PERCEPTIONS OF ENVIRONMENTAL HEALTH RISKS AND CARE SEEKING BEHAVIOURS OF VULNERABLE URBAN HOUSEHOLDS IN THE TAMALE METROPOLITAN AREA

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ABSTRACT

The link between the urban environment and health has long been recognised. In spite of this, the environmental contribution to ill-health continues to increase in many cities of the developing world. The threat of environmental-related diseases is often exacerbated by increasing poverty and social inequities thus making many urban dwellers vulnerable, especially low-income households. Little is however known of how these environmental threats to human life are perceived by these vulnerable groups. It is in this context that this study was undertaken to assess peoples' perceptions of environmental risks and their priorities regarding health care, through focus group discussions and semi-structured interviews. The findings indicate that risks have many dimensions and mean far more to vulnerable households than the possible health effects. Moreover, each way of perceiving risk embodies its own set of subjective value judgments based on experiences. Decisions to seek health care are influenced by a combination of cultural perceptions about disease causality and knowledge of curative efficacy with modern health care generally considered a last resort. The paper concludes that health risks cannot be seen in isolation from physical, social, cultural and economic forces, all of which are related to life in general. It calls for risk prevention measures to be planned within a socio-cultural context, and the inclusion of socio-cultural beliefs in designing community health programmes.

KEY DESCRIPTORS: Care Seeking Behaviour, Environmental Risk Perceptions, Social Inequities, Environmental Health, Vulnerability.

INTRODUCTION

Despite the surge in international, regional, national and local recognition of the link between the environment and human health, the environmental factors in or causes of disease in developing countries continues to increase. An estimated 25 percent of all preventable illness is caused by environmental factors (Gopalan, 2003). In Africa, the environmental contribution is even higher, with approximately 35 percent of disease attributable to environmental factors (UNEP et al., 2002). Every year, over 5 million children between 0 - 14 years of age die, mainly in the developing world, from

diseases related to the environment, such as malaria, dengue fever, acute respiratory infections and diarrhoea. Worldwide, 500 million children are debilitated by environmental diseases each year. Every hour, 15,000 people worldwide die of an infectious disease, and more than half of those are children under 5 years of age while 2 million children under 5 years of age die every year from acute respiratory infections, for which indoor air pollution is a major causative factor (Gopolan and Saksena, 1999; Smith et al., 1998). In Ghana, malaria, diarrhoea and upper respiratory track infections together account for approximately 53 percent of out-patients attendance annually. Malaria alone is responsible for nearly 35 percent of all deaths of children under 5 years (Ghana Health Service, 2004). According to a Ghana News Agency (GNA) report in 2003, statistics available from the Ministry of Heath indicates that diarrhoea accounts for 84,000 deaths annually in Ghana with 25 percent being children under 5 years. Many environmental threats to health are aggravated by persistent poverty and social inequities, as low-income groups are usually those who suffer from environmental-related diseases. Some environmental health hazards should, therefore, be a priority, including the lack of clean household water for consumption and hygiene, poor sanitation, air pollution, vector-breeding among others.

In Ghana, public health officials recognise a direct link between many of the most common and serious illnesses, such as malaria and diarrhoea, and exposure to environmental risk factors. Yet, very little is known regarding public perception of these risks and treatment preferences of many major community health problems. The success of any initiative to deal with health problems will very much depend on the recognition and care seeking behaviour of the people affected as it is often said that perceptions mould people's reactions to the world around them. Individual health actions need to be considered within the specific socio-cultural belief models which orient local definitions of health and illness (van de Geest, 1997). The importance of understanding the determinants of environmental risk perceptions has been emphasised by a number of authors (Beck, 1992; Michener, 1998; Slovic, 2000). This concern, according to Kapoor (2001), is partly the outcome of a shift away from top-down approaches to development toward more community based interventions.

