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Influence of Social Capital on Community-Based Health Care Programs in Rural Papua New Guinea: An Ethnographic Study

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INFLUENCE OF SOCIAL CAPITAL ON COMMUNITY-BASED HEALTH CARE PROGRAMS IN RURAL PAPUA NEW GUINEA: AN ETHNOGRAPHIC STUDY

by

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DISSERTATION

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DEDICATION

This dissertation is dedicated to the Koban people of middle-Ramu and the people of Angalimp South Wahgi district in Jiwaka Province who participated in this study and their willingness to teach me about the true meaning of kinship and health.

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ABSTRACT

This descriptive, ethnographic study explored the influence of cultural health beliefs and social capital on the adoption of community-based health care interventions by rural villages in Papua New Guinea. The development of local level resources that lead to improved health indices requires an awareness of both the cultural context and the relational components of social capital that link people within the community. Social capital has been defined as resources that are an inherent part of a social group and the elements of social organization such as trust, networks, and norms of reciprocity that facilitate mutual cooperation (Billings, 2000; Carpiano, 2006). The configuration of social capital in a group can potentially be operationalized to support the capacity of the community to create health-promoting change.

Findings revealed that relational harmony was seen as essential for the maintenance of health. Strong kinship ties and consensual decision-making is the norm in rural villages, however women continue to have a limited voice. A synthesis of traditional health beliefs and innovative practices influenced how health promotion activities are perceived and implemented; and religious practices are viewed as integral to societal stability and psychosocial health. Developing a comprehensive understanding of sociocultural and contextual influences on the adoption of health promotion practices can help nurses facilitate community empowerment and sustainability of community-based health care programs in rural areas.

KEYWORDS: Rural, community-based health, social capital, health promotion, ethnography, Papua New Guinea

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Chapter 1

Introduction

Health is a complex phenomenon that can be conceptualized from either a positive or negative perspective. Health has been described as the absence of disease, a sense of well-being, the capability to function optimally, or the ability to fulfill one's desires (Larson, 1999; Tengland, 2007). Many definitions of health reflect an individualistic perspective with limited emphasis on the dynamics of the societal and contextual environment (Schim, Benkert, Bell, Walker & Danford, 2007). Although health can be described in a variety of ways, cultural health beliefs influence how societies judge the relationship between health outcomes and social conditions (Levin & Browner, 2005). Western health care systems have traditionally placed the responsibility for wellness on the individual, thereby failing to integrate the extant relational resources that are an essential component of healthy behaviors in many non-western collectivistic societies (Carlson & Chamberlain, 2003; DiClemente, Crosby & Kegler, 2009; Garcia, 2005).

Health disparities remain a pervasive problem in developing countries, particularly in remote rural areas. Health disparities are associated with poverty, limited educational opportunities and inequities that occur as a result of a wide variety of contextual and sociopolitical factors (Glasgow, Johnson & Morton, 2004). Rural areas particularly suffer from a disproportionate burden of disease due to limited economic resources and a lack of access to health care facilities. Definitions of rurality in the literature are ambiguous due to the dichotomous perspective that categorizes a place of residence as being either urban (metropolitan) or rural (non-metropolitan) (Glasgow,

Johnson & Morton, 2004; Lauder, Reel, Farmer & Griggs, 2006). The concept of rurality extends beyond isolated geographical location and low population density to encompass issues such as limited transportation to urban areas, lower socioeconomic status, inadequate access to health services, and scarce occupational opportunities (Graves, 2009; Institute of Medicine, 2005; Vanderboom & Madigan, 2007).

For purposes of this study, the following definitions will apply: Health disparity is defined as the adverse health conditions and burden of disease that are more prevalent in communities that lack access to medical care due to geographic isolation, and are economically and educationally disadvantaged (National Cancer Institute, 2010; National Institutes of Health, 2012). Rurality/rural is defined as open country that is sparsely populated, including villages of less than 2,500 (Glasgow, Johnson & Morton, 2004; Lauder, Reel, Farmer & Griggs, 2006; United States Bureau of Census, 1987). Although the literature does not provide an explicit definition of rurality in the Papua New Guinea (PNG) region, it can be described as the nonmetropolitan areas located outside the boundary of towns or provincial capitals. The PNG National Statistical Office (2015) calculates the rural population by subtracting the number of those living in urban areas from the total population.

This chapter examines the background, context and framework associated with the research study. Following the introduction is the problem statement, statement of purpose, and research questions. A description of the limitations and assumptions associated with the study are included. Finally, the chapter concludes with the rationale and significance of the study, and operational definitions of selected terminology.

Problem Statement

Over the past few decades, health indicators in Papua New Guinea have either stagnated or declined despite extensive interventions on a national and international level (McKay & Lepani, 2010). Disparities in rural communities continue to be present in both access to health services and the health indicators. It is unclear whether stagnation in health indicators is associated with ineffective health care interventions, changes in the societal environment, or other unidentified variables.

Community-focused health care programs have been developed in a number of rural settings in PNG to assist in the provision of essential health care services, however while some projects have resulted in positive outcomes many have proven to be either ineffective or unsustainable. Programs tend to be unsustainable due to a lack of community cohesiveness, scarce resources, and an absence of health care professionals to promote healthier behaviors (Ashwell & Barclay, 2009a). The Community Based Health Care (CBHC) program has anecdotally been effective in establishing functional health promotion projects; however, supportive data has not yet been collected. The process of successfully addressing health care issues in rural settings is multi-factorial. Thus, in order to successfully address these issues in rural settings, it is necessary to integrate cultural health beliefs and the social resources that are an inherent part of the contextual fabric of the community.

Statement of Purpose and Research Questions

The purpose of this study was to describe the influence of cultural health beliefs on the adoption of health-related innovations in rural Papua New Guinea. This study also explores how components of social capital (trust, reciprocity, social engagement)

influences community participation in health promotion innovations facilitated by CBHC projects. The research questions guiding this study are as follows:

1. What is the influence of cultural health beliefs and religious practices on people's view of individual and community health?
2. What role does social capital have on the implementation of health promotion innovations in communities involved with CBHC projects?
3. How does participation in the CBHC program impact the health status of rural communities in Papua New Guinea?

Background and Context

Papua New Guinea (PNG) is an island nation directly north of Australia, located on the eastern half of the island of New Guinea, and includes nearby islands in the Coral Sea and the South Pacific Ocean. The western half of the island of New Guinea (Papua, formerly Irian Jaya) is a province of Indonesia. Geographically part of Oceania, PNG is approximately the size of the state of California and has a population of 6.4 million people with an estimated 70-85% living in rural areas (World Health Organization [WHO], 2015).

Three quarters of Papua New Guinea are mountainous rain forests with the remainder being swamplands that are predominately located near the Sepik River. The mountainous interior of the country is comparatively more densely populated than the coastal lowlands. Travel is problematic in large areas of the country due to limited road access (only 3% of roads are paved) and local criminal activity (World Health Organization, 2007). As a number of villages are completely inaccessible by road, small unpaved airstrips are located throughout the more isolated rural regions, and provide

access to the urban centers by small single engine aircraft. Educational opportunities are limited outside of urban settings and nearly half of the population is illiterate (WHO, 2009).

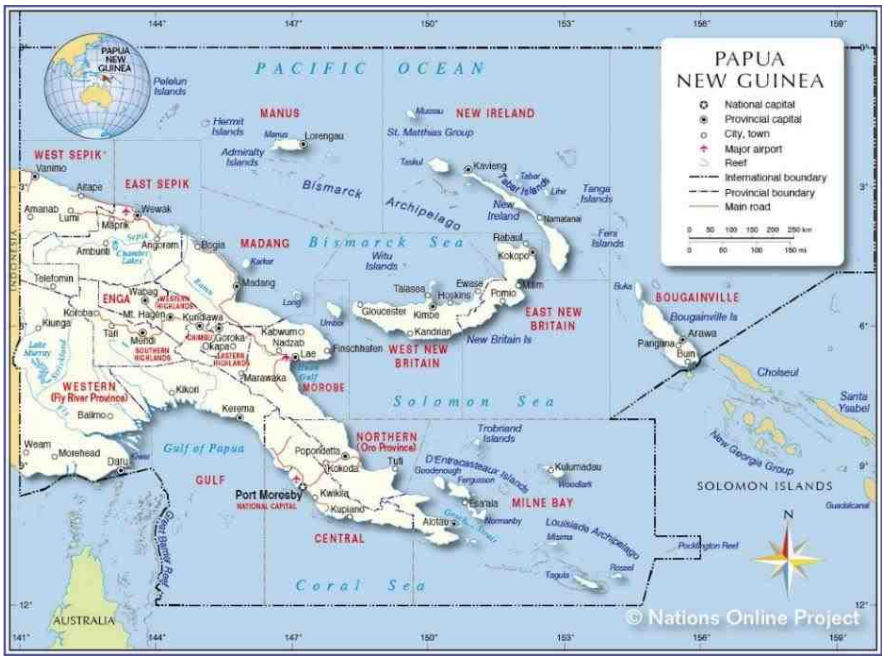

Figure 1. **Map of Papua New Guinea. Retrieved from www.nationsonline.org/oneworld/maps.htm**

The Independent State of Papua New Guinea is a member of the British Commonwealth with Queen Elizabeth II as the titular head of the country, and is represented by a governor-general. Papua New Guinea has a democratic parliamentary form of government headed by a prime minister, and is made up of representatives from the 22 provinces who are elected every five years (Commonwealth of Nations, 2015).

The population of PNG is described as one of the most heterogeneous in the world with hundreds of ethnic groups and a wealth of cultures, languages, and traditions (United Nations, 2004). There are three official languages: English, Hiri Motu, and Tok Pisin (Melanesian Pidgin or neo-Melanesian), a creole language that serves as the lingua

franca for most of the country (Anere, 2004; WHO, 2015). Considered one of the most linguistically diverse nations in the world, PNG has over 800 indigenous languages and the accompanying sociocultural diversity that each language group represents (WHO, 2015). This diversity has proved to be challenging in the governmental policy arena as Papua New Guineans are more inclined to have close relational ties with their clan and others in their linguistic and ethnic group, but do not tend to have a strong sense of national identity (Reilly & Phillpot, 2002). Traditional social structures and customs remain predominantly intact in most regions with the bonds of kinship and obligations regulating interpersonal relationships in areas where governmental judicial influences are limited (Worth & Henderson, 2006).

Many of the linguistic-ethnic groups have engaged in localized conflict for centuries, an increasingly problematic situation due to the advent of modern weaponry (Matthew, 1996; Reilly, 2008). Historically, disagreements between neighboring ethnic groups began with the death of a person, adultery, theft, or destruction of property (Brown, 1978). Intra-group (among clans) and inter-group (across ethnic groups) violence pre-dated any colonial influence and continues after independence to be prevalent, particularly in the highlands (Reilly, 2008). In addition, political protests and violence related to mining and logging have been associated with increased demands for compensation and competition for land rights (Anderson, 2010; Reilly, 2008).

The majority of the population of PNG live in small villages on their ancestral lands, and subsistence agriculture is practiced by approximately 87% of the population (Ayalew et al., 2011; Worth & Henderson, 2006). Some areas such as the Wahgi Valley in the Western Highlands province practice intensive cultivation of sweet potatoes

(*kaukau)* and taro, while other more isolated regions continue to follow a mixed hunting-collecting and subsistence agricultural lifestyle (Feil, 1987). Rural areas of PNG practice variations of shifting or swidden horticulture which requires a rotation of garden sites to restore fertility of the soil (Sillitoe, 1998). This form of agriculture requires the abandonment of old gardens when there is a decrease in crop yields; some crops may grow well for several years in one location while crops such as mixed vegetables require new locations annually (Brown, 1978). Selection of new garden sites are determined by the men of the clan and is influenced by location characteristics including land rights, topography, and distance to other gardens and homesteads (Sillitoe, 1998).

The initial work for garden preparation is usually performed by men and includes clearing trees from virgin rain forest or secondary growth, digging deep drainage ditches to control water run-offs, and construction of the fences around the garden to prevent damage from pigs (Brown, 1978; Sillitoe, 1998). Women then are tasked with the subsequent work of planting, weeding, and harvesting the crops (Sillitoe, Stewart, & Strathern, 2002). The garden provides the venue for fulfilling basic needs such as food, building materials for homes, plants for medicines, and the income derived from cash crops. An important aspect of gardens in the Highlands is raising sweet potatoes to feed pigs. Pigs play an important role in Papua New Guinean society; they are used for a variety of exchange purposes such as payment of bride price, meeting obligations to others, and compensation to settle disputes (Ayalew et al., 2011; Sillitoe, 1998). The ability to grow food for pigs and the number of pigs owned is used to determine social rank in traditional rural communities (Ayalew et al., 2011).

The majority of land (97%) in Papua New Guinea is held by customary land owners and administered under traditional land tenures by clan leaders (Anderson, 2010). Customary land rights are held at the clan or group level, and provide a sense of solidarity, supplying a sense of continuity between the people and their history (Brown, 1978; Martin-Prevel, 2013). Group property includes land used for homestead sites and gardens, with the acreage being divided by sub-clans and families as needed. Colonial regimes did not make substantial changes to customary land titles, giving PNG one of the most egalitarian distribution of land in the world (Anderson, 2010). In Papua New Guinea, land holds a significant social and spiritual meaning; some land usage is inherited and long-term settlements provide the customary land owners with a sense of permanency and connection (Martin-Prevel, 2013). Although customary land cannot be sold, recent changes in land registration policies may open up to 20% of land currently held under customary land tenure to business leases (Anderson, 2010; Martin-Prevel, 2013).

Involvement with religious groups is very common in PNG, with between 96-99% of the population identifying themselves as Christians; the remainder following traditional animistic and magico-spiritual belief systems (Hauck, Mandie-Filer, & Bolger, 2004). The history of Christian influence goes back to the early 19th century, accompanying the colonial activities of the French, followed by German and then British expansion efforts (Hauck, Mandie-Filer & Balger, 2004; U.S. Department of State, 2003). The influence of established Christian churches (Lutheran, Roman Catholic, Methodist, Anglican) were largely confined to coastal regions until after World War II when more remote areas of the island were explored by both established churches and

evangelical mission groups. The majority of the population identify themselves with one of approximately 150 different Christian groups, the remainder belonging to non-Christian religions including Islam and Baha'i (Hauck, Mandie-Filer & Balger, 2004). While tensions are present at times between adherents of older established churches and newer mission groups, religious violence is rare and usually precipitated by underlying ethnic conflicts rather than doctrinal differences.

Among some Papua New Guineans, a degree of ambivalence exists regarding the manner in which Christianity has changed traditional cultural practices, as well as the close relationship that existed between the colonial administration and Christian mission organizations prior to independence (Latukfu, 1998). In the decades since independence, the influence of western expatriate leadership in faith-based organizations has waned and churches in PNG have become an integral part of the culture, often considered as indigenized institutions (Hauck, Mandie-Filer & Bolger, 2004; Latukfu, 1998). Christianity is viewed as making an important moral and social contribution to society, a role recognized in the preamble to the PNG constitution that pledges to "guard and pass on to those who come after us our noble traditions and the Christian principles that are ours now" (Independent State of Papua New Guinea, 1975, p.1).

Health disparities in Papua New Guinea. Papua New Guinea ranks 133rd out of 177 countries in social indicators, placing it behind all other Pacific nations in infant mortality and life expectancy (Bolger, Mandie-Filer & Hauck, 2005; Worth & Henderson, 2006). Infectious diseases account for approximately 50% of overall mortality (Naraqi, Feling & Leeder, 2003; WHO, 2009). Meningitis, gastroenteritis, and measles are frequently the cause of childhood mortality (WHO, 2011). The mortality rate

of children under the age of five has increased from a rate of 64 per 1,000 in 2005 to 74 per 1,000 live births in 2009 (Commonwealth of Australia, 2009; WHO, 2011). Morbidity and mortality rates from infectious diseases are exacerbated by the prevalence of additional risk factors such as gender inequality leading to intimate partner violence, and social unrest from recurrent episodes of fighting between ethnic groups (Hinton & Earnest, 2010). Mental health services are also limited; most mental illness is considered to result from displeasing the spirits or from the overuse of cannabis (Bett, 2010).

Malaria is one of the most common causes of morbidity and mortality worldwide. In PNG, malaria is the third leading cause of death, and the leading cause of outpatient visits in all provinces of PNG. A number of non-governmental organizations (NGOs) have developed projects to distribute insecticide-treated mosquito nets to malarial areas. These projects have had a positive impact on reducing the high incidence of malaria in PNG, however it remains the third leading cause of death (Bockarie & Dagoro, 2006; WHO, 2015).

