmental airborne spread was also thought to occur through dust, dirt, wind, air and pollen. A few respondents thought vector-borne spread through flies and mosquitoes possible.

Many people also believe that there are many other (plural) causes of TB, including food, alcohol and drugs, inheritance, moral failure and sin, spirits and the supernatural, blood transfusion and poor housing. Bad food is also thought to be a cause of TB, such as eating too much salty food, drinking sweet teas, eating sweets, eating unripe fruits and eating a great deal of meat. Smoking is commonly associated with chronic coughing and therefore TB. TB and other serious illnesses are commonly thought to result from personal or parental sin, and spiritual or socio-moral errors (such as failing to honour ancestors or rituals). These causes are commonly believed to be associated with any illness which is chronic, difficult to cure, not cured by either western or traditional medicines, or which results in death. It is probable that there are many traditional beliefs regarding the cause of TB, including

### TABLE 4

**Knowledge of causes and spread of malaria**

<table>
<thead>
<tr>
<th>Mosquitoes</th>
<th>Environment</th>
<th>Hygiene</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mosquitoes cause malaria (non-specific); mosquito germs and parasites</td>
<td>Dirty places and houses where mosquitoes breed (toilets, drains, swamps, bins, shells, rubbish, grass)</td>
<td>Dirty clothes, bedding</td>
<td>Travel to towns, city, coast</td>
</tr>
<tr>
<td>Mosquito eggs on food and water</td>
<td>Bad smell/air</td>
<td>Dirty food/handling</td>
<td>Intermarriage between highlands and coast</td>
</tr>
<tr>
<td>Mosquito bites spread malaria</td>
<td></td>
<td>Stepping on sputum</td>
<td></td>
</tr>
<tr>
<td>Mosquito bites animals and spreads to humans</td>
<td>Bad water</td>
<td>Too many people inside net</td>
<td></td>
</tr>
<tr>
<td>Mosquito bites sick person and spreads to another person</td>
<td></td>
<td>Sharing food, smokes</td>
<td></td>
</tr>
<tr>
<td>Other insects spread malaria – flies, cockroaches</td>
<td></td>
<td>Dogs and pigs with 'scabies'</td>
<td></td>
</tr>
</tbody>
</table>
sorcery and punishment for wrongdoing. However, respondents rarely mentioned these causes, perhaps due to the fact that non-Christian beliefs or secret types of knowledge are generally not admitted in public discussion. Such beliefs do not necessarily contradict germ theory, because people may believe that wrongdoing or sorcery may influence one’s susceptibility to germs.

One half of all female respondents were not aware of the causes of maternal deaths, although this was partly because no such deaths had occurred in their communities. The reasoning pertaining to maternal deaths is equivocal, since such deaths may be understood from a cultural or from a western medical perspective. Many women are uncertain what to believe and, as can be seen from the following list of causes, their responses are mixed:

- Retained placenta, excessive loss of blood
- Frequent deliveries – ‘klostu klostu’ (too close) – and short of blood
- Sorcery by secret admirers, or a man the woman has refused to marry
- Heavy workload during pregnancy
- Abortion attempts (unmarried young girls) – heavy bleeding
- Heavy workload after tubal ligation
- Infection after home delivery (mother not thoroughly cleaned)
- Postpartum haemorrhage and retained placenta, delay in seeking hospital help
- Husband’s infidelity
- Non-payment of bride price by husband
- Twins – first twin normal delivery, second twin transverse lie
- Non-attendance at antenatal clinic (ANC) and non-compliance in treatment.

As maternal deaths are often seen as unavoidable due to being caused by sorcery or immorality, serious consideration is not given to preventing them through western medical means.

Prevention

Prevention of these common illnesses was clearly discussed by all respondents. However, many of the ways to prevent illnesses were different from the ‘western’ public health recommendations – and more linked to intrinsic beliefs regarding causes of these illnesses.

Bednets are the most well-known method of prevention for malaria, followed by coils and repellent. In terms of environmental modifications to support prevention, cutting grass is the most well-known method, followed equally by cleaning the house and surroundings, burning rubbish and burying tins and shells. Many respondents could name a range of prevention methods.