Risk to health, as an area of study, has only recently begun to receive attention in developing countries (WHO, 2002). Social science theories and empirical data on perceptions of environmental risk have also focused largely on factors related to frequently occurring disagreements between the lay population and technical experts. In other words, when assessing the risks, experts place the emphasis on quantitative data, such as those derived from measurements and experimentation whereas citizens are much more likely to base their opinions on qualitative aspects, such as the nature and origin of the threat to which they are exposed, usually involuntarily (Blake, 1995). For example, when evaluating risks, members of the public take into account considerations such as the lack of familiarity with or lack of control over the danger or its source. They also take into consideration the uncertainty about the possible

health risks and the credibility of the source of the information. The discrepancies between public opinion about the risk and that of the risk assessors or the authorities can create a great deal of tension. Policy makers cannot therefore be concerned with only scientific explanations of the risks but must also pay particular attention to the risk perception of all parties involved since risk has different meanings to different groups of people and all risks have to be understood within the lager social, cultural, and economic context. In this regard, both risks and benefits have to be considered when seeking to understand what drives behaviours and why some interventions are more acceptable and successful than others (WHO, 2002).

The main objective of this paper is to assess households' perceptions of environmental hazards and the extent to which their understanding of health influence care seeking behaviours. Understanding the variability of health and risk perception in an urban district is important for two reasons. First, it is an essential prelude to the design of successful health or environmental projects, if the relevant, feasibility and distributive capacity of the intervention are to be adequately considered (Byrd et al., 1997; Leach et al., 1999). Second, the dynamics of individual access to environmental services are generated by more complex interactions in dense urban environments. Understanding environmental risk perception variability can therefore be an entry point to a better mapping of these dynamics.

The next section of the paper gives a profile of the study area and outlines the methods used. This is followed by an identification of the groups most vulnerable to environmental hazards. The fourth section looks at the environmental concerns and risk perceptions of the households studied while section five examines their health care seeking bahaviours. The paper ends with a conclusion and some key policy issues.

METHODOLOGY

Profile of the Study Area

Tamale is situated at the centre of the Northern Region of Ghana, which lies mainly in the savannah climatic region of West Africa. It has two distinct seasons: a prolonged dry period from November to March, which is usually accompanied by severe water shortage, and a wet season from April to September. The area is poorly endowed with water bodies. The only water systems are a few seasonal streams which have water during the rains and dry up completely during the dry season. With a population of 293,881 made up of 146,979 (50.01 percent) males and 146,902 (49.99 per cent) females in the year 2000 (Ghana Statistical Service, 2005), Tamale is the largest urban centre in northern Ghana and the third largest in the country. The metropolis originally formed part of the West Dagomba District until 1983 when it was carved out to become the Tamale District. It was given a municipal status in 1992 and later became a metropolitan centre in 2005.

Tamale is a city with diverse forms of life. Though a predominantly Moslem community, people from various religious faiths and walks of life are found in the city. Available information suggests that the city is highly dense and culturally diverse with a local economy characterised by low skills and unemployment among the youth, and the majority of the residents have low incomes and are involved mostly in informal production. This situation has resulted in the prevalence of high levels of household and neighbourhood environmental problems. Individual households and the community as a whole are exposed to several housing, water, sanitation and other environmentally-related risks. Life expectancy at birth in the metropolis is 50 years compared with a current estimated life expectancy of 56 years for Ghana (Ghana Statistical Service, 2004). The infant mortality rate is 168 per 1,000 live births and the child mortality rate is 198 per 1,000 (Tamale Metropolitan Health Directorate, 2005). Thus over a quarter of the total number of children die before age 5. These figures far exceed the national infant mortality rate of 64 deaths per 1,000 live births and child mortality rate of 50 deaths per 1,000 (Ghana Statistical Service, 2004).