Diarrheal diseases such as dysentery, typhoid fever, and gastroenteritis are common problems due to contaminated water sources and poor hand hygiene practices. Only 40% of the population has safe drinking water, and the use of improved toilet facilities is limited in rural areas (WHO, 2015). Roundworm and hookworm infestations are common especially among children causing increased incidence of malnutrition and anemia. Approximately 30% of children in the region are considered to be malnourished (WHO, 2015). Malnutrition is commonly caused by cultural practices such as food taboos, lack of protein sources, and the customary practice in some areas of the adult men in a family eating first and then women and children eating the remainder of the available

food. Mortality rates from dehydration are high in rural areas due to the traditional practice of restricting fluid intake in children with diarrhea in order to decrease their output. Maternal/child health clinics and inpatient health education has worked to limit mortality from dehydration by teaching parents how to make and administer oral rehydration solution (Bett, 2010).

Tuberculosis (TB) is a major health problem in PNG with an estimated prevalence of 337 per 100,000 (WHO, 2015). The incidence of TB has increased since the 1990s, and is thought to be related to the presence of the HIV/AIDS virus making the population more susceptible to infection. The current short-course treatment regime requires that sputum-positive cases be hospitalized for one to two months to receive daily injections of streptomycin and receive multi-dose oral medications. While this practice has been beneficial in reducing the communicability of TB in the community, most hospital facilities do not have respiratory isolation capacity, and TB patients sleep in open wards with other patients. Lengthy hospitalizations are also a hardship to women caring for children, or who are needed to provide agricultural labor (Bett, 2010). A number of active cases of TB go unreported and treatment adherence is often sporadic. The directly observed TB short-course (DOTS) program requires patients with TB to take their oral medication under the supervision of a health care worker, relative, or other dependable individual. The DOTS program has been gradually expanded, however, funding limitations and an inadequate documentation system has had a restrictive impact on its effectiveness (Ongugo, Hall & Attia, 2011; WHO, 2015).

Transparency International reported that the people in many rural villages in PNG must travel three to four days to reach medical services (Pincock, 2006). Issues of rurality

are magnified by the prevalence of risk factors such as social unrest from fighting between ethnic groups, and a patriarchal system that has a detrimental effect on women who suffer disproportionally from poor health outcomes due to gender inequity (Hinton & Earnest, 2009; Worth & Henderson, 2006). Women have limited access to health care services and maternal deaths are high due to untreated anemia, pre and postpartum hemorrhage, sepsis and eclampsia. Birth rates and maternal mortality also reflect a heavy burden on women's health. In 2009, the total fertility rate was assessed as 4.4 live births per woman of child-bearing age and maternal mortality was 733 per 100,000 live births (WHO, 2015). Perinatal conditions are responsible for ten percent of all deaths in PNG, and are listed as the second leading cause of mortality (National Statistical Office, 2015).

Despite improved immunization programs, infant and child mortality is still high due to pneumonia, meningitis, dehydration, and episodic outbreaks of measles. Between 1960 and 1980, there was an average annual 3% decrease in the mortality rate for children under the age of five, but there has been only limited improvement in child mortality rates in the past three decades (Naraqi, Feling & Leeder, 2003).

Non-infectious diseases such as cancer are prevalent but there are limited options available in PNG for treatment. The three leading forms of cancer are oral, hepatic and cervical neoplasms. Oral cancer is caused by the practice of chewing betel nut (buai), a mild narcotic which is commonly chewed with powdered lime; hepatic cancer is associated with liver inflammation due to chronic hepatitis and malaria; and cervical cancer is associated with human papilloma virus (HPV) infections (WHO, 2015). An increasing number of chronic, non-infectious conditions such as cardiovascular disease and diabetes mellitus are emerging in PNG due to economic and lifestyle changes

(Naraqi, Feling & Leeder, 2003). According to the Western Pacific Region Health Data Bank, heart disease is now the sixth leading cause of mortality in Papua New Guinea (WHO, 2015). There is strong epidemiologic evidence supporting an association between cardiovascular disease and obesity, smoking, high serum cholesterol, and a sedentary lifestyle (Ebrahim & Smith, 2001). Hypertension is emerging as a significant health issue among urban Papua New Guineans who have adopted a 'western lifestyle' characterized by physical inactivity and a diet high in fat and refined carbohydrates (Benjamin, 2006).

Once uncommon, the prevalence of diabetes mellitus is increasing rapidly, and it is estimated that the number of diagnosed cases in PNG will double from 152,000 to 392,000 in the next 20 years (WHO, 2012). The rapid increase of diabetes mellitus and other non-communicable lifestyle diseases appears to be associated with the dietary alteration that has occurred due to the change from an economy based on traditional subsistence farming to a cash-based economy (Coyne, 2000; Foliaki & Pearce, 2003).

Sexually transmitted infections including HIV/AIDS are widespread in both urban and rural areas. The first case of HIV/AIDS was diagnosed in 1987, and now AIDS is a leading cause of death at Port Moresby General Hospital (Naraqi, Feling & Leeder, 2003). It is estimated that the current HIV infection rate of 2% may increase to over 10% of the population in the next 20 years (Benton, 2008; Cullen, 2006). Papua New Guinea has the potential to follow the trends seen in African nations with increasing numbers of people dying of the virus (Worth & Henderson, 2006). Fortunately, with education about prevention and management, the HIV infection rate has stabilized and is now

predominately occurring in clusters among high-risk groups rather than as a generalized epidemic (Saiyama, 2013).

Papua New Guinean health care system. The PNG National Department of Health (NDoH) has both curative and preventative branches with a decentralized administrative structure that delegates rural health responsibilities to provincial health departments. Each province has a provincial department of health with a referral hospital, smaller rural hospitals, health centers, and health sub-centers. Rural health services, primarily provided by church organizations include health centers, health sub-centers, rural hospitals and village-based aid posts. As a former Australian colony, Papua New Guinea has structured its national health service on a traditional western biomedical model with limited community participation in health policy development or interventions (WHO, 2009).

The capacity for handling disease outbreaks has been judged to be limited due to a nation-wide shortage of staff, inadequate laboratory capacity and pharmaceutical supplies. Both medical supplies and pharmaceutical drugs are periodically in short supply due to fiscal and organizational management difficulties in the approving and procurement process. Major sources of donor funding for health have commonly been allocated to either specific disease interventions, or infrastructure development that restricts the funding available for provincial health budgets. The NDoH is focusing its efforts on developing specific programs to improve maternal/child health and reduce malaria, tuberculosis, and HIV/AIDS (WHO, 2015). Specific disease interventions and donor-directed projects have been successful in some areas but have not addressed the

overall problems which need to be rectified before an overall improvement in health indicators will occur.

Both government and church health services are largely funded by public sector and donor funding. Nurses and community health workers provide the majority of rural health care services. There is approximately one nurse per 2,227 people and one physician per 19,399 people, while the majority of physicians work in the capital of Port Moresby (WHO, 2009). Some rural health clinics continue to provide health services to rural areas by *patrols*; whereas nursing personnel walk to remote villages to provide maternal/child health services and health care services. Because these patrols are infrequent, childhood immunization is inconsistent, and those with chronic conditions or maternal emergencies often go untreated. A referral system developed in the 1980s to transport emergency cases to provincial hospitals is no longer functioning effectively due to economic constraints requiring many individuals to find their own transportation to health centers. While the literature has emphasized difficulties with healthcare access, fiscal mismanagement and inequitable resource distribution in PNG, there has been a paucity of information on how these problems have been addressed or about successful health promotion projects.

Health care infrastructure has deteriorated due to inadequate funding, ineffective economic and health promotion policies, and lack of contextually appropriate intervention strategies (WHO, 2015). Issues of inadequate or nonexistent health services are magnified by a widespread lack of awareness in the population regarding risk-related behaviors and limited involvement by local communities in health promotion programs.

Key health indicators based on the Health-Related Millennium Development Goals and PNG National Health Plan (2011–2020) include improving child survival, improving maternal health, reducing the burden of communicable diseases, promoting healthy lifestyles, and facilitating community ownership of health-related interventions (National Statistical Office, 2011; United Nations, 2011; WHO, 2011). Health indicators identified by Health-Related Millennium Development (HRMD) Goals had shown gradual improvement until the 1990s when resource limitations, flawed policies, and ongoing political and cultural situations caused a decline (WHO, 2007). However, over the past decade, improvement has been made in child mortality rates and other HRMD goals have been identified (Duke, 2004).

The decline in health indicators in PNG has been identified as a cause of concern by both the PNG NDoH and international aid organizations such as AusAid (Australian Agency for International Development). AusAid is the main international funding agency for PNG, and has recently provided financial resources to rebuild deteriorating major health care facilities throughout the country (Commonwealth of Australia, 2009). Unfortunately, this intervention does not address the underlying problem of inadequate health care access for rural areas of the country (Morris & Stewart, 2006). Prior to independence in 1975, most rural villages had an aid post with an aid post orderly (health worker with basic first aid skills) to provide primary health care for the local population (Pincock, 2006). Thirty-five years later, over 600 of the rural aid posts were no longer functioning due to deteriorating infrastructure and limited resources for supplies and salaries (Bolger, Mandie-Filer & Hauck, 2005; Pincock, 2006).

Compounding the problem of declining health indicators is the trend by health care professionals to move away to urban areas leaving a shortage of trained health care personnel to provide services in rural settings (Commonwealth of Australia, 2009). The increased professionalization of rural health workers has exacerbated staffing shortages in rural areas as individuals with higher educational qualifications move to urban centers to obtain better paying positions (Welsch, 2009). Staff shortages have been further aggravated by oil and gas exploration companies who have hired large numbers of health care professionals, a situation that has left government and church health services without adequate staff for many hospitals and clinics.

Papua New Guinea, like many other developing countries suffers from a preponderance of health and developmental inequities, particularly in remote rural areas (Pincock, 2006; WHO, 2015). Access to health services is limited, and I have personally observed that the majority of development projects tend to be centered in provincial urban centers and areas close to the main highways. In order to address poor health indicators the NDoH, non-governmental organizations (NGOs), and faith-based organizations have developed community-focused health programs. These projects are aimed at improving rural health indices by motivating community participation in community health interventions and developing sustainable health-service activities (Welsch, 2009). The Women's and Children's Health (WCH) project is an example of a program focused on community health and development (Ashwell & Barclay, 2009a). The WCH project used education and health promotion interventions at the community level to improve awareness of women's and children's health needs. An evaluation of this project found that communities that successfully adopted health promotion interventions

had an effective village health committee, a greater degree of community cohesiveness, and a motivated member of the community who acted as a catalyst for the change process (Ashwell & Barclay, 2009a).

In developing countries, the use of community-focused health projects is a vital method to address health care needs, particularly in rural settings (Running, Martin & Tolle, 2007). Engaging communities as an entity rather than utilizing an individually focused approach is potentially an effective means of improving health indicators, especially in cultures with collectivistic social structures (Israel et al., 2005). Communities with strong interconnectivity between group members have a greater likelihood of implementing a health promotion program if it integrates the cultural worldview of the population into any proposed changes and facilitates group empowerment (Fisher & Ball, 2005; LaVeaux & Christopher, 2009).

Cultural and Socio-political Context

Papua New Guinean societies are collectivistic, emphasizing the importance of the clan or societal relationships over individual perspectives. Despite the trend towards urban migration, traditional ties continue to have a beneficial influence on group behavior. Even in urban areas, the strong kinship ties between members of the same linguistic group or geographic region provide them with protection and access to resources (de Renzio, 2000). These relationships are an essential resource that has the potential to either promote or discourage change within the group. The power structure in rural areas tends to be non-centralized and focused around several local leaders called *bikman* (bigmen) or *hetman* (headmen) who gain prominence through their ability in

oratory, leadership in warfare, organization of group functions, and the ceremonial display of wealth (Brown, 1978; Feil, 1987).

The social structure in PNG is organized around expectations of reciprocity and compensation, conceptualized as the *wantok system* (de Renzio, 2000). The term *wantok* is a Melanesian Pidgin word meaning 'one talk or speech' identifying the existence of a shared language, and alluding to customary relational ties and obligations. Historically, kinship was expressed linguistically as only members who were part of a related clan or ethnic group spoke the same language. The *wantok system* can be described as the system of relationships and their associated obligations as characterized by a shared language, mutual kinship group, common geographic origin, and shared social or religious associations (de Renzio, 2000). This relational system underlies the basic cultural pressure to share/exchange resources within the extended group. The network of obligation and social support underlies many of the beliefs and values that dictate interpersonal relationships in PNG. Most Papua New Guineans still follow customary patrilineal patterns of kinship, social organization, and customs that continue to survive despite outside influences (Hinton & Earnest, 2011; Worth & Henderson, 2006). Traditional social structures are in a state of transition due to the effects of modernity, land pressures, and ongoing inter-ethnic competition for resources (Reilly, 2008). The breakdown of traditional social norms and the resulting diminished group control over individual behavior is beginning to diffuse from urban settings into rural areas, resulting in increasing law and order problems (Reilly & Phillpot, 2002; Worth & Henderson, 2006).

A major challenge to the development of a sustainable health infrastructure in Papua New Guinea is its reliance on external funding (Morris & Stewart, 2006). Nearly 40% of the Ministry of Health's budget has been obtained from international development partners primarily Australia, and to a lesser extent New Zealand, Japan, the United States and the Asian Development Bank (Hauck, Mandie-Filer & Bolger, 2005). Oil and gas exploration projects have the potential to provide extensive financial resources, but they also tend to cause social and environmental disruption (Hala, 2003). During the 1990s, a decade-long war in the province of Bougainville occurred largely due to unequal distribution of assets to the local population, and environmental damage near a large copper mine (Macfarlane & Alpers, 2009; Reilly, 2008). Similar episodes of violence in response to compensation issues related to mineral explorations have occurred on Lihir Island, Enga Province and in the Star Mountains at the Ok Tedi gold mine (Hala, 2003). In addition to the negative impact of social unrest, rural health services suffer as a result of mining companies who hire the already scarce health care professionals to work in company health clinics. Although these clinics are geographically located in rural settings, they have had limited impact on the health of local people since their main purpose is to provide services for the company's workers.

Among Papua New Guineans, health is defined in a social context and illnesses are categorized as being either externally or internally related to the community as a whole (Byford & Veenstra, 2004; Hinton & Earnest, 2009; Koczberski & Curry, 1999). Most minor illnesses believed to have external or natural causation (such as those related to age) are thought to respond predictably to western-style medical care. More serious or chronic illnesses are believed to arise internally from within the community, and are

interpreted as occurring due to impaired social dynamics or supernatural causes. Treatment for an illness considered to have natural causation may be sought from government or church medical services, while help for illnesses thought to be caused by a disruption in social dynamics or a curse by an enemy is usually sought from clan members or traditional healers (Byford & Veenstra, 2004). Keck (1993) stated that many Papua New Guineans classify illnesses according to perceived causation rather than biomedical diagnoses. Illnesses are believed to be closely associated with social relationships, and when someone falls ill the clan attempts to discover whether the sick individual has broken a taboo or another person is responsible for the illness. For example, if a child fails to thrive concurrently with a time of social conflict, then the disharmony is considered to be causative of the child's poor growth. The family's response to the child's illness would focus initially on the resolution of any conflict within the kin group, and then attempt to determine if there is another potential cause of the illness such as a supernatural source or sorcery (Koczberski & Curry, 1999).

A Community-Based Frame of Reference

The community can be visualized as an open, dynamic system with a virtually infinite number of factors that influence health behaviors (Buchanan, Miller & Wallerstein, 2007). Although illness can be viewed as an event that only affects individuals, it has a broader, more collective impact on the aggregate community. Engaging communities as entities rather than using an individual-focused approach has the potential to be an effective means of improving health inequities (Billings, 2000; Wallerstein & Duran, 2006). Community health care focuses on promoting wellness,

diminishing threats to health, and disease management (Hutchinson, Anderson & Gottschalk, 2008).

The Alma-Ata conference on primary health care in 1978 emphasized the need for health promotion strategies as a solution for health inequities suffered by the rural poor (Welsch, 2009). The primary health care model, as proposed by the World Health Organization (1981) is based on promoting strategies to improve access to health services, community participation, empowerment, essentiality, and intersectoral collaboration (Hornberger & Cobb, 1998; Welsch, 2009). Empowerment is a process by which a community develops control over quality of life, resources, self-care, and problem-solving proficiency (Hage & Lorensen, 2005; Narayan, 2007; Tengland, 2007). To empower communities, it is necessary to work within the community to develop an environment in which change can occur (Leonard, 2008). While the concepts underlying primary health care may be sound in principle, operationalization has proved to be difficult due to deficiencies in facilitating community participation and local self-determination (Welsch, 2009).