“Go the clinic and get medicine, clean in and out of the house, bury tin, coconut shells, use mosquito nets, coils, oil, make fire using coconut husk or waste scrapings of coconut.” (Male teenager, urban, Madang)

However, knowledge of preventive practices does not mean that they will be practised. There were many reasons why people said they did or did not use bednets. The common reasons given for using bednets were:

- Stops, prevents or chases away mosquitoes from biting
- Stops malaria sickness
- Keeps away/keeps mosquitoes and flies
- Less disturbed sleep.

The common reasons given for not using bednets were:

- Too hot – with both treated and untreated nets, people feel hot and uncomfortable inside a net, complaining of a lack of circulating air
- Too crowded – people complained of feeling overcrowded or trapped
- Smell – the smell of treated nets,
particularly when the net is first treated, is unpleasant

• Side-effects – treated nets cause coughing, sneezing and feeling itchy
• Poisonous – people fear that the treated nets are poisonous to children
• Not effective – nets are not effective if the net is not treated, has holes or is not hung properly
• Cost – people cannot afford nets.

Virtually all respondents had knowledge and ideas about the prevention of TB, which mirrored ideas about the contagious nature of TB, plus prevention by immunization and treatment of existing cases. The main categories of prevention included:

• Immunization
• Early and complete treatment of TB
• Avoiding contact with the TB germ through coughing, spitting (including standing on spit)
• Avoiding sharing of utensils, food and other materials
• Avoiding contact with and sleeping with persons with TB
• Personal and household cleanliness/hygiene
• Avoiding wrong kinds of food.

These categories can be used to define correct and incorrect ways to prevent the spread of TB. Again many respondents have several simultaneous ideas about ways of preventing TB:

“The bebi nira works fast inside the body so the baby will not get any diseases and it also fights against any germ inside the body. Some of the mothers have no difficulties looking after sick babies because all their children are fully [immunized].” (Female teenager, urban, Western Highlands).

“It makes the whole body strong and protects children from getting sick, strengthens all their bones.” (Male teenager, rural, Madang)

Early and quick treatment of sickness was mentioned as frequently as immunization as a means of protection. Pluralistic use is made of modern and traditional treatment systems where they are known and available. Thus immunization is but one of several pathways to prevention and protection.

Certain cultural beliefs exist and rituals are practised by pregnant women – some of which may facilitate and some of which hinder the normal progress of pregnancy, labour and delivery. Problems are thus either prevented by partaking or not partaking in these activities. Pregnant women and their husbands are required to comply with certain prohibitions, particularly in relation to food; and it is believed that defying these will result in adverse consequences for the health of
the mother and child (Tables 5 and 6).

Additionally, while there was some recognition that pregnant women should be careful to minimize heavy work during the first and second trimesters, there is a belief in some places that heavy work, such as gardening, in the last trimester enhances the baby's descent and facilitates delivery. To facilitate labour and delivery, pregnant women use a variety of traditional rituals. For instance, in the highlands, women eat special herbs to reduce labour pains, drink water held in a taro leaf to speed up delivery, breathe flower pollen as an analgesic for labour pain, and tie a magic rope around the abdomen. The men there report that women in late pregnancy are told to wash and bathe frequently in flowing water to ease the birth.

Focus groups revealed that many of the female teenage respondents are not well informed about pregnancy and childbirth. The teenage respondents often say they learn by observing other teens and through circulated peer information, but the adequacy of this knowledge is unclear.

The general study population strongly associates maternal death with external factors (Table 7), such as sorcery or the breach of behavioural norms and taboos on the part of the pregnant woman or her husband.

**Health-seeking behaviour**

The pattern of resort for treatment of malaria is diverse and complex. The types of treatment and the order in which they are taken depend on the symptoms experienced, the severity of symptoms, what type of home treatment is working and whether it is effective, and access to the nearest clinic (Figure 1). Three times as many respondents said that they would use home treatment first before seeking treatment at a clinic. Treatments with water and steam/sweating therapies provide symptomatic relief. Home treatments may involve simple cold water therapy or more complex therapies, including taking leftover clinic medicines and store-bought medicine, particularly in urban areas. Faith healing is also part of the repertoire of remedies, which may be conducted at home or by a recognized healer. A crucial reason for seeking clinic treatment is that home treatment is ineffective or the symptoms