Methods

The quest for more critical approaches to urban health research has reinforced a shift of emphasis from quantitative techniques towards a humanistic procedure which is fairly critical of biomedical and positivist views of health (Kearns, 1997). Humanistic geography focuses on the nature of the motivations behind individual health related behaviour and a concern with understanding individual knowledge, experiences and decision-making, and is largely based on qualitative research approaches (Kearns, 1997; Parr, 1998). Narratives are increasingly being used by health geographers as a way to engage with everyday situated experiences of people in place (Wiles et al., 2005). Such an approach does not advocate attention on the individual at the expense of the environment; rather it considers the environment as viewed through the individual. Moreover, the only true judge of an environmental hazard is the individual person who is affected. The opinions of environmental health experts may provide useful complementary material, but they are no substitutes for allowing people to speak for themselves. The study was thus designed to provide a coherent assessment of the views of vulnerable households about environmental health risks, and in so doing bring to light their perceptions of health and health care.

The primary research methods for this study were the use of focus group discussions and semi-structured interviews among households. The information for this paper was collected as part of a broad household survey to determine the link between the household environment and health in the Tamale Metropolitan Area. Interviews were conducted among individuals and groups drawn from various residential areas. In all 300 households were covered by the study. The first step of the sampling procedure involved a proportional stratification by the residential categories derived from the Medium Term Development Plan of the Tamale Municipal Assembly (2003). This stratification distinguishes residential areas of the city principally on the basis of rent

and amenities (housing and its related facilities) values. The sample was apportioned across the residential categories according to the relative share of households residing in each stratum. The apportioning was based on the results of the 2000 Population and Housing Census. The resulting sample size in each stratum is given in Table 1, with some rounding. Within the communities blocks were selected based on the number of houses given in the 2000 Population and Housing Census report for each locality. Interviewers selected households to interview by systematically walking through the blocks and interviewing every tenth/twentieth household. Local community members who were trained by the researcher undertook the interviews in the local language (Dagbanli).

Table 1: Sampling frame

*Residential category	**Number of households	Sample share	Sample size
Indigenous Residential Areas	15,886	41%	123
Middle Class Residential Areas	11,358	30%	90
High Class Residential Areas	5,322	14%	42
Newly Developing Residential Areas	3,105	8%	24
Low Class Rural Fringe	2,306	7%	21
Total	37977	100%	300

Sources: *Based on TMA (2003), Medium Term Development Plan 2002 – 2005.
**Extracted from Ghana Statistical Service Data Base, 2005.

There was a stratification of the discussants into male and female groups. Generally, an attempt was made to investigate the knowledge, attitudes and perceptions of households/individuals about the household environment and health. Two series of focus group discussions were conducted. The first series of group discussions were part of the broader household survey in January 2005. The second series of focus group discussions were held in February 2006, after the results of the initial survey had been collated. Since the more serious environmental problems were concentrated in the poorer areas, participants were selected to reflect this situation.

VULNERABILITY TO ENVIRONMENTAL RISKS

Poor cities/towns and neighbourhoods almost inevitably face serious local environmental health problems, but even within the same city/town neighbourhoods of comparable wealth vary enormously in their environmental quality. Within cities, wealth is clearly a major factor determining the environmental risks households face (Songsore, 1999). However, affluence is only one factor that influences environmental burdens. Other factors may include the natural setting, the functional role or historical context of the neighbourhood or city/town. But communities also react

differently to the environmental challenges they face (McGranahan et al., 1996). Households living in low-income areas are often those worst affected by environmental problems. They are those most likely to live near polluting roads or to endure poor quality housing and amenities. They also spend a disproportionate large amount on 'basic environmental goods' such as energy and water.

The impact of environmental problems on health depends on the characteristics of the individual, household and social group exposed to a particular hazard. Certain attributes can also influence the severity of the health impact. According to Pryer (1993), these features include age, nutritional status, mobility, strength and balance, activity, time of exposure, social roles, the extent of community provision of health care, the individual's or household's ability to afford health care and individual, household or community coping mechanisms. Infants and young children are at greater risk of dying from many environment-related diseases (for instance diarrhoeal diseases, malaria, pneumonia or measles) than older children or adults (UNICEF, 1992). Satterthwaite (1993) explains that infants and children often suffer not only from a poor physical environment in the sense of overcrowded and hazardous housing and inadequate provision for play but also from the stress and possible psychosocial disorders which deficiencies in the physical environment promote in their parents or carers.