From the health promotion perspective, there are two main models that support communities in identifying and meeting their needs—the empowerment model that emphasizes participation and increases control over socioeconomic situations, and the education model that emphasizes the provision of information and the achievement of behavioral changes (Billings, 2000). An educational model of health promotion addresses knowledge deficits that have a detrimental impact on healthy behaviors. This model assumes that a deficit in health-related information is the primary cause of poor health outcomes, and that increased knowledge will automatically lead to behavioral

changes resulting in improved health indicators (Whitehead, 2004). The empowerment model however, supports an approach that facilitates community capacity for self-determination, resource distribution, and initiating health-related lifestyle changes (Anderson, Guthrie & Schirle, 2002; Narayan, 2007; Whitehead, 2004). A combination of these models is potentially the most appropriate approach to address the persistent health inequities present in rural communities.

Health services in Papua New Guinea have had a number of successes in improving quality of life, prevention of epidemics, and addressing infectious diseases. However, the bureaucratic structure of PNG's National Department of Health tends to limit communication between the policy makers, health care professionals and rural villagers. To further complicate matters, rural health care workers and villagers rarely communicate about local health beliefs, traditional treatment practices, and customary strategies to control diseases (Welsch, 2009). The National Department of Health has developed a de facto health education model to address rural health issues that places health officers in a position of authority and concurrently disempowers the community. The health educator model assumes a near complete lack of knowledge on the part of the villagers, which discourages community participation in health promotion activities. Health literacy comprises only one facet of health-related behavioral change. Developing health interventions that encourages participation and directly serves the community's interests require a paradigm shift from a curative, biomedical model of health care to a preventative, collaborative approach that engages and empowers community members (Flicker, 2008).

Community-Based Health Care Program in Papua New Guinea

Community health promotion projects have been developed by a number of Papua New Guinean churches and non-governmental donor organizations over the past twenty years. Most projects focused on community level changes related to sanitation, hygiene, clean water supplies, and disease prevention. The conceptual approach used by these programs is based on the World Health Organization's 'Healthy Villages' approach that emphasizes development of community capacity for self-reliance and health promotion (Ashwell & Barclay, 2009a).

In the early 1990s, the need for a community health promotion focus was identified as an essential strategy to address continuing health inequities in rural areas by the Nazarene Health Ministries, a faith-based organization that operates a hospital in the Western Highlands (now Jiwaka Province) and rural clinics in other provinces. Nazarene Health Ministries is part of Christian Health Services, formerly the Churches Medical Council, and a nation-wide consortium of faith-based organizations that acts as the agency for government-church negotiations regarding funding and human resource arrangements (Hauck, Mandie-Filer, & Bolger, 2004). The role of faith-based organizations in Papua New Guinea cannot be disregarded due to their extensive contributions to the provision of social services throughout the country. Churches manage over half of the health services in PNG, approximately 80% of rural health services, and provide the majority of nursing education throughout the country (WHO, 2009). "Effective community work, including the provision of social services, combined with a rooting in society, has meant that the churches enjoy levels of trust and a legitimacy that no other civil society actors have achieved…No other civil society groups or NGOs have

comparable bonds with local communities" (Hauck, Mandie-Filer, & Bolger, 2004, p. 21).

The Community Based Health Care (CBHC) program was established in 1995 to promote a village level response to preventable illnesses (R. Morsch, personal communication June, 1, 2011). The CBHC program emphasizes the importance of community participation, empowerment of community groups, and the training of village health volunteers. The program is designed to develop partnerships with communities interested in promoting health in their villages. In 1999, the CBHC program partnered with the PNG National Department of Health to develop national Village Health Volunteer (VHV) modules for use in training programs nationally.

The CBHC model focuses on community empowerment by integrating community accountability and participation from the initial planning stages. Project coordinators identified villages that were motivated to partner with the CBHC program and assisted community groups to identify priority needs by the use of 'codes', a Freirian method using scenarios to trigger discussion and develop alternative methods of thinking and behaving (Wallerstein & Duran, 2008). Codes consisted of a picture or story that was designed to facilitate discussion about perceived problems in the community and identify possible solutions. During the first year of participation in the CBHC program, the village was encouraged to elect members of a community health committee and complete a needs assessment and community profile. A community that agrees to initiate a CBHC project must first complete certain basic tasks such as building toilet facilities for each household, and fencing off the communal water source from animal contamination. The participation process assists the community to develop a sense of

competence and empowerment (Anderson, Guthrie & Schirle, 2002). After a needs and resource assessment is completed by community representatives, a process of identifying priorities and interventions are facilitated. Some villages identified the lack of finances or development disparities as having priority leading to the organization and funding of small projects to increase availability of local level economic resources.

Once the initial partnership was organized and the development process was established, the community was encouraged to select a person to train as a village health volunteer to provide basic health services and health education for the village. The program later expanded to include selection and training of village midwives. Part of the success of the CBHC program has been an emphasis on building capacity for behavioral change. Like most community-based projects, CBHC is built on facilitating a sense of self-determination and empowerment within the group for their own health. By supporting the community in identifying and prioritizing their own needs and recognizing strengths and resources present in the group, they will empower their capability to make decisions that are appropriate for the community members at large.

The CBHC program initially was concentrated in villages in the Western Highlands and the middle-Ramu district of Madang province. Additional villages in Enga and Sepik provinces have also initiated CBHC programs over the past decade. More recently, the CBHC program has joined the Effective Development Empowering the Nation (EDEN) group, a consortium of faith-based community health programs using a transformational development model.

Theoretical Concepts of Social Capital

Social capital has been conceptualized from a socio-economic framework as resources inherent in social networks that facilitate mutually beneficial collective action among members of a community (Krishna & Shrader, 2000; Lochner, Kawachi & Kennedy, 1999). The phenomenon of social capital was explored in studies that originally examined the role of civic engagement and social trust in the successful functioning of local governments (Carlson & Chamberlain, 2003). In recent decades, competing definitions of social capital have been developed by Coleman, Bourdieu, and Putnam. Coleman (1990) described social capital in terms of the structure of relationships and its role in facilitating group action. Putnam (1995) depicted social capital as a community-level resource comprised of social networks, norms of reciprocity, and social trust that facilitate mutual cooperation and benefit. Bourdieu (1985) portrayed social capital in an economic perspective, associated with the actual or potential resources linked to group membership. These definitions all emphasize the contextual aspects of social collaboration that can be linked to a variety of cognitive and structural elements. Cognitive dimensions of social capital include levels of trust, and structural dimensions of social capital emphasize network or membership connections (Mitchell & Bossert, 2007).

Measures of social capital include indicators related to both material resources and relational aspects of trust and reciprocity (Hawe & Shiell, 2000). Unlike other forms of resources, social capital is a by-product of social relationships that impact individual and community health by facilitating cooperation for mutual benefit. Social mistrust, a perceived lack of justice, economic inequality, and powerlessness was highly correlated

with mortality even after controlling for poverty (Kawachi, Kennedy, Lochner & Prothrow-Stith, 1997). Components of social capital have been associated with access to physical or emotional resources, knowledge distribution, and promotion of healthy behaviors. Positive health outcomes associated with social capital are improved levels of self-rated health, mental health, decreased rates of suicide, and cardiovascular and cancer mortality rates (Poortinga, 2006). Measuring social capital and linking it to health outcomes has proven to be problematic. There continues to be disagreement about an exact definition of social capital as well as the relationship between social capital and health (Pilkington, 2002).

Assumptions

This study contains a number of assumptions about community structure and health promotion strategies. First, is that Community Based Health Care provides a strategy that substantively addresses health inequities by facilitating behavioral and cultural change. Second, communities with higher levels of social capital are more likely to adopt health promotion innovations than communities with lower levels of social capital. Third, communities that integrate health promotion innovations into their cultural belief systems are more likely to sustain those health-related changes. Fourth, the faith-based paradigm underlying the CBHC program has a positive influence on the health status of the community by encouraging healthy behaviors and discouraging high risk behaviors. The CBHC/EDEN consortium emphasizes transformational development supporting change in people's physical, mental, social, and spiritual conditions (R. Morsch, personal communication June, 1, 2011). Fifth, cultural norms and belief systems in Papua New Guinea are in the process of change due to numerous outside influences.

Change is more rapid in urban areas as opposed to rural settings, but traditional relational connections are still relatively intact. Finally, health promotion innovations are more likely to be successful and sustainable if the community itself is empowered to prioritize needs, develop culturally appropriate interventions, and take ownership of community health care projects.

Rationale and Significance of the Study

This study will advance nursing knowledge concerning community health and empowerment strategies in rural areas of Papua New Guinea by examining the socio-cultural and contextual influences on the adoption of health innovations. The research will explore the complexities of social capital, and how nurse professionals can work with communities to develop context-specific interventions.

The findings of this study will be shared with CBHC project coordinators and the PNG Institute of Medical Research to assist with evaluating the efficacy of health promotion strategies and providing assessment data required by local, national and international donor agencies that support CBHC projects in Papua New Guinea. Results will also be disseminated to the participants of the study and members of the community health committee.

Definitions

The following definitions of terms are used throughout the context of this study proposal:

Social capital—the term can be defined as the resources available through social connections that can potentially motivate the individual or group to adopt new behaviors (Bourdieu, 1985; Coleman, 1990; Putnam, 1995).

Wantok system—a term used to describe the indigenous system of social organization in Papua New Guinea. The *wantok* system describes the relationships and obligations that characterize connections between individuals and kinship groups.

CBHC—Community Based Health Care is a faith-based program focusing on holistic, community-based health promotion and development in rural communities in Papua New Guinea, Solomon Islands, and Vanuatu.

EDEN—Effective Development Empowering the Nation organization is a consortium of three local faith-based groups who have community-based health projects in various areas of Papua New Guinea.

Health outcomes—For the purpose of this study, health outcomes refer to the change in the health of a community that occurs as a result of health promotion activities. CBHC and other EDEN projects address the key health outcomes based on the PNG National Health Plan (2011–2020), World Health Organization health indicators, and the Millennium Development Goals: improving child survival, improving maternal health, reducing the burden of communicable diseases, promoting healthy lifestyles, and facilitating community ownership (National Statistical Office, 2011; United Nations, 2011; WHO, 2011).

Conclusion

Contextualization of health interventions requires a paradigm shift from the curative, bio-medical model to a health promotion focus that emphasizes community empowerment. Successful community health interventions involve engagement of the community as an entity in addressing health disparities. This study explores the influence of cultural health beliefs and social capital on the adoption of community health

promotion activities in rural Papua New Guinea using a descriptive ethnographic approach. The significance of this study was to develop a more comprehensive understanding concerning why rural Papua New Guinean communities decide to adopt health promotion innovations, and how participants perceive the effectiveness of the CBHC program.

Chapter 2

Review of Literature

Addressing health disparities in a developing country requires the use of strategies that facilitate community level self-determination and self-reliance. The past two decades has seen an increased interest in the utilization of community-focused health promotion projects on the village level. To advocate a community-level approach, the Alma Ata conference encouraged a primary health care strategy for low and middle-income countries that focuses on practical, accessible, and culturally appropriate forms of intervention (WHO, 1978). Primary health care is defined as the social transformation of health systems motivated by specific values of equity, community determination, group participation, and capacity-building (Kruk, Porignon, Rockers & Van Lerberghe, 2010).

The purpose of this study was to describe the influence of cultural health beliefs on the adoption of health-related innovations in rural Papua New Guinea. This study also examined how components of social capital (trust, reciprocity, social engagement) influenced community participation in health promotion innovations facilitated by CBHC projects. In order to understand the influence of societal norms on the adoption of innovative health behaviors, it was necessary to explore current literature on health promotion in developing countries, community-based health projects, and the association between social capital and health-related behaviors. Multiple information sources were used including journals, books, internet resources, and dissertations. Database searches were performed with CINAHL, PubMed, ProQuest, PsycInfo, JSTOR, and Dissertation Abstracts International using the following key words: social capital, collective efficacy,

community-based health programs, rural health, community-based participatory research, social determinants of health, cultural/traditional/indigenous health beliefs, Melanesia, and Papua New Guinea.

Current literature on social capital was critically reviewed, including historical perspectives of social capital and the contextual influence of social capital on health. A thorough review of literature on health care issues in developing countries and community-focused health programs contributes to an understanding of community health promotion practices. The literature review explores the health disparities impacting developing countries such as Papua New Guinea, and the effect of cultural beliefs and practices on health practices. The analytic summary that concludes this chapter describes the gaps in the literature, and how the literature has informed my understanding of the subject.

Conceptualization of Social Capital

Culture can be described as a contextual construct which consists of the distinctive behaviors, artifacts, societal networks and relationships of a group of people. These relationships are discernible in the shared values, beliefs, perceptions and behavioral dimensions present in a society. This process facilitates the development of patterns of meaning which formulate the parameters of a society. Human beings are social creatures that have an innate propensity to engage in interactions that develop systems of relationships (Carrithers, 1992). Cultural patterns can be perceived from a relational perspective which occurs as human beings interact with each other and with their environment. These relationships create environmental patterns in which individual and collective characteristics develop. Socio-cultural patterns are dynamic, and that

process of change is both a result of relationships and has an influence on relationships.

Social patterns are derived from a number of contextual variables. Relationships provide both the building material and the architectural design crucial for the structure of culture. Within a cultural framework, there tends to be some conformity between the cultural values and behaviors practiced by a particular group. These cultural values direct relationships which in turn influences health status among individuals and groups. Cultural influences have a causal function in regard to diet, health-related customs, perception of causative factors of illness, and socioeconomic status.

Relationships within the community can be conceptualized as social capital—a resource that can be used to support health promotion interventions. Social capital is described as the elements and tendencies that support mutually beneficial cooperative action among members of a group (Krishna & Shrader, 2000). Social capital is also associated with the system of social networks and collaboration built on reciprocity, trust and adherence to behavioral norms (Lauder, Reel, Farmer & Griggs, 2006). The function of networks has been associated with the maintenance of social cohesion, mutual cooperation, diffusion of health information, emotional support, practical aid, and social control over health-related behaviors (Caperchione et al., 2008; Hawe & Shiell, 2000; Sistrom & Hale, 2006).

Social capital can be examined from two perspectives—the relational aspect of social capital, and the material resources that people have access to due to their membership in certain social organizations (Hawe & Shiell, 2000; Lauder, Reel, Farmer & Griggs, 2006). The concept of social capital includes a variety of social interrelationships such as trust, reciprocity, societal engagement, mutual aid, and

emotional support which coalesce to provide beneficial social cohesion (Lindstrom, 2006; Perry, Williams, Wallerstein & Waitzkin, 2008; Sistrom & Hale, 2006).

A functional component of social capital consists of perceptions of adequacy of available resources, and those individuals or groups who can provide needed emotional and material resources. The structural aspects of social support reflect the quantity and quality of social relationships and the interactional properties determining the strength, mutuality and meaning given to a relationship (Gibson, 1992; Sistrom & Hale, 2006). Social capital has been defined as the totality of social elements characterized by the resources (human, social, financial, natural) resulting from interactions and participation within the community (Kritsotakis & Gamarnikow, 2004). The operationalization of social capital has at times proven to be controversial because of a lack of definitional consensus, difficulty in developing standardized methods of measurement, and an inability to consistently substantiate health-related indices (Kawachi, Subramanian & Kim, 2008; Rostila, 2010).

The development of theoretical aspects of social capital originated in the fields of sociology and political science, beginning with Emile Durkheim's early study that associated a lack of social integration with increased suicide rates (Durkheim, 1951; Lochner, Kawachi & Kennedy, 1999; Portes, 1998). He noted that despite individual changes in population, suicide rates remained stable, prompting the premise that there are contextual influences on individual behavior (Durkheim, 1951; Carlson & Chamberlain, 2003). Environmental variables such as social support, religious practices, and civic engagement acted as a protective mechanism against suicide.

In the 1980s, Pierre Bourdieu described social capital as access to resources linked to participation in a network of stable relationships (Bourdieu, 1985; Carpiano, 2006; Portes, 1998). He hypothesized that the amount of social capital depended on the size of network connections that an individual could potentially mobilize, and the amount and type of resources that each member of the network possessed (Bourdieu, 1985; Carpiano, 2006). Social capital was defined as resources available to individuals as a result of membership in social networks (Baum & Ziersch, 2003). Unlike other social scientists, Bourdieu recognized the potential negative impact of social capital in some instances; for example, when community members are excluded or instances of dysfunctional behaviors that are socially supported. By using social capital as a metaphor for power, Bourdieu noted that unequal social relations contribute to the exclusion of some groups from the equal distribution of resources (Stephens, 2008).