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**TABLE 5**

**FOOD PROHIBITIONS IN PREGNANCY AND CONSEQUENCES OF BREACHES**

<table>
<thead>
<tr>
<th>Types of food prohibited</th>
<th>Health consequences of breaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish, crab, turtle, pork, cuscus, flying fox, octopus, shells, cassowary meat, snake meat</td>
<td>Overdue pregnancy, prolonged and difficult labour, baby born malnourished, stillbirth</td>
</tr>
<tr>
<td>Postpartum prohibition of pork, certain fish, galip nuts, wild fowl</td>
<td>Spoil baby and growth stunted</td>
</tr>
<tr>
<td>Coconut cream in food</td>
<td>Baby gets cough when born, baby not strong and active, bad blood on baby, sores on umbilical cord</td>
</tr>
<tr>
<td>Certain types of bird</td>
<td>Maternal death</td>
</tr>
<tr>
<td>Eggs, tomatoes, ripe bananas, pawpaw, pineapple, breadfruit leaf</td>
<td>Baby has lumps and swellings, deformities, protruding eye balls</td>
</tr>
<tr>
<td>Spice ('lombo', chilli, ginger)</td>
<td>Not allowed during first and second trimester, will cause miscarriage or preterm baby</td>
</tr>
<tr>
<td>Avoid drinking water after delivery</td>
<td>Causes postpartum haemorrhage</td>
</tr>
</tbody>
</table>
TABLE 6

**Types of food encouraged during pregnancy**

<table>
<thead>
<tr>
<th>Types of food allowed</th>
<th>Reasons for consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greens/vegetables, fruits</td>
<td>Supports the growth of a healthy baby</td>
</tr>
<tr>
<td>All garden food, fish, sago</td>
<td>Helps body build adequate blood and enables baby's growth</td>
</tr>
<tr>
<td>Coconut milk, taro, yam, banana</td>
<td>Helps with lactation and strengthens woman, baby grows strong and healthy</td>
</tr>
</tbody>
</table>

TABLE 7

**Cultural explanations for complications in pregnancy and childbirth**

<table>
<thead>
<tr>
<th>Cause</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worry caused by husband's acts of infidelity</td>
<td>Causes severe labour pain, prolonged labour, even maternal death</td>
</tr>
<tr>
<td>Non-payment of bride price</td>
<td>Causes maternal and prenatal deaths</td>
</tr>
<tr>
<td>Defying cultural prohibitions</td>
<td>Results in prolonged labour, severe labour pains, APH or PPH and maternal death</td>
</tr>
<tr>
<td>Relatives' grudges against pregnant woman</td>
<td>Results in labour complications – difficult labour</td>
</tr>
<tr>
<td>Many sexual partners during pregnancy</td>
<td>Causes difficult labour</td>
</tr>
</tbody>
</table>

APH = antepartum haemorrhage
PPH = postpartum haemorrhage

return. While home medicines and treatments are recognized as effective in providing relief, clinic medicine was acknowledged by many respondents as working better and faster, and curing malaria. Clinics and hospitals are also preferred because trained nurses and doctors can diagnose and confirm whether the illness is malaria or not.

Roughly equal numbers of urban and rural respondents reported that they would go (or send a child) to a clinic as soon as possible or when they see the signs of illness. Depending on the severity of the signs, others wait to see whether the condition worsens before attending a clinic. Children are more likely to be taken for clinic treatment, particularly if the signs of illness are serious – such as convulsions, excessive crying or failure to feed well. Distance and transport are important considerations in decision-making relating to treatment, and the availability and cost of transport are crucial.
factors. Other barriers to access that delay or prevent patients from reaching health clinics are adverse weather conditions, clan fighting and road blocks, particularly in the highlands.

Further barriers to using clinic and hospital services are the cost of admission and treatment fees, quality of health services and waiting times. Several urban respondents said they disliked having to wait a long time for treatment and would not bother going to the clinic unless it was really necessary.

The need to protect mothers and babies from sickness in pregnancy was understood by many rural and urban respondents. Malaria prophylaxis is widely known to be given to pregnant women, but is not always linked to prevention of malaria. There was almost no mention of malaria causing miscarriage or leading to undersized babies, which suggests that the increased risk of malaria in pregnancy and the sequelae of malaria in pregnancy are not well known.