Women are more vulnerable than men to many environmental hazards, some because of their sex (that is as a result of biological differences), and others because of gender (that is as a result of the particular roles that women play, determined by social, economic and political structures) (Satterthwaite, 1993). For instance, Moser (1987) notes that women are exposed to more environmental hazards than men due to gender role differentiation that assigns women the primary responsibility for reproductive activities such as child care, household management and family welfare as well as subsistence production. Also, Sapir (1990) emphasises caring for the sick and laundering, and cleaning soiled clothes as being particularly hazardous when water supplies and sanitation and washing facilities are inadequate. In addition, WHO (1992) observed that it is generally women (or girls) who take responsibility for tending the fire and cooking and who inhale larger concentrations of pollutants over longer periods. Women and children are also most vulnerable to domestic violence which may arise from, or be increased by, poor quality and overcrowded housing and living environments. Women's vulnerability is much increased because their practical needs are rarely given the priority they deserve. Even when they are, women are rarely consulted about the most appropriate design and service provision.

ENVIRONMENTAL HEALTH CONCERNS AND RISK PERCEPTIONS

Concerns and Perceptions of Risks

With the prevalence of environmental illnesses increasing along with the number of households without access to health care, environmental health seems to be of a

major concern to vulnerable households. This is in line with expert thinking that environmental problems play a significant role in contributing to endemic diseases. Douglas and Wildavsky (1982) have argued that concepts of risk are actually embedded within societies and their cultures, which largely determine how individuals perceive risks and the autonomy they may have to control them. In the Tamale Metropolis, risk factors also include many other dimensions, and certainly risk means far more to vulnerable household members than the possible health effects. As explained by an elderly man between 45 and 50 years *"...we have three main types of risks in our community: poverty, hunger and sickness."* Evidently, the term 'risk' has many different meanings and connotation. This often causes strains in communication, since risk measures tend to be inherently subjective. Additionally, each way of perceiving risk embodies its own set of inherent and instinctive values. For instance, the health risk of living and working close to a public waste dump or a badly smelling communal toilet may often be much more accommodating than the risk of economic and social dislocation that will accompany relocation to another place. Such choices involve subjective value judgments.

People's perceptions of health risk are based on a diverse array of information that they have obtained on environmental hazards. These experiences also occur within the context of a person's society and culture, including references to beliefs and systems of meaning. People tend to overestimate the health outcomes of rarer and infrequent risks, such as earthquakes or even floods, while underestimating considerably those from common and frequent causes, such as inadequate water supply and sanitation as well as exposure to insect/vectors such as mosquitoes and flies. Such perceptions have obvious implications for control strategies that are focused on many common and widely distributed risks to health.

To the extent that socio-political factors shape peoples' perception of environmental health risk, gender differences appear to have an important influence on interpreting health risks. The effect of gender on risk perception has been well documented (WHO, 2002; Byrd et al., 1997), with men tending to judge risks as smaller and less problematic than women do. Explanations have focused mainly on biological and social factors. For instance, Byrd et al (1997) have suggested that women are more socialised to care for human health and are less likely to be familiar with science and technology. In the Tamale Metropolis, the explanation goes beyond these to include the neglect men have for environmental issues as most of the serious environmental problems occur at the household and neighbourhood levels. These include inadequate water and sanitation, lack of waste disposal services, indoor air pollution and pest infestations. Besides, men generally spend more of their times outdoors and as such are less exposed to the risks posed by these household environmental challenges. In general, perceived self or family exposure to environmental health risks is lower than perceived exposure to the community as a whole, especially for risks that are considered behavioural in nature, such as outdoor defecation and indiscriminate waste disposal. The general concern falls right in line with expert thinking that children are

the most vulnerable to environmental hazards. Children, in fact, are a focus of concern in the face of a large number of environmental health threats, including exposure to mosquitoes and cold.