Coleman (1990) conceptualized social capital in more functional terms, describing it as a resource that facilitates individual or collective action. The functional capacity of social capital is visualized as the social framework that promotes access to group resources by members of the group. Elements of trust and norms of reciprocity are considered essential components of societal structure (Carlson & Chamberlain, 2003; Lloyd-Odgers, 2005). There are also intangible benefits of social capital that require interpersonal relationships in order to access resources (Coleman, 1990; Portes, 1998). These resources for action are differentiated into three forms of social capital: obligations, information sources, norms and sanctions (Eriksson, 2011).

George Putnam, a political scientist, is considered to be the father of social capital. He studied the sociopolitical structures and civic organizations in Italy and

postulated that higher levels of social capital were associated with greater productivity and cooperative action in addressing local problems (Helliwell & Putnam, 2000; Pilkington, 2002). In his 1995 book, *Bowling Alone*, he addressed the problems associated with diminishing levels of social capital and collective action in the United States. He defined social capital as a community-level resource linked to features of social organization, such as networks, social trust, civic engagement, and perception of the availability of mutual aid (Carlson & Chamberlain, 2003; Lochner, Kawachi & Kennedy, 1999; Putnam, 1995; Stephens, 2008).

Uphoff (2000) described social capital as having two interrelated domains: structural and cognitive. Structural elements of social capital are associated with forms of social organization such as the roles, rules, and rituals that are specific to mutually beneficial collective action. Cognitive phenomenon is derived from those mental processes that are contributory to cooperative behaviors such as values, beliefs, cultural norms, and attitudes (Uphoff, 2000). These two domains provide dynamic linkages associated with cooperative action, trust, and mutual benefit. Social interactions are a form of investment that mobilizes resources through reciprocity (Uphoff, 2000).

Social capital consists of the primary social components of trust, networks and reciprocity (Hsieh, 2008). Trust is an emotional perspective which is defined as a sense of confidence in being able to depend on the mutually supportive actions of others. Trust is an integral component of relational ties which promote the formation of links or networks between people. It can be strongly embedded in close personal relations, or can be a more general form of trust that does not involve strong social ties (Rostila, 2010). Networks, as an attribute of social capital, refer to the linkages that develop from

interactions occurring within a group and the resources available due to these relationships. These resources may be ascribed due to gender or race, prescribed due to status or religion, or acquired due to education or prestigious position (Hsieh, 2008). In many cultures, status is an inherent trait associated with being male or membership in the dominant racial group. In American culture, those with financial wealth have a higher status than people who have fewer financial resources; but in Fijian, Samoan and Indian cultures a person's status may be more dependent on a person's inherited societal rank and not directly related to financial resources or occupation.

Reciprocity refers to patterns of interactive cooperation which are inherent in essentially all relationships. Reciprocity occurs in the context of trust and is a factor in the development of networks. The formation of relationships are instigated and sustained through customary rituals of exchanging resources that is dependent on obligations. Networks of obligatory food exchange, gifting, and even marriage between groups strengthens relational ties. Although relational ties exist in all cultures, these relationships may be expressed in a variety of ways according to predetermined cultural attributes. Individual characteristics such as gender, age, marital status, and socio-economic standing effect the person's perception of their situation and their need for support (Gibson, 1992). In a society which reveres the wisdom of the elderly, older people accrue a high amount of social capital and would have access to more of the available resources. In contrast, many western societies tend to view the elderly as being unproductive, and are more likely to provide resources to younger individuals especially children. In a patriarchal society that denigrates the position of women, a woman's network of relationships would be limited to other similarly powerless women, reducing

the possibility of access to necessary resources. This may explain the health disparities impacting women and children in many developing countries.

The structure and function of relationships as conceptualized by social capital is a significant component of the influence of rurality on culture. The intersection of culture and rurality emphasizes the geographic and social influences on relationships. Rural cultures are frequently disempowered due to poverty, may have a distrust of outsiders, and lack access to resources due to geographic challenges. People living in rural areas in western societies tend to be independent, self-reliant and value their privacy (Bigbee & Lind, 2007). Rural communities in collectivistic societies, however, often do not place a high value on privacy and self-reliance, but place greater value on mutual interdependence within the kinship group. This mutual interdependence requires the practice of cultural rituals which maintain cooperation and harmonious relationships between people within the group.

Health and social capital. The phenomenon of social capital as related to health was adapted from studies that originally examined the role of civic engagement and social trust in the successful functioning of local governments (Carlson & Chamberlain, 2003). Social capital was then applied to health outcomes in order to identify causal factors related to health disparities. In a study by Kawachi, Kennedy, Lochner, and Prothrow-Stith (1997) the problem of social mistrust, a perceived lack of justice and powerlessness was highly correlated with mortality even after controlling for poverty.

Social capital has been associated with positive health outcomes due to the premise that higher levels of social cohesiveness facilitate positive health-related behavioral change. Support for the role of social capital in health has been articulated by

researchers studying communities in a number of countries (Caperchione, Lauder, Kolt, Duncan, & Mummery, 2008; Kawachi & Kennedy, 1999; Kritsotakis & Gamarnikow, 2004; Kunitz, 2004; Poortinga, 2006). Health-associated changes in behavior are closely related to broader contextual factors rather than solely dependent on individual decision-making (Campbell, 2000).

Although social capital can be considered a descriptive rather than an explanatory theory, various mediating factors such as access to resources, social cohesion, and reciprocity have been linked to health-enhancing behaviors (Campbell, 2000; Eriksson, 2011). Positive health-related behaviors have traditionally been explored from a single perspective focusing on an individual's health locus of control (Stein, Smith, & Wallston, 1984). Focusing health promotion activities on the individual level fails to address evidence supporting the influence of the environmental, cultural, and social context on individual and group behavior (Carlson & Chamberlain, 2003).

The connection of the concept of social capital to health has also been explored through an analysis of bonding versus bridging types of social capital (Kawachi, Subramanian, & Kim, 2008). Bonding social capital is linked to the presence of mutual support and those resources available to homogenous members of a social group. Although bonding types of social capital are commonly associated with positive health outcomes, studies of disadvantaged urban settings paradoxically demonstrate a link to negative physical and mental health outcomes. Bridging forms of capital refers to assets available from social groups that cross racial or ethnic boundaries. Examples are resources available from trade unions, professional organizations, and religious groups that include members of various ethnicities.

While social capital is commonly perceived as having predominately beneficial effects, it can be detrimental in instances in which individual freedoms are restricted, or the burden of reciprocal obligations are excessive (Moore, Daniel, Gauvin, & Dube, 2009; Portes, 1998). A group can pressure members to adopt negative behaviors such as drinking, smoking, or drug abuse as a social norm creating a context that is destructive to health. In Papua New Guinean societies, the *wantok* system often provides a social safety net for vulnerable members of the community yet has also had a detrimental impact on health and development in situations when kinship obligations exceed available economic resources.

Measures of social capital. Methodological approaches to the measurement of social capital have proven problematic due to the use of constructs that have insufficient empirical support or lack an understanding of the context (Stephens, 2008). "Social capital is a complex construct so simple proxies cannot be used. However, unless a survey is designed for the express purpose of measuring social capital, it is difficult to capture the concept in a comprehensive manner" (Harpman, Grant & Thomas, 2002, p. 108). Some studies have used subjective measures of health status such as self-rated perception of health, while others use objective measures such as socio-economic status or morbidity rates (Sun, Rehnberg, & Meng, 2009). Income inequality is related to higher morbidity and mortality rates, especially in societies in which there are income distribution inequities (Sistrom & Hale, 2006). An explanation of the link between social capital and health was proposed by Kawachi and Kennedy (1999) who suggested that there was a positive association between increased levels of health and support of public education and health care access. Unequal distribution of income in a society has a

disruptive effect on social cohesion leading to higher levels of age-adjusting mortality when controlling for poverty (Kawachi & Kennedy, 1999). Social capital dimensions in this study included reciprocity, social support, civic participation, perception of trust and safety, interpersonal relationship networks and neighborhood cohesion (Sun, Rehnberg, & Meng, 2009).

Certain behavioral factors are closely aligned with major health determinants. Causal links have been recognized to exist between chronic diseases and smoking, physical inactivity, alcohol use, and diet high in cholesterol (Lindstrom, 2008). Other behaviors such as drug abuse and high-risk sexual activity has also been associated with increased morbidity and mortality rates (Lindstrom, 2008). Numerous contextual links have been determined to present between the physical environment and health; for example exposure to chemicals and other toxins, contaminated food and water, and poor air quality (Dixon & Dixon, 2002; Larson, 1999; Laustsen, 2006).

The social environment is equally important, and in recent years the relationship of social causation to health outcomes has been empirically linked to social position, economic disparities, racial issues, social cohesion, and access to health care services (Lynam, 2005; McNeill, Kreuter & Subramanian, 2006). Lindstrom (2008) points out that social capital is primarily associated with contextual phenomenon, and is conceptualized by relationships between individuals and groups. These relationships in turn provide the access to resources embedded in specific social networks. Both the process of interactive relationships and the product of the actual resource have a beneficial influence on health. Causal mechanisms linking social capital and health include attributes of health-related behaviors, psychosocial effects on individual

perception of health status, health locus of control, biologic coping with stressors, and the facilitating influence of social networks and access to health care services (Lindstrom, 2008; Poortinga, Dunstan & Fone, 2008).

Facilitation of Collective Social Action

Health research with a focus on social capital as a theoretical framework has relied on the work of political scientists such as Putnam, Lin, and Bourdieu (Bourdieu, 1985; Cockerham, 2007; Lin, 2001; Putnam, 1995). Putnam focused on aspects of civic participation emphasizing interpersonal trust and norms of reciprocity (Putnam, 1995; Carpiano, 2008). Social capital was characterized by Putnam as being bonding or bridging. Bonding social capital is descriptive of the horizontal relational ties that exist between individuals or groups that have similar demographic or cultural characteristics. Bonding capital creates group loyalties by developing strong links between individuals of the same social group, strengthening community identity, and provides supportive resources within the group. Bonding capital is most commonly associated with religious social capital, civic engagement, and reciprocity. Bridging social capital is reflected in weaker horizontal ties present between other networks that provide information and access to external resources. Bridging capital links people of different social groups in a manner that connects people of diverse social backgrounds (Cockerham, 2007; Putnam, 1995). In addition to bonding and bridging forms of capital, linking capital was included to describe the connections across hierarchal levels of power (Szreter & Woolcock, 2004). Linking social capital consists of vertical ties between groups that vary in status or influence, which enables individuals or groups to access resources from outside the community (Baum & Ziersch, 2003; Derose, 2008; Elgar, et al., 2011; Eriksson, 2011).

Lin (2001) visualized social capital as an asset formed from social relationships and its linkage to social networks. Relational networks are the fundamental source of supportive and economic resources available to members of a group. Similarly, Bourdieu (1985) conceptualizes social capital from the dual perspectives of the quantity of resources available due to interpersonal connections accessed through social networks, and the size of the network.

In collective societies, most networks are the result of kinship or membership groups. Social capital is also linked to economic and cultural capital that can be translated into other benefits such as political or social assets (Cockerham, 2007). Identification of social capital's connection to societal organization requires a collective rather than individual focus. Contextual-level studies of social capital use trust as an essential feature to measure social organization; other proxies measuring social capital include group solidarity and reciprocity (Giordano, Ohlsson & Lindstrom, 2011). Trust is a multifactorial concept affiliated with the belief that someone or something can be relied on or promotes confidence. Conceptually, trust has been described as the willingness to participate in a relationship by accepting mutual vulnerability with the belief that the other person will behave congruently with preconceived expectations of behavior (Johns, 1996; Hupcey, Penrod, Morse & Mitcham, 2001). Trust has been explored as a process and as an outcome in the development and establishment of a stable relationship. In community-based participatory research projects, trust is an essential component in the development of partnerships and capacity-building necessary to reduce health inequities (Israel et al., 2005).

In studies exploring the socioeconomic aspects of health determinants, interpersonal trust was seen as an indicator of social capital (Elgar, 2010). However, the relationship between social trust and health is complicated by the ambiguity created by whether measures should be individual or group-level indicators. Interpersonal trust has been associated with better general health and higher levels of self-rated quality of health. Trust is also directly linked to health by increasing coping mechanisms through emotional connectedness between group members or indirectly by facilitating access to health-promoting resources (Abbott & Freeth, 2008; Wang, Schlesinger, Wang, & Hsiao, 2009).

Group participation and interpersonal relationships are essential components of the sociopolitical structure of collective societies. Interpersonal relationships and emotional interconnectedness also promote a sense of solidarity that is operationalized by participation in civic activities or social engagement. Community engagement functions to encourage community-level collective efficacy. Collective efficacy is the willingness of individuals to act for the common good when there is mutual trust, social cohesion, and reciprocity (Ansari, 2013). Collective efficacy emphasizes social cohesion that includes an attachment to the group and the willingness to support others (Browning & Cagney, 2002). Although its components are similar to those present in social capital, collective efficacy is more congruent with functionality rather than the actual resource. Examples of common collective activities include wealth exchange in marriages, compensation for injuries or deaths, community work on road or school projects, and participation in religious events. Characteristics of social capital such as community

solidarity have also been explored through proxy measures such as group membership, community participation, and social trust.

The pervading theme in Papua New Guinea's social structure is the premise that all life is governed by a system of reciprocity. The system of reciprocal exchange is an essential element in stabilizing group relationships through the frequent exchanges of wealth to maintain societal ties resulting in collective well-being. The exchange of material goods is related to the concept of reciprocity since the exchange of wealth functions to regulate behavior and maintain appropriate interactions between community members. The reciprocal exchange of resources promotes orderly social behavior and discourages potentially disruptive behaviors between individuals and kinship groups (Sillitoe, 1998).

Another assumption of the Melanesian worldview is that harmonious relationships result in health while discord within the group results in illness. The importance of relational harmony is extended to connections with ancestral spirits and other spiritual forces (Bartle, 2001; Mantovani, 1984). Maintenance of stable relationships is supported by customary practices such as rituals, ceremonial wealth exchange, and exchange partnerships that strengthen group cohesion.

Cognitive social capital. The cognitive dimensions of social capital include the intrinsic conceptualizations of beliefs, norms, and attitudes inherent in a society (Uphoff, 2000). In Melanesian societies, gender relationships and the connections inherent in kinship-ties are regulated by cultural beliefs and social alliances. Decisions that potentially impact the group are not considered in isolation but require input from the group. When an activity is proposed that would impact the well-being of the clan,

matters are discussed as a group until the majority opinion is clearly identified and the plan of action is coordinated (Sillitoe, 1998). Using a contextual focus, these interpersonal linkages in turn influence numerous aspects of life related to health beliefs and perceived health (Helman, 2007). Health beliefs are in turn related to social norms of behaviors, values that influence high risk behaviors and risk avoidance, and attitudes related to change.

The social connectedness associated with social capital that is present in rural communities is strongly associated with the norms of reciprocity (Lauder, Reel, Farmer & Griggs, 2006). The concept of social capital can be conceptually associated with the Melanesian *wantok* system. The *wantok* system is characterized by the traditional obligations that people have to their extended family and acts to offset the negative impact of poverty in rural areas of PNG. With the exception of people separated from their clans living in urban areas, most Papua New Guineans are able to obtain food, shelter, and minimal amounts of goods and clothing from relatives due to a supportive social framework that maintains reciprocal exchange.

Structural social capital. The structural category of social capital refers to the rules, roles, procedures, networks and other extrinsic elements of social organization. Structural forms of social capital act to support collective action by developing relational patterns of exchange that codify behavior and specify sanctions when expected behavior does not occur (Uphoff, 2000). The structural element of social capital refers to the formal or informal relational ties between individuals or group. Formal ties are present through membership in formal organizations such as churches, clubs, or business groups. Informal ties are related to informal networks such as family, friend, or work-related

associations (Baum & Ziersch, 2003). Structural social capital has been quantified by counting the number of groups, associations or networks that an individual belongs to as a means of measuring the resources available to that person (Chiu et al., 2008; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997).