Taking iron to prevent anaemia was also well known and linked to making blood stronger. Making the baby and mother grow healthy and strong appears to be a central concept in pregnancy. Not all respondents agreed that antimalarials should be given during pregnancy. Some respondents believe that chloroquine and other medicines such as aspirin are too ‘strong’ and will cause damage to the unborn baby. Chloroquine may also be linked with its use in abortion and suicide, although this was rarely mentioned.

A range of home remedies are used with the onset of different types of cough, for example, hot water, sea water and leaf medicines (Figure 2). Traditional healers and prayers are also used if home treatments are not successful and when the illness appears to be more serious. Home and traditional treatments are used pragmatically, by trial and error, until a treatment is found which is strong enough to combat the sickness. The use of home treatments is affected by access to and cost of attending a clinic or hospital.

Clinic or hospital treatment was most often said to be used as a first resort. Urban respondents were more likely to use clinic
Figure 2. Model of treatment seeking for tuberculosis.

NATURAL CAUSES

Home treatment
- universal or common plants for cough, vomiting blood

Specialist healers
- treatment using herbs, rituals, prayer

Isolation/exclusion of person
- separation of utensils, personal items, person

'Haus sik'
- clinic medicine used at home
  - clinic
  - hospital

PERSONAL CAUSES

Human agents
- treatments for causes of 'poison', sorcery, anger, jealousy, social disagreement, pollution, sin

Supernatural agents
- treatments for causes due to tribal gods, ancestors, ghosts and spirits

Christian prayer
- established churches
  - evangelical churches
  - pastors, ministers
  - faith healing, prayer

medicine as a first resort, which probably reflects easier access to clinics and less access to traditional medicines or healers. Hospital treatment was frequently described as better, more or most powerful, and as curing the sickness. People’s confidence in hospital treatment was not simply related to the medicines used, but to the trained staff and the opportunity for the patient to remain in hospital to finish treatment – which means that people with TB are not a threat to the community. Approximately half the responses suggested that clinic/hospital treatment would be sought at the onset of the disease because the 'haus sik' is seen as the only place to get effective treatment. A similar number of responses suggest that people with signs of TB would go to a clinic or hospital in the later stages of illness – when the condition gets worse or after observing serious signs of illness. Weight loss, weakness and respiratory symptoms (coughing blood, shortness of breath) are signs of serious illness that persuade respondents to seek modern medical treatment. With respect to treatment decision-making, individual adult patients and their immediate family make the decision to seek treatment. Extended family members are more likely to be involved when decisions on treatment are made about children and the elderly.

Treatment in hospital was the preferred option for many respondents as they believe that otherwise the disease will be spread to the community, and patients will not be properly supervised and will not complete their treatment. Fewer responses – nevertheless, approximately half – indicated that people would complete treatment in the community.

Support and supervision of TB patients are not considered to be easy for family members. One respondent in Western Province described difficulties faced in looking after a relative with TB at home, including the costs of check-ups (and other treatments) and the refusal of friends and community members to come to the house.

Even if people were allowed to complete treatment at home, almost all respondents...
indicated that they would also impose isolation/separation measures to prevent the spread of TB. People on TB treatment are likely to face stigma and exclusion in the community as this is part of the cultural response to TB, which will continue until a person is considered cured.

“Supplying treatment to take home is not good as patient will spread germs. Let him stay in hospital. If patient comes back home we won’t be pleased to meet him as we are frightened of germs. We...will separate plate, cup, spoon, bedding.” (Male adult, rural, Madang)

TB is feared as a deadly disease, with some people believing that there is nothing to be done but to “wait and die”. TB patients are also said to be afraid of dying in hospital, and may be ashamed of people knowing that they have TB.

An additional factor is the fear created by the close association between AIDS (acquired immune deficiency syndrome) and TB. Some respondents also thought that TB causes AIDS. Such beliefs cause people with TB to fear seeking treatment, while families and communities will be afraid to care for them. This leads to further stigma, shame and harm to people with TB.