What appears as obvious environmental hazards to an outsider is not necessarily of most concern to households. In the group living close to waste dumps, participants acknowledged the dangers but regarded them merely as a local fact of life. To some extent, the same was true of those living close to the public toilets, as an elderly woman puts it: *"I don't think of the waste dump or even the public toilet as a problem. Perhaps it's because I've grown up with it as most of us have. It's like a wart on the back of your neck. You know it's there, but it doesn't really bother you."*

Attitudes here are more complex, with serious environmental health-related concerns tempered by loyalty towards social relations and economic activities. Concerns about pollution, decay and dereliction are only one aspect of local life, however, and not necessarily the most significant. Participants often attempted to put their complaints into a broader context and emphasised the universality of problems. People found something to praise about their locality and relationships with friends and extended family were central followed by opportunities available for income generation. Perhaps most importantly, they saw their locality as 'a home'. Negative images of their 'home' were therefore met with anger. Casual descriptions of localities as 'poor' or 'polluted' offended residents, who saw such descriptions as stigmatising their community.

Households seem to be much concerned about environmental risks at a local rather than national or global level. This might be interpreted as stemming from very real anxieties about meeting basic environmental needs, leaving little time for wider or more abstract concerns. Indeed, some emphasised that they could not see beyond the present. For instance a man about 55 years old said: *"I don't think I live to see what tomorrow brings, so I don't overly worry about these things."* Others felt environmental problems were too distant or long term, saying priority should be given to immediate problems, as indicated in the words of a man about 60 years of age: *"I have enough problems of my own to cope with so I don't worry about things that are not actually affecting me at the moment ....."*

There was evidence of concern about the environment that is being passed on to future generations. Concern and interest regarding wider environmental issues, however, varied considerably. Some people expressed keen interest in wanting to know more and said they were often frustrated by a lack of information. Little was known about environmental management institutions, such as the National Disaster Management Organisation (NADMO) and other Community Based Organisations (CBOs). There was, however, a total agreement, after a little education, that 'somebody has to stand up' and that the activities of environmental organisations are worthwhile. No participant belonged to any such CBO and this was often explained

in terms of lack of local presence ("there's none around here") and insufficient information.

Perception of Health and Well-Being

According to Obrist (2003), the perceptions regarding health can be grouped according to three recurrent themes: 'basic needs', 'cleanliness' and 'care'. Basic needs encompass food, water, clothing, shelter and financial means. Tamale is a relatively poor city where households have to make special efforts to feed, cloth and provide shelter for their members. Financial constraints and difficulties associated with securing the most basic necessities in life are common themes in everyday conversations in the metropolis. Participants understood the relationship between social, economic and environmental elements. For example, the lack of employment opportunities was felt to affect the safety and quality of the local environment. In turn, an improved physical environment was expected to reap social dividends including improvements in health and general well-being. A participant commented that: *"... as you can see, most of us have no work to do. Even sometimes we don't get enough food to feed our families. So we hardly think of the environment as a problem. I think if we get work to do and earn income, all these environmental problems you see would no longer be there."*

The concept of cleanliness does not only refer to a clean body and clean clothes, but also various aspects of household/personal hygiene; therefore good health is in cleanliness. Diseases perceived to originate from dirty surroundings are mainly fever and diarrhoea. Although these might seem inconceivable, the association of fever and diarrhoea to insanitary environments coincides with the frequency of mosquitoes and flies infestation, which may be an indication for the relationship between pests and diseases. Statements about 'care' emphasised the active role of individuals (especially women) and preventive or protective measures. The idea is that basic needs do not fulfill themselves and cleanliness does not come about by itself; one has to work hard to achieve both and ensure good health. This is a reflection of the fact that vulnerable households recognise that individuals have a very crucial role to play to achieve good health.