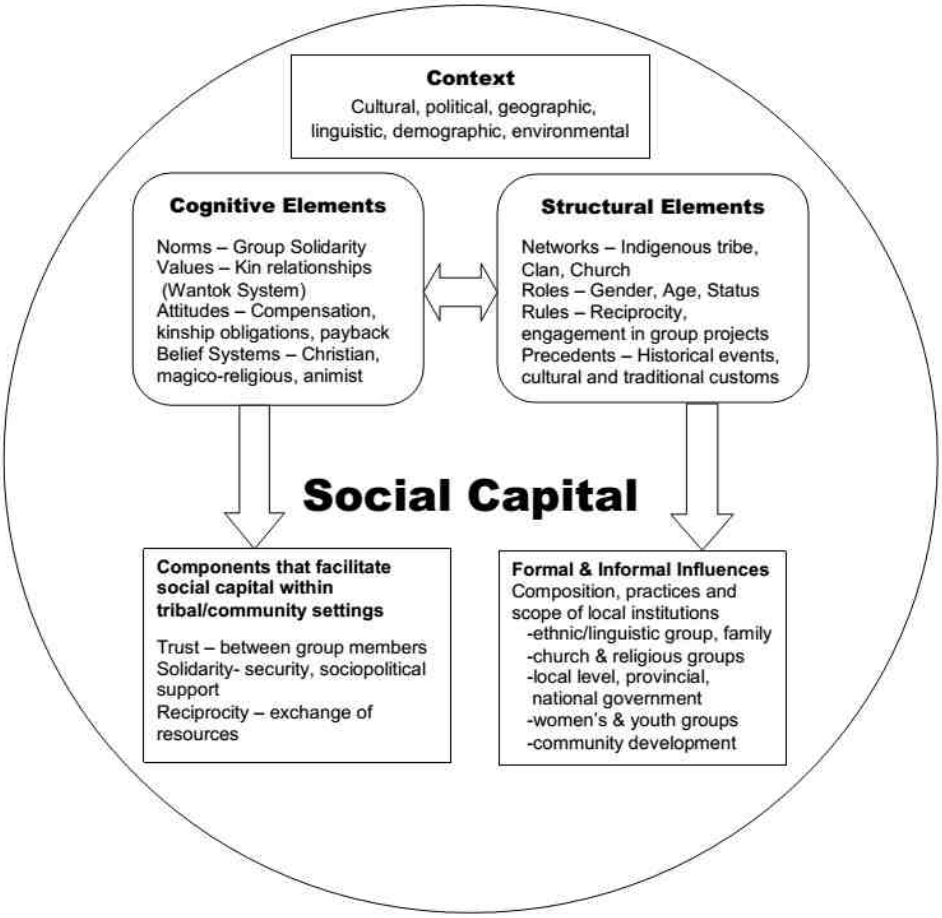

Figure 2. **Synergistic attributes of social capital in Papua New Guinea.** Adapted from "Building social capital and reaching out to excluded groups," by K. Bain & N. Hicks, 1998. Paper presented at the CELAM meeting on the Struggle Against Poverty Towards the Turn of the Millennium. Washington, D.C.

As a characteristic element of social capital, social engagement can be observed through membership in groups and participation in community activities. In collective societies, the focal point of group membership is usually based on clan affiliations,

geographic connections, and/or membership in a church or religious group. Religious practice has been associated with improved ability to cope with stress and illness, and plays a supportive role in the maintenance of wellness (Moreira-Almeida & Koenig, 2006; WHOQOL SRPB Group, 2006).

Religious affiliation among indigenous ethnic groups in Papua New Guinea is most commonly associated with the Christian religious organizations present in the specific geographic area since the majority of small villages only have one or two religious groups. Religious involvement can be measured by frequency of attendance at church services, and identification of personal qualities of spirituality or faith. Additionally, the linking of Christian religious practice to health outcomes is related to social and psychological factors including access to resources available to the group, enhancing coping mechanisms, and the encouragement of positive health behaviors. Religious aspects of social capital also include the resources related to the social connections forged between members of the religious group (Maselko, Hughes, & Cheney, 2011). Thus the religious composition of the group could be an important factor in enhancing governance-related activities, and addressing capacity gaps through the development of partnerships with external stakeholders (Hauck, Mandie-Filer & Bolger, 2004).

The literature supports an association between positive health outcomes and religious practices (Elgar et al., 2011; Maselko, Hughes & Cheney, 2011; WHOQOL Group, 2006). Religion and spirituality are related to social and psychological factors of social capital, specifically the ability to cope with illness and higher measures of quality of life. Religiosity as a component of social capital is correlated with lower mortality

levels due to higher levels of trust and cooperation, shared values, better health behaviors, promotion of coping mechanisms and social support (Maselko, Hughes & Cheney, 2011). Structural components of social capital are closely related to levels of engagement in the community. The supportive social relationships and positive social interactions available in networks associated with religious groups are associated with better health outcomes (Cockerham, 2007; Hinton & Earnest, 2010).

In Papua New Guinea, faith-based organizations have a prominent role in supporting community development and building endogenous social capital (Hauck, 2010). Christian churches in PNG are viewed as indigenous institutions and contribute to civil society and the creation of social capital by advocating for social justice, information sharing, capacity building, and policy making (Hauck, 2010). Churches also provide a venue for the formal and informal exchange of information about issues such as gender and marital relations, domestic violence, HIV/AIDS and other illnesses. Luker (2003) noted that as civil society organizations, churches can be viewed as the "richest repositories for multidimensional social capital in Papua New Guinea" (p. 10).

Social Capital and Non-Western Societies

Social capital has been studied in a number of developing countries, both in rural and urban settings (Krishna & Shrader, 2000; Modie-Moroka, 2009; Sun, Rehnberg & Meng, 2009; Wang, Schlesinger, Wang & Hsiao, 2009). Social capital has been identified as affecting the process of forming group identity, socialization in health behavior, and resource availability. In investigating HIV education programs in South Africa, it was predicated that higher levels of social capital reduced stigmatizing attitudes about HIV-infected persons (Chiu et. al., 2008). An Indonesian study supports an

association between health and community-level social capital (Miller, Scheffler, Lam Rosenberg, & Rupp, 2006). In an attempt to clarify theoretical descriptions of social capital, Elgar and colleagues (2011) examined links between social capital, health and life satisfaction using data from 50 developed and developing countries. The findings of the study supported the multi-dimensional influence of social capital on health.

Structural and cognitive dimensions of social capital has been assessed by the Social Capital Integrated Questionnaire (SC-IQ), an instrument developed to measure involvement in social groups and group trust (Grootaert, Narayan, Jones & Woolcock, 2003). An adapted version of this instrument was used in Nicaragua to determine if there was a correlation between social capital and health behaviors. The Nicaraguan study adapted a version of the SC-IQ instrument to measure social trust, and childhood immunization was used as a proxy for healthy behaviors. It was determined that the political context of the country had a negative effect on social trust resulting in the propagation of unhealthy behaviors (Mitchell & Bossert, 2007).

The role of social capital as having a protective function in high stress environments was explored in low-income urban areas of Botswana (Modie-Moroka, 2009). It was determined that there is a strong positive relationship between environmental quality and health outcomes. Environmental quality measures were composed of access to health care, safety and security, financial and educational opportunities, and availability of leisure activities. Social capital did not have a moderating effect on chronic community stressors, but did have a beneficial effect on environmental quality and physical health outcomes, and was also positively correlated with psychological well-being. Modie-Moroka (2009) determined that there was still a

need to clearly conceptualize the contextual and environmental factors associated with social capital.

In the context of non-western societies, social capital indicators on both individual and collective levels provide access to resources that may promote healthy behaviors and overall well-being. Studies in rural and urban areas of China associated components of social capital with higher levels of self-reported health. Sun, Rehnberg, and Meng (2009) proposed that social capital influences healthy behaviors through access to social networks that distribute information, exerts social control over risky behaviors, and provides a psychosocial support system. In a study of rural Chinese villages, levels of trust and mistrust were suggested as being predictive of health outcomes (Wang, Schlesinger, Wang & Hsiao, 2009). Another survey of rural villages in China associated cognitive dimensions of social capital (trust, reciprocity, and mutual help) with physical and psychological well-being (Yip et al., 2007).

Social Capital in Papua New Guinea

Characteristics of social capital are inherently shaped by the cultural values and behaviors of a society. Collective societies emphasize the connectivity within a clan or kinship group, inflating the positive and negative influences associated with particular aspects of social capital. Papua New Guinean social structure emphasizes reciprocity in the maintenance of group cohesion. Relationships between clan members are maintained through mutual obligations, debts, reciprocal exchange of goods, and the need for protection and support (Brown, 1978). Levels of social capital in PNG societies are associated with customary reciprocity and social engagement; however levels of trust are not uniformly high between all members of a clan due to the complicated relationships

between men and women in these traditionally patriarchal groups. In most Papua New Guinean societies, trust can be assumed to be present between male relatives, but is frequently absent between spouses due to customary hostility that exists between members of unrelated groups (Feil, 1987; Hinton & Earnest, 2010).

Components of social capital have the potential to provide important insights into group behavior. Positive development could occur by strengthening existing sources of social capital through encouraging community-level associations, supporting traditional social structures, and promoting programs that reward local level self-reliance (de Renzio & Kavanamur, 1999). In Papua New Guinea, the *wantok* system of reciprocal obligations based on linguistic and ethnic identity has both positive and negative influences on group behavior (de Renzio, 2000). The intra-clan kinship ties are emphasized and provide available resources exclusively to members of the group. As a micro-level form of bonding social capital, the *wantok* system provides opportunities for trust, mutual support, and participatory cooperation (de Renzio & Kavanamur, 1999; Luker, 2003). Unfortunately, group functioning can be negatively impacted by some aspects of social capital when obligations are overwhelmingly disproportionate, focused on a dependence mentality or patronage structure (de Renzio, 2000).

The concept of social capital has been viewed as an important factor impacting the effectiveness of governmental performance and socio-political development (de Renzio & Kavanamur, 1999; Reilly & Phillpot, 2002). Phillpot (2002) studied the impact of levels of social capital on provincial government economic performance in Papua New Guinea. Five proxy indicators of social capital were used to measure levels of civic engagement including quality of education, knowledge of current events, number of

women's community-based organizations, number of women in local politics, and community participation in rugby league football clubs (Phillpot, 2002). Communities with higher levels of bridging social capital performed more effectively than provinces with greater levels of ethnic fragmentation.

A study of social capital and women's organizations in Papua New Guinea used childhood malnutrition as a proxy indicator for vulnerability and poverty among women (Imai & Eklund, 2008). Participation in women's community-based organizations provided access to information on childhood growth and nutritional needs. These informal women's associations were based on intra-group trust, and provided social connections that supported education and economic resources resulting in the reduction of malnutrition and poverty (Imai & Eklund, 2008).

Health Care Issues in Developing Countries

Health disparities in developing nations are a matter of global concern but international health promotion projects have been focused predominately on selected diseases or conditions felt to be a threat to industrialized nations (Ollila, 2005). Health inequities continue to have detrimental social and economic impact on the people of developing nations.

Rural communities, particularly in developing countries, face numerous issues that potentially lead to health inequities. The impact of rurality on human health is multifactorial; consisting of social, economic and environmental components (Israel, Schulz, Parker & Becker, 2001). Socioeconomic inequities in rural settings have a tendency to predispose people to certain risk factors and reduce access to much needed health care resources (Beard, Tomaska, Earnest, Summerhayes & Morgan, 2007). People

living in rural areas have higher morbidity and mortality rates than those living in urban settings (Allan, Ball & Alston, 2007; Eberhardt & Pamuk, 2004; Glasgow, Johnson & Morton, 2004). Geographic issues such as remote locations and low population density alone do not provide a complete explanation for the preponderance of health disparities that occur in rural locations globally. The combination of poverty, low population density levels, isolation from metropolitan-based services, cultural belief systems, and risk factors related to rural occupations (farming, mining, fishing, forestry) coalesce to create an environment resistant to interventions developed for urban settings (Schulman & Slesinger, 2004).

Despite the diversity of situations, similar issues face most individuals living in remote rural areas. Access to resources is limited including the availability of health care services, education, job availability, and political power. Many rural areas have a high risk of disease due to exposure to infectious diseases and to chemicals commonly used in agriculture, mining, and unregulated industries (Wallace, Grindeanu & Cirillo, 2004). People living in rural areas are also often employed in occupations that tend to have high levels of physical and psychological stressors (Schulman & Slesinger, 2004).

Health determinants in developing countries such as Papua New Guinea reflect a trend of health inequities and a deterioration of health services caused by an inadequate infrastructure, poorly functioning public service, and limited attention to rural health issues. Health policies are commonly developed to address national health concerns without incorporating an understanding of community context or a holistic approach to the provision of health care services.

Papua New Guinean Cultural Beliefs and Social Structure

In rural areas of Papua New Guinea, relationships within clans are a paramount resource that has the potential to either promote or discourage change. A critical component of relationships within ethnic groups is the process of developing consensus within the community (LaVeaux & Christopher, 2009). The transactional relationships are exemplified by a network of obligation and social support underlying many of the beliefs and values that dictate interpersonal relationships in rural PNG. Conceptually, the *wantok* system is characterized by relational obligations underlying a basic cultural pressure to share/exchange resources within the extended ethnic and linguistic group.

The *wantok* system in PNG consists of strong solidarity ties that are representative of social structure throughout both urban and rural areas of the country. Beneficial aspects of the *wantok* system include a social support system providing economic resources based on mutual trust and reciprocity. Traditional features of the *wantok* system include strict rules of obligation including the pooling of resources, provision of labor for local projects, and protection from intertribal violence. This system of reciprocal exchange enables members of a clan to provide money for high cost items such as payment of bride price or school tuition (Hinton & Earnest, 2010). In urban settings, the *wantok* system provides access to economic resources and protection from crime but also creates downward-leveling pressures that decrease the change of leaving the crime-ridden, poverty-stricken environment (Portes & Landolt, 1996).

The *wantok* system also has detrimental effects on group functioning associated with economic hardships due to expectations to contribute to expensive traditional ceremonies, financial support for relatives, and pressure on business owners to provide

free goods and services for extended clan members. The *wantok* system creates a social network that is both involuntary and exclusive to members of the clan leading to mistrust of outsiders and discouraging individual ambition. In public services and political circles, this system may in some cases support appointments based on nepotism rather than merit resulting in diminished efficiency in delivery of services (de Renzio, 2000).

Health beliefs in many areas of PNG consist of a syncretistic integration of western medicine and an indigenous understanding of well-being and illness. The existing cultural framework differentiates between illnesses that are caused by dysfunctional relationships, supernatural or spiritual matters and those caused by trauma or disease agents. Koczberski and Curry (1999) reported that the Wosera Abelam people divided the causative factors of illness between two main categories: *sik bilong ples* (illness of the village) and *sik nating* (illness without a known cause). In many regions of PNG, it is believed that there is a direct association between the contravention of rules of social behavior and the onset of an illness. Anti-social behavior or concealed misdeeds become evident to the whole community, "that is, illness is an embodied and public sign of some wrongdoing on the part of the sick person" (Eves, 2003, p.258). If an illness is determined to have a supernatural, spiritual, or relational cause then treatment strategies are primarily determined by the community. If the illness is not perceived to have a supernatural cause then a more direct and individually focused treatment could be prescribed using western-style medications or traditional herbal preparations (Hinton & Earnest, 2011; Koczberski & Curry, 1999). The contextual approach to treatment of illnesses supports a culturally based paradigm of health and illness, and its relationship to the acceptance or rejection of western-style health care and health education.

Community-Based Health Care

A fundamental means of improving health inequities is the participation of the community itself in identifying issues of local relevance and health-promotion activities. Community participation requires a collaborative, problem-solving approach that recognizes the context and empowers communities to identify their own needs, skills, and strengths (Graves, 2009; Israel, Schulz, Parker & Becker, 2001; Running, Martin & Tolle, 2007; Wallerstein & Duran, 2008). The community itself must take ownership of the project to ensure cultural appropriateness and sustainability. Community-based health care is built on a "bottom-up" approach which creates a partnership essential to the attainment of improved health outcomes (Lauder, Reel, Farmer & Griggs, 2006).

Leininger (2002) stated that the development of an in-depth understanding of the cultural and social context of an individual or group is essential for the provision of holistic, culturally congruent care. Engaging communities as an entity rather than using an individual-focused approach has the potential to be an effective means of improving health inequities, especially in developing countries with collectivistic cultures. From the health promotion perspective, there are two main models that support communities in identifying and meeting needs: the empowerment model that emphasizes participation and increases control over socioeconomic situations, and the education model that emphasizes the provision of information and the achievement of behavioral change (Billings, 2000). A combination of these two models is in all probability the most appropriate approach to addressing persistent health inequities in developing countries.

An integral concept in the Community Based Health Care (CBHC) program's approach towards the elimination of health disparities is an 'up-stream' interventional

focus that facilitates a proactive rather than a reactive approach (Barten, Mitlin, Mulholland, Hardoy, & Stern, 2007; Paille & Pilkington, 2002). This model exemplifies an empowerment and capacity-building model that is based on the integration of cultural structures with a transformational, faith-based approach. The Commission on Social Determinates of Health identified three principles for action that have the potential to improve health equity: improve daily living conditions; address the unequal distribution of power, money, resources; and identify the existence and degree of health inequity and measure the results of any action taken in response to the problem (Marmot, Friel, Bell, Houweling & Taylor, 2008). These principles express a holistic view of health intervention that is congruent with nursing values of advocacy and social justice.