A major reason for non-completion is ‘les long dringim marasin’. ‘Les’ has several meanings, including dislike, ‘cannot be bothered’, reluctance or being lazy. TB medication is both complex and may have unpleasant side-effects (see below). People taking TB treatment also experience the fear that taking too many tablets could kill them. Additionally, if the symptoms of illness do not abate quickly, it is presumed that the medicine is not working. Feeling better and thinking the medicine is ineffective are also important reasons why patients stop taking tablets.

Attitudes and preferences regarding place of delivery

Most women said that, ideally, they would prefer to deliver at health facilities where skilled help is available, and they often also recognize that antenatal clinics offer worthwhile assistance. They discussed the fact that not all women attend ANC and that some of these women encounter problems or die later. Other women said that they attend ANC to confirm an estimated date of delivery, make sure that the baby is healthy, and get medication to protect themselves and the baby from illness. Primigravidae and other women who anticipate likely problems during labour and delivery therefore state that they attend an antenatal clinic and have a hospital delivery. However, if women do not anticipate that they will have problems, they opt to deliver at home.

Many women said that they miss attending clinics due to a lack of transport or money. They said that missing an appointment entails that, on a following visit, they are scolded by nurses for missing the previous appointment, and they felt that nurses should see women whenever they are able to attend, without finding fault. Thus they identify an important problem, beyond the barriers of accessibility and cost, which is the alienating behaviour on the part of the nurses.

“The nurses talk angrily to us like this: When your husband asks you to open your legs wide, you listen and open them wide. When your husband is on top of you, you do not call out; now you call out loudly – shut your mouth and stay put.” (Woman, periurban, Western Highlands Province).

Respondents often mentioned that considerable support from family members and others is available at home, whereas this family support is not readily available at a distant health facility. Other reported factors affecting women’s decisions regarding where to seek care and give birth include:

• Irregularity of mobile baby clinics in most provinces
• Women do not like to take medicines provided at an antenatal clinic, or are not used to taking medicines
• Uneducated women are too embarrassed to attend ANC, as they cannot read treatment orders and instructions
• Remote areas have no health services, not even an aid post, and women cannot attend an ANC
• Unmarried girls do not attend an ANC, are embarrassed and at times intimidated by nurses when they have
no husband

- The health facilities are in a bad condition, very unhygienic – mothers and babies are likely to be infected
- Shortages of medicines
- Too few hospital beds, many mothers left waiting outside, often deliver outside
- Food is not provided by health facilities
- Nurses don't wash babies
- Service fees are far too high.

Some women, however, recognize the importance of getting preventive treatment for both mother and baby. Health services' assistance is usually sought during obstetric emergencies or for complications and when women fall sick from other medical illnesses. However, traditional practices for management of complications are also described and often formal health care is not sought until these have been tried. Which traditional management is tried is often linked to what the traditional belief is about the underlying contribution to that complication (Table 8).

Decision-making surrounding a home versus hospital birth is, however, not decided upon by the expectant mother alone. As one teenage female respondent in a rural village in Western Province pointed out, often the husband and wife decide together where the baby is to be born, and sometimes uncles and aunts are also involved in deciding. Additionally, respondents indicated that, while they make basic material preparations for the mother and baby, they make no specific plans regarding delivery sites and they do not concern themselves with health implications. A concern expressed by many respondents related to health workers not explaining labour and delivery procedures, or general medical interventions, to mothers. This allows misunderstandings to arise, resulting in the hospital procedures and treatments being blamed for complications that occur. It also means that opportunities to improve the general knowledge of the population about the medical facts of pregnancy and parturition are lost.

Factors affecting demand and supply for immunization services

The demand for immunization critically depends not just on knowledge and awareness of immunization, but also on the priority attached to immunization and supply issues, in particular access to and quality of immunization services. Access involves the availability of, and barriers to, immunization services by both parents and health workers. The proximity, cost of reaching, and irregularity of maternal and child health (MCH) immunization services were key variables identified. More than twice as many responses indicated that MCH clinics were irregular or not available (compared to other clinics). Several respondents said that MCH patrols had stopped, forcing mothers to bring