Several other health problems are also believed to arise from the type of "mechanistic" or "deterministic" sources described by Sindzingre and Zempleni (2005:320). They are sicknesses imputed to magical powers (charms). Such perceptions are related to traditional beliefs that health is not exclusively in the hands of human beings. Supernatural attributions of health are often related to careless expectant mothers being attacked by evil spirits and evil winds. A woman stated this as: *"A pregnant woman should be careful. If she is not, then her child will be born with chest pains."*

From this narrative, the belief is that careless or inappropriate behaviour of the mother makes her vulnerable to spirit attacks, thus 'cooling' her breast-milk and

affecting the child. The narrative may also have some environmental implications signifying an understanding of the negative effects of harsh (cold) environmental conditions on the health of the unborn baby. These beliefs are related to the notion that mother's and child's health are closely linked, particularly when nursing (Zaman et al., 1997). Another dimension of these perceptions which seem to be somewhat prevalent is the belief that all diseases are already present in the body. It is perceived that 'risky behaviour' causes diseases to become manifest, rather than such behaviour increasing the likelihood of infection by an external germ.

Changing Perceptions of Health

Due to the exposure to electronic media, non-governmental organisations (NGOs) and community health workers, perceptions about health are changing within communities in the Tamale Metropolitan Area, with women incorporating new understandings of illness and health care practices. Women recounted how previously elders restricted them from giving children certain foods during illness and dissuaded them from going to medical facilities. This was how a young woman between 25 and 30 years put it: *"In the past, we were told not to eat oranges, eggs and beans when pregnant, but we eat all these now. We do not follow these old food restrictions. In the past we would not allow our children to eat fruits and vegetables. But now, because of the education we receive from the young nurses, we give them all of these and other fresh foods."*

A few of the older women, however, were unhappy with the marginalisation of their old cultural beliefs. An elderly woman stated:*"We do not allow our children to eat goat's meat and rice. You see goat's meat has oil and fat in it which children should avoid and when they eat rice they cough. But nowadays people don't follow this, they don't listen ...."*

Elders were once considered the main authoritative knowledge on health matters. Evidence, however, reveals changing perceptions and the increasing role of health workers in influencing health practices. For instance, a number of women indicated the influence of community health workers in making them aware of the dangers of withholding breast-milk when children fall sick. This also applies vice-versa: many health workers felt that, now there is more acceptance of their services. They stated that in the past they were subjected to harassment and degrading comments, whereas they are now respected and often seen as 'doctors' in many communities.

HEALTH CARE SEEKING BEHAVIOURS

Combinations of cultural perceptions about disease causality and knowledge of curative efficacy forms the basis of decisions to treat diseases. Some diseases are considered suitable for management by home treatment or traditional health practitioners, while others are considered the exclusive domain of western medicine. Most focus

group discussion participants stated that their decisions to seek treatment for illness from recognised health institutions – hospitals, clinics or health centers – are considered a last resort, often after self-medication has failed to yield the desired results. In general, a pattern seems to emerge whereby patients tend to consult modern health care services for infectious or acute diseases – those for which modern health care has been shown to be highly effective. Other diseases remain within the domain of traditional medicine: chronic conditions, complaints related to psychological or social disruption, problems associated with reproduction (for example, infertility, menstrual disorders and impotency) and diseases that respond slowly to modern treatments (for example, tuberculosis) and those deemed to be 'spiritual' in origin. Most of these diseases are perceived to be caused by social problems rather than individual forces and to have social significance, as well. For instance, not being able to bear children has several social implications for the well-being of affected individuals.