Community-based health projects need to fundamentally change the role of the project coordinator and the expectations of the community. An equitable partnership strategy is needed to facilitate the community's role in the decision-making process. The current CBHC framework follows a fairly stringent checklist of expectations that the community must accomplish without a similar set of expectations from the program director. The process of partnering with the community itself to prioritize needs and develop appropriate interventions would be a beneficial introductory step in developing skills to address other community issues (Wallerstein & Duran, 2008). The initial stage of community program development includes the formation of a leadership council, establishment of work groups, and creation of action plans for work groups (Jones, Koegel & Wells, 2008). These processes help provide the structure essential for on-going project development and the maintenance of power sharing between community members, and between the community and the research team.

Challenges are inevitable in the process of building a partnership between a community and academic partners. A long-term commitment of time is needed to build trust and capacity in communities that have been traditionally passive recipients of health care services. Cultural belief systems in PNG tend to be past-oriented and fatalistic creating a sense of resignation regarding health issues; for example, many Papua New Guineans believe that they have limited power to alter the causes of sickness since witchcraft or other supernatural forces are the main causative factor of illness (Cullen, 2006; Koczberski & Curry, 1999).

Understanding of the cultural beliefs about health issues and working with communities to develop culturally appropriate interventions is a crucial step to successful change. Sustainability of any program is always a challenge and requires the development of structures within the community that will endure after the research project has been completed. If the community does not take ownership for the intervention, then the program will not continue to function after the project funding ends (Wallerstein & Duran, 2006. Building leadership capacity is an integral initial stage that requires working with the community to develop skills and identify resources within the community. A persistent challenge that rural communities face is that many educated individuals move away from rural areas to find employment. This limits the availability of people within the community to fill essential roles needed to form work groups to implement interventions. While the goal of developing emancipatory knowledge in communities through an empowerment process is praiseworthy, it is important to ensure that communities have realistic expectations for project outcomes and that the burden for organizing change does not rest solely on groups with limited resources (Flicker, 2008).

The need for a community-based health care focus was identified in the early 1990s by a faith-based group based in the Western Highlands of PNG as a means of addressing continuing health inequities in rural areas. The Community Based Health Care (CBHC) program was based on several community-focused models including the Jamkhed Comprehensive Rural Health Project in Jamkhed, India. The Jamkhed project identified the importance of community participation, integration of services, use of appropriate technology, and the training of auxiliary health workers to improve health equity and the empowerment of community groups (Arole & Arole, 1994). As part of the Effective Development Empowering the Nation (EDEN) group, the CBHC program currently uses the CHE (Community Health Evangelism) curriculum developed by Medical Ambassadors International of Modesto, California. The CHE curriculum was adapted for use in Papua New Guinea and was renamed MY-CHE (Mipela Yet – Community Health Education) (R. Morsch, personal communication June, 1, 2011).

The CBHC project was designed to work with communities who were interested in improving health in their villages, initially by improving sanitation and developing access to clean water sources. Project coordinators identified villages that were motivated to partner with the CBHC project and worked to enhance the existing strengths within the group. Once the initial partnership and group development process was established, the community was encouraged to select a person to train as a village health volunteer who would be responsible for providing basic health care and education for the community. The project later expanded to include the selection and training of a village midwife to improve maternal and infant morbidity and mortality rates in village settings.

Conclusion

Health disparities in developing countries require health promotion strategies that are congruent with the worldview of the community. While a western approach to health care is predominately focused on the individual, the literature describes how collective societies with close kinship ties equate social harmony with health. One essential characteristic of social harmony is consensus decision-making. For health promotion programs to be accepted by a collective society, the community must be involved in the decision-making process from the initial stages, and help develop the methodology needed to integrate health innovations into common practice.

Developing an understanding of factors that support changes in health behaviors requires a contextual approach. In collective societies, health promotion interventions necessitate a methodology that integrates cultural values and facilitation of community empowerment. An essential component of facilitating behavioral change on the community level is identifying societal resources that support healthy practices and discourage high risk behaviors.

The literature search revealed extensive support for health promotion strategies as a means of addressing health disparities in developing countries, particularly in rural areas. Different groups hold a multiplicity of views concerning health and illness; however, it is important to develop an ongoing understanding in regards to how cultural beliefs can be incorporated with health promotion strategies in a manner that addresses the needs of a specific community. Contextualization of health promotion interventions, culturally targeted health education content, and community empowerment strategies are considered appropriate methods to address health disparities. Development of culturally

congruent and contextually appropriate health promotion projects was consistently acknowledged as crucial; however, specific elements of operationalization were inadequately addressed.

The process of partnering with communities to develop culturally appropriate health promotion strategies is a complex process due to the disparate worldviews that frequently exist between health workers and community members. Additionally, there is a paucity of studies that explore indigenous views of health or the lived experience of illness in current Papua New Guinean societies. While research supports the significance of culturally targeted health promotion initiatives, Garcia (2005) points out that "we should not build on the assumption that health is a universal value that can be uniformly promoted to all populations because much of what healthcare deliverers assume about health promotion may not hold for many patients" (p. 21S).

Health disparities are associated with insufficient access to health care services, inadequate resources, and limited participation in health policy decision-making by the community. The literature supports the premise that health inequities can be most appropriately addressed by health promotion interventions that engage social determinants of health (Hunter, Neiger & West, 2011; Whitehead, 2004). However, there is a dearth of information available on the marginalization and systematic disempowerment of rural populations in Papua New Guinea that result in health inequities.

A majority of articles about Papua New Guinea used a cultural anthropology perspective or a biomedical approach to disease-specific investigations. While anthropological studies provide insight on the cultural context of rural Papua New

Guinean societies, further studies addressing the current economic, socio-political or cultural changes impacting the health of communities would be beneficial. Voices of Papua New Guineans and their perceptions are scarce in the literature; and there are gaps related to the current emic view of rurality, societal change, religious practices, and issues related to health inequities. Limited information was available about community health programs in PNG; most studies focused primarily on assessment methods and results concerning a particular project.

Capacity-building was mentioned as an essential tactic by donor agencies; however, its function in promoting positive health outcomes, community empowerment and program sustainability was often not clearly elucidated. For Papua New Guineans, capacity-building has a practical implication and is closely associated with the specific needs of the community. Capacity-building is not limited to learning practical or organizational skills but includes the acquisition of attitudes, motivations, and values that influences behavior (Bolger, Mandie-Filer & Hauck, 2005). Operationalization of capacity-building strategies was considered particularly arduous in rural areas with inadequate educational resources, dependence on outside funding, and diverse influences on educational, social, and political philosophies.

A review of the literature showed that aggregate societal resources have been conceptualized as social capital, a term describing how social structure facilitates the actions of individuals and groups. Numerous definitions of social capital exist due to its origin in sociology and subsequent adoption by other scientific disciplines; this results in agreement across the literature that there is conceptual vagueness about social capital (Rostila, 2010). Additionally, some discussions of social capital support an individual

focus while others consider a collective approach to be more appropriate (Portes, 1998). A number of articles on social capital are based on social and economic theories that focus on the attainment of resources by an individual, and do not support a collective perspective integral to clan-based societies. Differences in levels of social capital among individual versus collective societies and its influence on health outcomes have also not been studied in depth.

The role of social capital in facilitating improved health status has its roots in the cultural expectations of interpersonal relationships and how social networks promote health. A lack of consensus exists about the relationship between components of social capital and health. Literature does not provide adequate explanation on the relationship between social capital and health variables; "it is still unknown how social capital influences health" (Hunter, Neiger & West, 2011, p. 524). However, social capital has been linked to positive health outcomes in a number of ways, usually related to supportive community networks and shared resources. The majority of the literature describes the positive characteristics of social capital, while negative effects are largely disregarded (Rostila, 2010). Although the strong kinship ties have been described in anthropological literature about Melanesian societies, the resources inherent in collective social capital has not been identified as a potential agency to empower community capacity or support health-related interventions.

Chapter 3

Methods

The purpose of this study was to explore the influence of cultural health beliefs on the adoption of health-related innovations in rural Papua New Guinea (PNG). Using a descriptive ethnographic approach, this study also explored how components of social capital (trust, reciprocity, social engagement) influenced community participation in health promotion innovations facilitated by Community Based Health Care (CBHC) projects. This study is guided by three research questions:

1. What is the influence of cultural health beliefs and religious practices on people's view of individual and community health?
2. What role does social capital have on the implementation of health promotion innovations in communities involved with CBHC projects?
3. How does participation in the Community Based Health Care (CBHC) program impact the health status of rural communities in Papua New Guinea?

In order to determine why some communities are more willing to integrate changes in health-related behaviors it was necessary to understand the influences of cultural health beliefs, sociocultural practices, and resource development to the group. A contextual examination of cultural health beliefs and their influence on the adoption of health innovations in Papua New Guinea has not been studied. Health promotion projects such as the CBHC program in Papua New Guinea have been operating for a number of years without substantive evaluation of outcomes. The relationship between social capital contextualized as the *wantok* system and implementation of health promotion innovations in PNG also has not been examined.

This chapter will present the study's research methodology including a description of the research sample and population, an overview of the research design, summary of the information needed to answer the research questions, methods of data collection, data analysis and synthesis strategies, ethical considerations related to the study, trustworthiness issues and finally limitations of the study. The chapter will conclude with a summarizing statement.

Rationale for Research Approach

The theoretic perspective of qualitative research is based on a naturalistic paradigm that relies on personal contact and building trustworthy partnerships with the participants (Fetterman, 2010; Lincoln & Guba, 1985; Madison, 2005). The qualitative research paradigm allows for the exploration of participants lived experiences within a specific cultural context (Holloway & Wheeler, 2010). Data derived from qualitative research studies focus on the meanings that people ascribe to life experiences in order to ascertain patterns and develop interpretations of the information. The qualitative research process is flexible, emergent and interactive enabling the development of a holistic perspective of the phenomenon of interest (Ulin, Robinson & Tolley, 2005). Qualitative data collection techniques require personal engagement, so that the researcher is involved with the people and the events that occur. The premise of qualitative research requires an interactive relationship between the participant, researcher, and the environment which enables an interpretation of contextual patterns. Data collection and analysis involves a complex process of transcription, interpretations, reduction of data into codes, and then developing the themes that contain the fundamental nature of the research topic.

Ethnography

As a methodology, ethnography enables rich data to be obtained by accessing "people's meaning-endowing capacities" (Brewer, 2000, p.66). Ethnography requires a holistic, integrative, contextual approach through which the researcher attempts to discover meaning in human behavior. Observation of the daily lives of participants allows the researcher to develop insight into the unspoken assumptions that are fundamental to understanding a culture (Roberts, 2009). As a form of qualitative research, ethnography has been applied to various settings such as organizations developing change strategies, program evaluation, and the integration of cultural health beliefs and practices into treatment and health promotion programs (Roper & Shapira, 2000).

The ethnographic methodology uses an interactive approach enabling the researcher to develop insight into a culture through an observational strategy promoting reflexivity and attention to detail. The ethnographic process entails gathering data through observation of social interactions, focus groups, formal or informal interviews, drawing inferences from the data, and developing an interpretation of information that contains the fundamental nature of the phenomenon (Creswell, 2008; Fetterman, 2010). Ethnography is not an appropriate method for hypothesis testing, but can be used to clarify complex problems and explore factors associated with the target population (LeCompte & Schensul, 2010; Yang & Fox, 1999).

The study of cultural models of health and illness requires an exploration of the dynamics of human behavior that cannot be appropriately understood or explained using a strictly positivistic, quantitative approach. Ethnographic research is based on the study

and interpretation of behavioral patterns, values, beliefs, and languages of a cultural group. Traditional forms of ethnography are adapted from anthropological field methods; other approaches to ethnography are derived from various theoretical orientations such as feminism, sociology, Marxism, and critical theory (Creswell, 2008).

Certain concepts are integral to the ethnographic perspective of research: a holistic approach, contextual perspective, recognition of multiple realities, use of emic or etic perspectives as data of the collection and analysis process, and a non-judgmental orientation (Fetterman, 2010; Holloway & Wheeler, 2010; Maggs-Rapport, 2000). The etic or outsider's view provides data from the observer's perspective, consisting of descriptive information gathered by experiencing the setting, observing community events and interpreting group behavior. An emic view is the perspective held by members of the cultural group reflecting their values, language, experiences and beliefs (Speziale & Carpenter, 2007). The emic or insider's view is much more difficult to attain, particularly if the researcher is not a member of that ethnic group, and does not speak the local indigenous language (*tok ples*). To develop an understanding of the emic view, I participated in community activities such as church services, working with the women in the garden, and talking with various groups of people. I also began to access the emic view by interviewing members of the community (Patton, 2002; Speziale & Carpenter, 2007).

Ethnography can be considered as both a theoretical framework and as a method of data collection. It is based on the principle that social activity has meaning that can be determined by interpreting patterns of behavior (Atkinson & Pugsley, 2005; LeCompte & Schensul, 2010; Wolcott, 2008). Ethnography uses various methodological strategies to

examine the behavioral patterns of individuals and groups within a particular cultural perspective (Patton, 2000; Roper & Shapira, 2000; Yang & Fox, 1999). Data about culture can be collected through methods such as observation which enables the researcher to develop a contextual understanding of the group, interviews with participants, and examination of objects or documents that would provide additional insight into the cultural group.

The use of ethnography in this study was determined by the need to explore questions that required investigation within a cultural construct. As a qualitative approach to research, ethnography describes and interprets cultural patterns in context by exploring the meaning that individuals and groups assign to the phenomenon in question (Lambert, Glacken, & McCarron, 2011). Ethnography is also an appropriate research methodology for a study requiring data on how a culture-sharing group functions through exploration of the linguistic, behavioral, and belief system of the group (Creswell, 2007; LeCompte & Schensul, 2010). For the purpose of this study, ethnography enabled the researcher to build an explanatory theory around characteristics of social capital, cultural health beliefs, and the process of adopting new health-related behaviors.

Ethnography in nursing. In the study of culturally based phenomena, an ethnographic approach provides a framework by which patterns of behavior can be positioned within a context. Ethnography is particularly congruent with the nursing paradigm of holistic care. Nursing is a complex discipline with a focus on participatory processes that promote well-being through a relational and transformative perspective (Kim, 2004; Reed, 2002). Activities that enhance an understanding of the meaning of

behavior (whether among individuals or groups) will improve nursing judgment and interventions (Robertson & Boyle, 1984).

Nurses are uniquely positioned to observe individual and group health and illness experiences through the health care provider role (Bent, 2003; Oliffe, 2005; Robertson & Boyle, 1984). Nurses are skilled in observation, and are commonly proficient in the documentation and analysis of data. Roper and Shapira (2000) state that nurses also have extensive experience interviewing people in various settings, are attentive to both verbal and non-verbal communication, and are able to simultaneously observe and interpret data on multiple levels.

The Researcher in Ethnography

According to Fetterman (2010), an ethnographic researcher uses a holistic perspective to understand common behavioral patterns by acting as a "human instrument" (p.33). An integral characteristic of qualitative inquiry is the use of personal experience, empathic neutrality, contextual awareness, and an individualized sense of authenticity (Patton, 2002). I spent nearly two decades in the highlands of PNG between 1985 and 2005 working as a nurse educator and church health professional in both rural hospital, clinic and community settings. This experience has provided me with an extensive knowledge of the Papua New Guinean culture, fluency in the most widely used language in the country (*tok pisin*), and an understanding of the historical and environmental context of Melanesian culture. However, changing my role to researcher had the potential to create misunderstanding about the purpose of the data collection process. To maintain trust and avoid potential misconstruction of the purpose of the study or use of

the findings, I clearly communicated my current role as a researcher prior to the initiation of the data collection process.

To address potential conflicts of interest with my research and the CBHC program, I communicated to study participants and other stakeholders that I was not employed by the CBHC program or Nazarene Health Ministries and had not received any financial reimbursement for my study. Although the director of the CBHC program provided introductions to villages participating in the program, she encouraged me to meet with community health committees without staff members present to decrease the chance of undue influence. Additionally, I was aware that the introduction by CBHC staff members could be considered an endorsement by the organization, creating a potential bias.

Overview of Information Needed

In order to understand why communities decide to adopt health-related changes, participants were asked about cultural health beliefs and illness, components of social capital, and the effect of the CBHC program on the health of the community. Data needed to answer these questions included contextual (including demographic), perceptual, and theoretical information (Bloomberg & Volpe, 2008).