<table>
<thead>
<tr>
<th>Practices employed</th>
<th>Objectives of techniques</th>
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</thead>
<tbody>
<tr>
<td>Mixtures of herbs, tree bark, ginger and lime used to wash body or for drinking</td>
<td>Traditional labour induction remedy for prolonged or difficult labour</td>
</tr>
<tr>
<td>Magic</td>
<td>Prevents obstetric complications, maternal death, stillbirth</td>
</tr>
<tr>
<td>Spells on betelnut and applied to abdomen</td>
<td>Reduces severe labour pain and birth complications and facilitates quick delivery</td>
</tr>
<tr>
<td>Consumption of herbs</td>
<td>Reduces labour pain</td>
</tr>
<tr>
<td>Constant water contact (washing and sit in water) (Western Highlands Province)</td>
<td>Enhances easy labour</td>
</tr>
</tbody>
</table>
their children to the nearest clinic. Lack of transport and vaccines, absence of a site for the clinic in the village and adverse weather conditions were reasons cited for nurses not conducting MCH clinics. Losing the Child Health Record was also said to deter mothers from attending for several reasons—the cost of replacing the card, parents not being sure when to go, and nurses becoming cross with parents.

Other events taking place in the community, such as funerals, meetings, ‘mothers’ work’, looking after other small children, card games and bingo were also said to deter attendance at immunization sessions. The priority or importance attached to immunization was decreased if the child was thought to be healthy or too young for immunization. Personal factors, such as mothers being tired or parents quarrelling, also lower priorities. Parents may forget about the date of next immunization or its importance.

The main side-effects of immunization reported were fever, crying, and soreness or swelling at the injection site. Side-effects are treated with cool water, paracetamol and kapok leaves applied to the injection site (which is believed to be highly effective). Various reasons are thought to cause side-effects, including negative perceptions that immunization is not good, or too strong, for the child’s body. Some respondents blame the injection technique of the nurses. Such ideas could deter mothers from bringing a child back for further immunizations, but only one response indicated that mothers were afraid of the side-effects.

Discussion

The studies clearly demonstrate that treatment-seeking behaviour is complex and diverse, and it depends on multiple factors and contexts. Cost, convenience, access, availability and effectiveness of treatment options are important factors considered in making decisions. Additionally, the severity of symptoms and whether a person’s condition is improving or deteriorating are also critical considerations in treatment decision-making. Plural or multiple combinations of treatments are often taken in the search to prevent or treat symptoms and cure the illness. Home treatments often provide effective relief of symptoms and can be encouraged. Only harmful treatments, such as blood letting, need to be discouraged.

Sorcery and traditional beliefs are a major influencing factor on treatment-seeking behaviour and acceptance of conventional and mainstream treatment techniques. These need to be taken into account in terms of health promotion, particularly within rural areas.

The data and analysis have limitations which need to be considered for future studies and in drawing conclusions for health promotion from the study. In particular, the design feature of conducting research for three research topics in each round limited the time available for data collection on each topic. In addition, owing to the limited skills of some of the researchers, there was perhaps an overly rigid use of the question guide. Most of the researchers had limited probing skills, which sometimes led to superficial, limited, unclear or ambiguous responses being recorded. Asking additional questions, or using conversational techniques to get respondents to clarify and expand on their answers, are important skills for interviewing. The researchers tended to find that interviews were often difficult to obtain in urban settlements owing to other commitments and activities of respondents. The summary analysis methods used for this initial analysis are not equivalent to a full (thick) textual analysis. However, the limitations of the research are acceptable and do not impact fundamentally upon the usefulness of the results in terms of drawing conclusions and reaching the objectives and aims of each of the studies.

Conclusion

There is a rich but limited literature on medical anthropology in PNG (41). Few recent ethnographic studies have been undertaken but, likewise, there are limited rapid formative qualitative studies recorded in the published literature (42,43). These types of study also have their role in informing health service and system design, and monitoring and evaluating health services (26).

One way of doing things differently from the past, and perhaps being more effective and achieving better outcomes, starts with having better baseline understandings of the various communities’ views on illnesses and
their causes, of health-seeking behaviours and of the facilitators and barriers to seeking prescribed care. As Romanucci-Ross and fellow authors (44) noted: “For health services and providers to achieve the goal of optimal human health ... they must be aware of and pay attention to the duality of biology and culture and the interconnectedness of this at patient, family, community, provider and health system levels, in many and complex ways.”

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