There are currently many types of traditional healing practices in the Tamale Metropolitan Area. However, most traditional healers practicing in the metropolis function in one or more of the following areas: herbalism, divination, faith healing, bonesetting and traditional birthing. Although the actual number of traditional healers in the metropolis is unknown, they constitute a significantly large group of practitioners who are recognised, trusted and respected by their respective communities. They have greater credibility than do community health workers, especially with respect to social and spiritual matters. People who consult traditional healers rather than modern health care providers gave several reasons for doing so. First, patients may feel more comfortable with traditional healers who reside in the community and who are familiar with the social context. The authority of traditional practitioners often derives in substantial measure from their historical importance within their communities. They are believed to have special spiritual powers to heal and in some communities only those who claimed descent from lineages with long involvement in traditional health care could attract the attention of care seekers. In addition, traditional practitioners are usually older, and therefore command respect. Traditional healers are also more willing than their modern sector counterparts to accept payments in kind or to agree to delayed payments. Others do not even charge any fees at all; rather they accept a token of appreciation after a successful healing. In most cases, the traditional healer plays a much wider social role than merely providing health care. He is also a religious consultant, a legal and political adviser, a police detective, a marriage counsellor and a social worker. In this sense, traditional and modern health care workers are not directly comparable. Hence, people often do not perceive the services provided by the two traditions as substitutes for one another.

Most complaints about modern health care are related to queues in hospitals and clinics. Participants complained that at times the queues are so long that one can spend the whole day waiting without being seen by a doctor or a nurse. The system forces a person to queue three times: first one queue to register; then queues to see a

nurse or doctor; and finally queues to get drugs at the dispensary. The problem of long queues is aggravated by poor services, often stemming from non-availability of drugs. Queuing usually worsens patients' conditions when after standing in queues for hours they are told that the drugs the doctor has prescribed are not available. In some cases, people queue to see a doctor only to be told he/she is not available. With doctors being in short supply, the majority of those using hospitals are attended to by nurses and medical assistants. However, patients feel entitled to the best services available and are easily upset if they are sent home after being seen by a nurse. In spite of the fact that households recognised the important position of traditional healers in health care delivery in the metropolis, they raised a number of concerns regarding the manner in which they operate. Among the perceived disadvantages of traditional medicines are: traditional treatments are relatively slow to take effect; lack of standardisation for herbal medicines, which is believed to be a source of inappropriate prescription for medication and inaccurate measurement of dosage or at times a prescribed medicine may not be specific to the particular illness being treated; possible unhygienic use of instruments, which is implicated in the transmission of diseases; different perceptions of cause of disease by different practitioners; and possible exploitation by charlatans.

Modern pharmaceutical agents are a commonly used therapy for the home treatment of many diseases or they serve as an alternative when traditional remedies fail. Potential sources of medications include pharmacists, health centres or hospitals, relatives or friends with unused supplies, licensed dispensers, shopkeepers and unlicensed drug salesmen. Combinations of drug availability, knowledge of curative efficacy and cost constraints all enter into the decision to buy modern medications for treatment of diseases. Factors influencing the use of modern drugs include reputation for curing friends or relatives, the size of pills and in some cases, the taste or colour of the medication. In addition, families may be more likely to resort to modern medicines when their disease episode is prolonged.

CONCLUSION AND POLICY ISSUES

Given the complexity of living conditions in the Tamale Metropolitan Area, health risks cannot be seen in isolation from other domains such as the environment, economy and culture. To this extent, physical, social, cultural and economic factors are central to how individuals perceive health risks, and all these factors form part of the larger local discourse on the problems, difficulties, dangers and risks related to life in general. The discussion demonstrates the varied and complex nature of households' perceptions of illnesses associated with environmental risk factors and treatment options. This calls for risk prevention measures to be planned within the context of local society, bearing in mind that the success of preventive interventions is only partly a matter of individual circumstances and experiences. Moreover, cultural understanding and practices of communities need to be considered when designing measures and programmes for improving community health. This is important

because people may neglect or ignore health advice if their own notions of disease causality conflict with the biomedical explanations often available in most intervention strategies.

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