Contextual information includes descriptive detail of village location, social structure, leadership roles, norms/values obtained through observation and interviews. Additional information gathered about the CBHC program was obtained through interviews, documents containing details of the program history, objectives, structure, staff, systems, and procedures. Demographic information was obtained using a survey to gather data on the participants' age (if known), gender, educational attainment, marital

status, clan/tribe affiliation, occupation, number of years living in the village, and any time away from the village.

Perceptual information was collected during interviews of participants to determine their experiences of the CBHC program and its impact on personal and collective health outcomes. The participants were asked to provide descriptions of their health beliefs and illness experiences. Because of the importance of relationships in the PNG society, sensitive questions were framed so that answers could be attributed to what other people would normally say, or to society in general. This allowed for more accurate answers in cases when the participant attempted to answer a question in a way that he or she felt I wanted rather than what they actually believed. For example, when asking about health and illness beliefs and treatment procedures, the participants were asked what other people in their community believed, or what their grandparents believed. Data on relationships between community members, the influence of formal and informal community groups, and how they impact decision-making were gathered through direct observation and the interview process.

Theoretical information on the structural (networks) and cognitive elements of social capital (trust, reciprocity, social participation) were obtained by asking groups and individuals to describe how relational ties within the community facilitate collective action on the adoption of health promotion interventions. The participants were asked about the positive and negative elements of the *wantok* system in PNG and its influence on group decision-making regarding health promotion activities.

Research Design

A descriptive exploratory design was used in this study to analyze factors associated with the adoption and integration of health promotion interventions in rural village settings. An ethnographic approach was employed to explore the influence of cultural health beliefs on health-related behaviors, and the effect of social capital on the implementation of community-based health care programs. To describe the setting and develop an understanding of the cultural context of the setting, I observed interactions between people in the village setting as well as between CBHC personnel and village members. This facilitated the examination of networks including decision-making patterns, communication hierarchies, and other features of the social environment (Patton, 2002). Participant observation and interviews with community members provided contextual information about the history of the village, description of the local environment, cultural health beliefs, leadership roles, and roles of community members. There was a lack of reliable epidemiologic data on the number of births, deaths, and illnesses in these communities. Since documents about health indicators from local health centers near the villages were not available, national and provincial information from the National Department of Health was utilized.

This study elicited data from the target groups using several different techniques including descriptions of social interactions, observation of the context and behaviors of the groups, semi-structured interviews with small groups and individuals, and drawing inferences from the data. Strategic use of multiple data-gathering techniques supported the researcher's attempt to gain a more in-depth, holistic understanding of the cultural group (Fetterman, 2010).

Prior to the data collection process, an in-depth literature review was conducted to investigate the contribution of other scholars in the topics of community health care in developing countries and social capital. The basis for the literature review was to acquire a more comprehensive understanding of the relationship of cultural health beliefs and social capital to health outcomes and community health strategies in developing countries.

Data Generation

For the purpose of this study, I had the opportunity to immerse myself in the contextual milieu of the highlands of Papua New Guinea in 2011, 2012, and 2013; each field visit lasting three to four weeks. During the initial visit in May, 2011, I described the purpose of my study to the community health committee members, church leaders and local level government councilors and received permission to interview people in the area (see Appendix A). I was able to observe CBHC staff working with community groups and had to opportunity to participate in various experiences such as sorting coffee beans, working in the garden, and sitting down to talk with groups of women about their concerns. During this visit, an initial focus group of Papua New Guinean health educators assisted with the development of a series of open-ended questions and secondary probing questions. Interview questions were developed about the following topics: health beliefs, social capital, community participation, and community health promotion. The nurse educator focus group helped to frame culturally appropriate questions, and assisted in translating them from English into Melanesian Pidgin.

The second field visit occurred in June, 2012. During this visit, I was able to continue to develop the relationships begun the previous year. On this visit, two focus

group meetings were held with members of village health committees in Jiwaka province to field test interview questions, clarify findings, and provide a setting for additional interactions between participants. Information obtained in the focus group meetings with community health committee members was used to determine the appropriateness and accuracy of the questions that were subsequently used for individual interviews. I also spent additional time in the middle-Ramu district to strengthen relationships with community members and observe community interactions during a CBHC training program.

I returned to PNG for a third time in June, 2013, and visited villages in both middle-Ramu and Angalimp South Wahgi districts to gather data on site. Individual semi-structured interviews were conducted to collect data about traditional health beliefs, importance of elements of social capital (trust, reciprocity, and social interactions), views of past and current health status, and participation in community-based health care project interventions. Participants were given the option to be interviewed individually or in small groups. However, privacy is not given the same degree of importance in a collectivistic society as in western cultures, and in some instances private interviews are viewed negatively by the community, creating a sense of distrust. Although the opportunity for privacy was offered to participants, many village members felt more comfortable being interviewed and discussing community issues in a small group setting.

Types of Data

Types of data collected included demographic information about participants, field notes gathered during observation of group meetings, photographs, and verbatim transcription of audio-recordings from semi-structured interviews. Detailed description

of the settings and culture-sharing group were kept. Interviews were then transcribed and translated by the researcher.

Perceptual information was elicited on how participants understood the meaning of current health beliefs and the potential need for change in health behaviors. Interviews are designed to obtain information that cannot be easily observed. For example, an interview allows the researcher to acquire information about another person's thoughts, feelings, perspectives, and the meanings that they attach to experiences (Patton, 2002). The interview encounter process was designed to provide participants with a greater voice and provide a contextualized framework for the research. Individual and group interviews using open-ended questions were used to obtain in-depth understanding of traditional health beliefs, elements of social capital, and perception of the influence of community-based health care activities on individual and group health. Traditionally, an interview was to be strictly a neutral process which, in most cases, was a difficult if not impossible accomplishment. Each interviewer and interviewee is a unique individual with countless experiences, biases, desires, and motives that influences how each interaction is interpreted. So while neutrality cannot be entirely attained, the researcher and participant can work in partnership to create a narrative that supports a more comprehensive understanding of the individual's or group's perspective (Fontana & Frey, 2005).

Focus group discussions. Focus group discussions using a series of open-ended questions were audio-taped, and field notes were recorded by the researcher during observation of group meetings. While acting as a moderator for the focus groups, I

observed the group processes during the meeting and took field notes to supplement the digital audio-recording of the discussions.

Demographic information. After informed consent was obtained, the individual interviewing process began by collecting demographic information about participants in the study including age, gender, education, ethnic affiliations, marital status, occupation, and group memberships (see Appendix B for demographic questions).

Semi-structured interviews. Semi-structured individual and group interviews using open-ended questions were the primary data collection method (see Appendix C for interview guide). Interviews lasted between 45-60 minutes. In this region, as a woman, it was culturally inappropriate to be inside a dwelling alone with a man who was not a relative. Therefore, I interviewed male participants in an open area such as the front porch of a home, or under a tree in full view of others. Male and female participants were usually interviewed separately due to the gender dominance of men in Papua New Guinean highland societies. Women were more willing to verbalize their thoughts and feelings in interviews when men were not present.

The use of semi-structured interviews was a strength of the study as it provided an opportunity to understand the lived experiences of people through their individual voices and within their cultural context. Since the formation and maintenance of relationships is so important, the interview process of sitting down and talking with individuals or small groups of participants face-to-face and listening to their stories provided an opportunity to hear the voice of the community. The custom of telling stories about current and past events revealed details of indigenous knowledge, and was a rich means of gaining a deeper understanding of the impact of the CBHC program on the community. In a

culture that emphasizes the oral tradition of story-telling, the use of semi-structure interviews was an appropriate means of gathering data in the community.

Semi-structured group and individual interviews were audio-taped using a digital voice recorder. If a participant did not wish to be taped, then field notes would have been used, however all participants agreed to allow interviews to be audio-taped. Field notes with detailed description of the setting and culture-sharing group were kept during my participation in village activities.

Participant-observation. The use of participant-observation as a data collection method required the revision of my previous role in PNG as a nurse educator and church health professional. This required explanations on several occasions when questions were asked about the purpose of my current visit since I had visited the study sites on previous occasions. Brewer (2000) pointed out that for participant observation to be successful, a balance of involvement and detachment needed to be maintained. Due to my former association with the church organization, I was fortunate to be extended a referent relationship with members of the community even though I had not spent an extended period of time in any of the particular villages. Although I had the role of researcher and despite not being part of the local kinship group, as a former church health worker, I was accepted by the community as a trusted outsider. Acceptance by community members and my ethnicity put me outside some of the traditional customs and position held by women in Papua New Guinean society. This enabled me to avoid some of the potential gender taboos that could have occurred while I was interviewing male participants. The questions in the interviews did not refer to specific gender issues in the community, and in most cases the men were comfortable answering the questions. The women tended to

be less comfortable with the formal interviewing process possibly due to their limited educational opportunities and the customary gender role that limited women's involvement in mixed group discussions. On several occasions, I was able to sit down with a group of women who were preparing food for a meeting and was able to talk to them about their life experiences. They communicated some of their personal struggles and coping strategies giving me additional insight into the context of living in a small village. I was humbled by the trust proffered to me, including how I was provided entrée into the village setting and social life of the community.

Setting

Sites located in two Highlands districts were selected because of their proximity to transportation, the length of time they had worked with the CBHC program, and the willingness of community members to participate in the study. Although the CBHC program was active in other areas of the country, problems with access or reported episodes of ethnic violence made those sites impractical. The research setting consisted of rural villages located in the middle-Ramu district of Madang Province, and in the Angalimp South Wahgi district of Jiwaka Province. The participating villages had established CBHC programs that had been in place for a decade. Since settlements in the middle-Ramu area are small and widely dispersed through the mountains, I recruited participants from villages near a centrally located airstrip. Financial and time limitations restricted my recruitment of participants to homesteads located within a half day's walk to the airstrip.

The middle-Ramu district of Papua New Guinea is located in the Bismark Schrader mountain range of Madang province. The lack of roads in this mountainous

region makes this part of the country particularly isolated. There are a number of dirt airstrips throughout the region, but flights are unreliable and expensive. Streams and small rivers in the valleys are the only sources of water, but most people avoid living in low-land areas near larger water sources due to malaria. Villages participating in the CBHC program in the middle-Ramu district have encouraged subclans to build homes in closer proximity than was commonly the practice. These settlements, called *haus lains* enabled the people to combine resources related to economic development and health promotion. Several *haus lains* have built small aid posts, or obtained water tanks with pipes to carry fresh drinking water to other sections of the village.

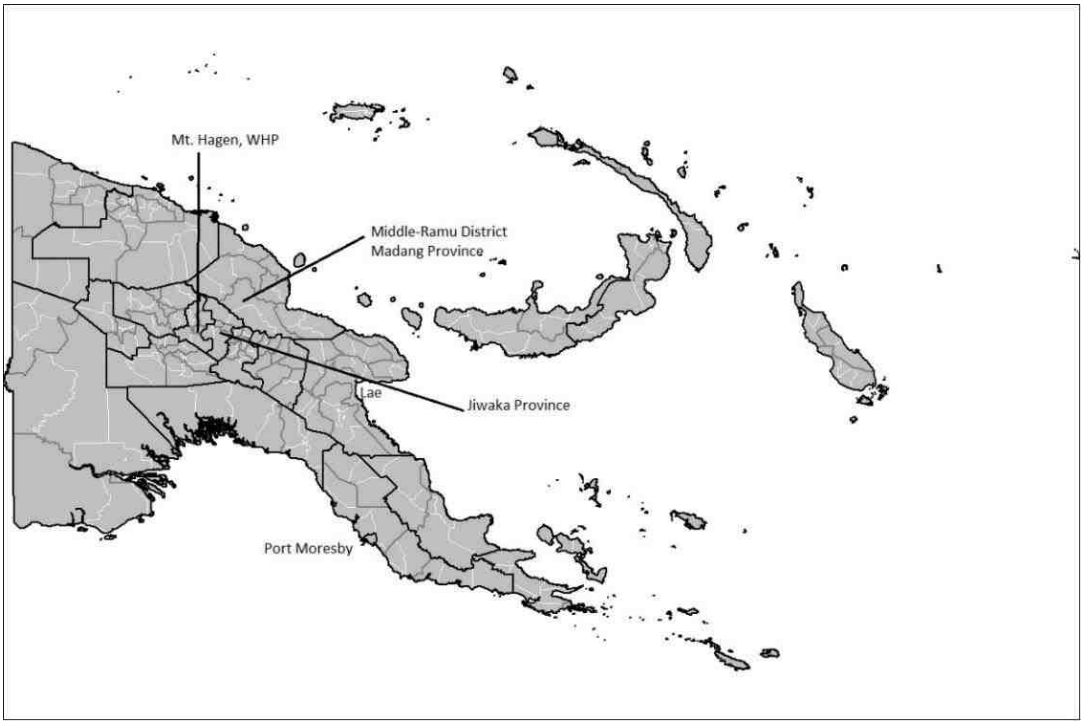

Figure 3. **Provincial Map of Papua New Guinea**

The Jiwaka province is in the Wahgi Valley of the central highlands, and is more easily accessible due to the location of the provincial airport at Kagamuga (Mt. Hagen) which has several daily flights from the capital city of Port Moresby. The Highlands

Highway runs through the valley and connects the highland provinces to the coastal port city of Lae. Many areas in both the Jiwaka and Western Highlands provinces are accessible by land vehicles; however, roads that are located even a short distance from the provincial capital or district towns are often difficult to traverse due to poor maintenance or damaged bridges. The village in Angalimp South Wahgi district was located about an hour's drive from a main highway. The road to the village was unpaved, and the area had recently experienced episodes of ethnic violence between clans.

By interviewing participants from an additional highlands district, I was able to support validity of the data through a process of triangulation. I was able to compare and contrast the experiences of individuals in two different highlands provinces who participated in similar health promotion programs, yet were members of different cultural groups.

Sample size. Participants for the study were selected using a purposeful sampling strategy to achieve a representative perspective of the community (Creswell, 2008). Inclusion criteria required that participants would be adults, able to speak *tok pisin*, and were residents of the village prior to the community partnering with the CBHC program. Participants for group and individual interviews were recruited from both the health committee and community members who were not part of the committee. Adult participants were over the age of 18, however since many individuals in rural settings did not know their date of birth they were eligible to be included in the study if considered to be an adult by local cultural norms. Despite my attempt to recruit equivalent numbers of male and female participants to obtain broader perspectives from community members, this did not prove possible due to many rural women being unable to speak Melanesian

Pidgin. To gain a perspective from the women in the community and provide women with a voice, I sat down with women to have informal conversations while they worked in the garden or were cooking to gain understanding of their life experiences.

I attempted to recruit community members who reflected the religious diversity of the region, including those reporting to be members of various local Christian denominations and those who adhere to traditional animistic beliefs. However, since many villages had only a single denominational group, my interviews reflected the religious homogeneity of the community. Members of the community health committee were asked to suggest the names of additional individuals in the community who could be recruited to participate in the interviews. Other recruitment strategies included asking for potential participants during community activities, and the local pastor announced the request for study participants at church services.

Sample size in qualitative research studies is not determined by statistical formula or by the need for a specified confidence level but by the information expected to be obtained from the selected sample. Since sample selection is determined by informational requirements, sampling was completed when redundancy occurred and no new data was elicited (Lincoln & Guba, 1985; Patton, 2002). Sample size for the number of interviews and amount of observations was determined by data saturation and the development of codes and themes in the data (Richards & Morse, 2007). Data saturation is the process of sampling until no new information is obtained from interviews; "thus redundancy is the primary criterion" (Patton, 2002, p. 26). It was estimated that approximately 10 to 25 participants would need to be interviewed until data saturation was reached. Data saturation occurred after 20 participants, but an additional three people

were interviewed because they had responded to my request for participants and were interested in providing their input into the study. The sampling process provided representation of several communities, and the information gleaned from the semi-structured interviews and informal narratives verified data saturation.

Giving gifts as an expression of appreciation is an expected custom in Papua New Guinean society. Providing a small gift for participation in an event is part of the cultural system of reciprocity in PNG and is not seen as coercive. To express my thanks for participating in the study, a small non-monetary gratuity consisting of an item of clothing or food was provided to each participant.

Data Analysis Strategies

Qualitative research methodologies result in the collection of large amounts of data requiring a structured plan of organization and development of codes and themes to determine relevant patterns. Data analysis in ethnography is an iterative process, requiring the researcher to construct hypotheses and evaluate information throughout the study (Fetterman, 2010). Ethnography uses inductive, deductive, and recursive processes to explain the phenomena under study. The recursive approach in data analysis refers to a continuous interaction between the data and associated deductions resulting in a more established understanding of cultural patterns (LeCompte & Schensul, 2010). Fetterman (2010) proposes that identifying patterns can be considered a means of developing ethnographic reliability. A thematic analysis strategy was used to identify patterns in transcribed interviews and identify key events (Braun & Clarke, 2006).

The data organization and management process began with a thematic analysis of the data that was performed using an iterative process of open coding to identify patterns

in the transcribed interviews (Braun & Clarke, 2006; Wolcott, 2008). To develop a rich thematic description of the data, transcribed interviews were translated into English, and then the material was read and re-read to identify patterns, generate codes, and organize descriptive themes based on the interview questions. Member checking with study participants occurred at key intervals during the research process, and local research associates helped substantiate cultural validity during analysis of data.

In the case of this study, the thematic analysis was associated with a contextual methodology that explores assumptions about the nature of the reality. Thematic analysis involves a recursive approach to the data to discover repeated patterns of meaning. The following phases of thematic analysis as described by Braun and Clarke (2006) were used: 1) became familiar with the data; 2) generated codes in a systematic fashion; 3) arranged codes into potential themes and sub-themes; 4) appraised themes for coherency and congruency in the entire data set; 5) generated names and definitions for each theme; 6) developed a final account of the story present throughout the themes.

Data were classified using a recursive process and then a taxonomic matrix was be developed to link themes, visually display relationships, and summarize data (Fetterman, 2010; Richards & Morse, 2007; Ulin, Robinson, & Tolley, 2005). A data summary matrix was developed to track the types of participant responses and formulate findings (see Appendix D). Audio-recordings of the interviews were transcribed, translated into English and then the material was read to identify patterns, create codes and classify themes. A computer-aided qualitative data analysis software program CDC EZ-Text (Version 3.06) was used to assist in data organization and management (Carey et al., 1998).

After coding schema emerged, reliability was obtained by having two Papua New Guinean field associates read the transcripts from the interviews to test the codes. Discrepancies were discussed with the colleagues and reconciled. In addition to keeping field notes, a researcher's reflective journal was created as a means of organizing memos, documenting subjective interpretations of events, recording the development of coding themes and decisions about revisions of codes, and descriptions of techniques of methodological analysis. A journal and code book helped organize data and serves as an audit trail by providing a record of meetings, sampling strategies, protocol changes, and coding methods (Morse, Swanson & Kuzel, 2001).

Ethical Considerations

The primary ethical consideration associated with research is the development and implementation of safeguards to protect the rights of participants. Although there are no physical risks anticipated in an ethnographic study, it is important to protect individuals who may be at risk for group sanctions if their beliefs or behaviors are not congruent with societal norms. If interview questions obtain information that may be potentially damaging to an individual's relationship with others in the clan, it will be necessary to determine whether the information could have been obtained from other sources, or decide if there is another way to protect the identity of the participant.

To address issues concerning the protection of human subjects when collecting data in another country, ethical clearance from the appropriate institutional review board (IRB) must be obtained. Permission was granted by the PNG's National Department of Health Medical Research Advisory Committee that acts as the institutional ethical committee for the PNG Institute of Medical Research (see Appendix E). Additionally,

permission from the Human Research Protection Committees (HRRC) of the University of New Mexico was obtained. As data from this study was acquired through direct observation and interviews, it was considered to present minimal risk to participants. Other methods to protect the rights of individuals participating in the study included obtaining permission from the coordinator of the CBHC program and from the local community leaders.

Consent. Before interviews could commence, the purpose of the study including any risks and benefits to the participants were presented. An informed consent provides relevant information about the study and ensures that the participant understands the purpose of the interview by using language understood by the individual (Silverman & Marvasti, 2008). For the purpose of obtaining informed consent to participate in the study, verbal consent was used in most instances due to the high illiteracy rates in rural areas of PNG, especially among women.

A number of the participants had difficulty reading or were illiterate, so I read the consent form in *tok pisin* to all the participants and provided additional explanations about the purpose of the consent and what I was going to do with the information that was collected. I verbally discussed with all participants the purpose of the study, benefits and risks of participation, and emphasized that the participant could withdraw from the study at any time. The process of obtaining consent caused some confusion because of unfamiliarity with formal interviews, however with further explanation about the purpose of the study and the data collection process, the participants were willing to be involved with the study. The request for a written consent was frequently met with a lack of comprehension by participants who were either unfamiliar with the concept of legal

documents, or could not visualize the need to sign a paper in order to participate in a verbal discussion. If the participant was able to read Melanesian Pidgin or English, then he or she was asked to sign the appropriate version of the consent form (see Appendices F and G). The consent form also included an additional section requesting permission to audio-record interviews and take photographs in the village setting. Taking photographs of people in most places in PNG is viewed in a positive way as an expression of interest in the person and all participants agreed to have pictures taken.

Participants were assured of the right to decline to participate in the interview and the measures taken to keep the names and other identity characteristics of the participants and the village confidential. Participants were informed that if they did not want to answer a question during the interview process or decide that they did not wish to participate, it would not affect current or future services provided by the CBHC program or their continuing relationship with the community.

To demonstrate respect and transparency, preliminary findings were discussed with participants and other community members while I was in the village. After the dissertation process is successfully concluded, a copy of the dissertation will be sent to the CBHC office and a summary of the findings made available to other participants in the village. An additional final copy of the dissertation will be sent to the PNG Medical Research Advisory Committee.

To demonstrate respect for the people of the community, it was important to utilize an approach that enabled these narratives to be articulated accurately and in a way that protects confidentiality. Confidentiality was maintained by using a number for each participant, and demographic information was kept in a separate file from the interview

data. Participants were informed of steps being taken to preserve their anonymity and were assured that responses to questions about social relationships were de-identified. After the interview was concluded, the digital recording was downloaded to a password-protected computer and then erased from the recorder. A log linking participants' information to audio-recorded interviews was kept in my password-protected computer and all paper documents were kept in a locked file cabinet. Transcribed interviews were kept in a password-protected computer and all interview notes, field notes and recordings were kept in a locked file case. I was the only one with the key to the file cabinet and access to the password for the computer information. Protected information was kept until the dissertation process was completed, and then all digital recordings were deleted and written data with identifying information was destroyed.

Trustworthiness

Qualitative research is both reflective and fundamentally interpretive. Ensuring validity in qualitative research studies requires the use of strategies that support the development of coherent themes, identification of potential biases, and methods that support accuracy (Creswell, 2003). Ethnographic validity can be obtained by using multiple data sources to assess for quality, accuracy, and credibility of the information (Fetterman, 2010). Principles of credibility, dependability, transferability, and confirmability will be used to establish trustworthiness of the research (Lincoln & Guba, 1985).

Credibility

To determine the credibility of findings, research studies need to demonstrate the trustworthiness of the methods and findings to support the integrity of the research

process. Articulating credibility of the research study requires establishing the veracity or believability of the findings (Creswell, 2008; Lincoln & Guba, 1985; Marshall & Rossman, 2006). Trustworthiness of data was supported through the collection of multiple data sources from direct observation, focus groups, individual participant interviews, and documentation. Credibility of findings and trustworthiness of the research process was supported by a process of triangulation with sampling of two communities representing a number of clans, and by examining evidence from different sources to determine internal consistency (Creswell, 2007; Fetterman, 2010). This was accomplished by constructing the research framework in a way that provided support to the veracity of the data through maintaining an audit trail, including taking field notes and transcripts of interviews to demonstrate adherence to the research design.

Investigator reflexivity. A means of supporting credibility is the identification of researcher bias through self-reflection. The number of years living in the highlands of PNG has provided me with a unique cultural understanding, fluency in Melanesian Pidgin, and long-term relationships with local people in a number of areas. However, because of my former role as a church health worker, it was important that I clearly communicate the purpose of the data collection and the use of the findings to the community.

Another issue is the position of power that my ethnicity, financial resources, and education gave me. Since I am not a member of a local kinship group or a Papua New Guinean, I am without a doubt considered an outsider. My position in this strongly patriarchal society was ambiguous because of a dual position as a woman and as a 'white skin'. My status as a female, an expatriate (American), and my former position as an

educator and missionary nurse could have influenced how study participants answered interview questions in the attempt to provide responses that they felt I wanted to hear. The power imbalance between researcher and participants was addressed by developing a partnership between the community and the researcher. Participants may perceive that an outsider will not able to accurately convey information about their culture, or may not see the benefit of participating in a study that does not provide any material advantage for the community. Thus, it was important to develop a sense of cultural humility and respect for members of the community as a means of addressing power imbalances (Chavez, Duran, Baker, Avila & Wallerstein, 2008). This source of potential bias was addressed through the use of open-ended questions and probing questions that I used to verify information. By having an awareness that my status may influence response, I was able to adjust how I asked certain sensitive questions so that I obtained answers with a greater degree of honesty and accuracy. It was important to maintain a sense of awareness of potential biases and recognize how my gender, race, socioeconomic status, and background shaped interactions with people in the village. These issues continued to challenge my understanding of the cultural structure and how it is influenced by the historical and social context.

To address issues of bias, it is also important to support a sense of balance between an insider and outsider status, as well as having a level of detachment that preserves professional identity with restricting the rapport needed to maintain the relationship that is essential in collective societies (Brewer, 2000). Biases can have a positive effect by helping the researcher focus on a particular research topic, or a negative effect if the researcher allows the bias to damage the credibility of the research

(Fetterman, 2010). I recognized that other potential biases may include previous positive and negative experiences with the people of PNG in a number of settings that could influence my perspective and potentially bias findings. To overcome problems resulting from bias, I used a process of critical self-reflection through journaling, dialogue with colleagues, and data checking with participants to develop a non-judgmental approach to any issues that developed.

Dependability

Dependability of the research study can be demonstrated by providing evidence that supports the researcher's study design such as the code book that provides evidence on decisions about codes and thematic development. An audit trail can support dependability of the study through field notes, notes from focus groups, matrices, and transcribed interviews (Creswell, 2007). Reliability of the coding process was established by asking a colleague to review transcripts of the interviews to determine if the coding results were appropriate. Papua New Guinean research partners were involved in the initial stages of developing the interview questions and assisted with thematic analysis to provide verification of meaning and cultural validity. Once the interviews were transcribed and then translated from *tok pisin* to English, research partners read transcripts and translations of the interviews, helped assess for meaning of linguistic nuances, and reviewed for accuracy.

Transferability

Qualitative research methodologies allow the in-depth exploration of the experiences of a few people. Lincoln and Guba (1985) state that generalization in naturalistic inquiry depends on the degree of similarity between contexts. In ethnographic

studies, cultural findings from one group of people are not meant to be generalized to another group; however, in some instances, data from one culture can contribute to understanding in another cultural setting. The emic perspective or insider's view provides subjective understanding of behaviors and customs. An etic perspective of reality utilizes an objective, outsider's view of a situation (Fetterman, 2010; Lambert, Glacken & McCarron, 2011). This study combines both the emic and etic perspectives in order to develop a more comprehensive understanding of how cultural belief systems impact health behaviors.

Transferability refers to the ability of study findings to be applied to other contexts, and is supported by the use of thick/rich descriptions including emic and etic perspectives of reality (Lincoln & Guba, 1985; Ryan, Coughlan & Cronin, 2007). This was done by providing detailed information about the contextual environment of the setting to support the claim of relevance in other cultures (Bloomberg & Volpe, 2008). Ethnographic study findings are culturally specific, however with identification of societal responses to change processes, the data could potentially be transferable to other groups (Silverman & Marvasti, 2008). Although cultural nuances vary from area to area, there are many commonalities between indigenous groups that live in rural environments. Transferability of this study is supported by a thick description of rural Papua New Guinean culture and the contextualization of health promotion innovations. Identifying means of improving levels of social capital in collectivistic societies may assist in transferring knowledge of community-focused health promotion to other settings.

Confirmability

In the case of research using a naturalistic approach, the value of data is established through confirmability. Unlike the quantitative emphasis on objectivity, confirmability refers to the ability of the researcher to demonstrate how coding decisions were made and themes developed (Lincoln & Guba, 1985; Ryan, Coughlan & Cronin, 2007). The audit trail consisting of code books, field notes, transcripts, and journal entries provides a record outlining how the researcher was able to deal with biases and subjective interpretation of events. During the observation process of the study, a nonjudgmental orientation benefits the ability of the researcher to view cultural practices without imposing personal values on the other culture (Fetterman, 2010).

Limitations of the Study

Limitations of the study include issues inherent to qualitative research methodologies and to the specific contextual situation. Traditionally, ethnography required long-term involvement with the community to develop an extensive familiarity with cultural activities. Since I was unable to spend large amounts of time in a particular village setting, a more rapid approach to data collection was used. A rapid or compressed investigation of the culture is possible when the researcher speaks the language, is familiar with the field setting, research is focused on a specific aspect of the culture, and the study process is able to exercise a flexible approach (LeCompte & Schensul, 2010; Patton, 2002).

The potential for reactivity due to the presence of an outsider in the community is a limitation commonly associated with observational techniques. Observing a group may cause changes in behavior, and data is restricted to activities that the researcher had the

opportunity to witness (Patton, 2002). Although behavioral changes due to observation cannot be eliminated, I worked to identify and ameliorate potential detrimental effects from the process.

As a visitor in a traditional rural village setting, there was a potential for distortion of data due to the cultural imperative for relational harmony and the reluctance of a close-knit community to discuss internal problems with outsiders. The time spent in the village setting was relatively short, particularly in the Jiwaka province. While I spent over a month in the middle-Ramu district, the issue of time limitations had a detrimental impact on building close relationships and finding observational opportunities. Although people were willing to talk to me about their experiences with the CBHC program and the struggle to treat health problems in rural villages, I would have needed a longer period of time observing for verification of meaning. However, I was given ascribed trust due to my status as a nurse and as a former church health worker. I was introduced to community members by CHBC program staff who provided entrée to the community, but this could have given the false impression that I was interviewing people on behalf of the organization.

A limitation of the study is that participant selection was dependent on the willingness of individuals to participate in the interview process. Some individuals, particularly the women, were too shy to speak to an outsider or felt uncomfortable speaking Melanesian Pidgin. This limitation was difficult to manage, but was addressed by asking if the participant would like another friend or relative to be part of the interview process, or to be a part of a group interview. On several occasions, the

individual being interviewed asked another person to sit in on the interview and would sometimes ask for the other person's opinion on the question.

Melanesian cultures, like many other collectivistic cultures, value inter-personal relationships over relaying factually accurate information causing potential difficulties ascertaining the reliability of answers. Due to the significance of maintaining harmonious relationships in PNG, there is a significant likelihood of garnering some inaccurate information during interviews. To support a sense of trust and depth of the interviews, I framed the questions in a non-threatening way so that sensitive topics requested information on how the participant's felt others believed or acted. I was aware of the potential for researcher bias and so I kept this possibility in the forefront as I analyzed the words of different participants and worked to frame the contextual meaning of the people's stories. It was also addressed by comparing data obtained from individuals in two different provinces.

A potential communication issue was related to the use of a trade language to transmit information and problems with health literacy. As a trade language, *tok pisin* has a limited vocabulary of approximately 2,000 to 3,000 words, and uses terms which are predominately concrete and difficult to correlate to transient emotive states or philosophical perspectives. The majority of rural villagers cannot speak English, and in many instances older individuals were only able to speak the local vernacular requiring translation from the local language to Melanesian Pidgin and then to English. Some terms and concepts cannot be translated directly, which can lead to misunderstanding or mistranslation of responses (Patton, 2002). Over 50% of the population are illiterate or have had minimal education, potentially causing clarity issues or problems

communicating abstract concepts. Communication issues were addressed by careful structuring of questions, paraphrasing answers, and asking additional questions as necessary to assure clarity. An additional linguistic limitation associated with this study was the need to translate interviews from Melanesian Pidgin (*tok pisin*) into English. Having lived in PNG for nearly 18 years, I speak and write the local trade language Melanesian Pidgin fluently. While living in PNG, I taught a number of educational courses in *tok pisin*, developed lectures, and translated written educational materials into Melanesian Pidgin.

Other potential problems reflected the inaccessibility of potential research sites. Most rural villages are very isolated, only accessible by walking, canoes, or small planes due to lack of roads. Villages in the highlands are predominately scattered settlements of a few family dwellings. Some stretches of the Highlands Highway, the main road between the coast and the interior of the country, are frequently impassible. During the rainy season, transportation is even more unreliable due to flooding, mudslides, and monsoonal rains. Maintaining a flexible schedule was required to adjust for transportation problems. Since I travelled to the villages during the 'dry' season (May–July), I experienced fewer problems with weather associated delays.

Many of the participants who volunteered to be interviewed in the community were familiar with the organizational structure and goals of the CBHC program. Although the accounts were influenced by the contextual elements present in the community, the interviews provided community members an opportunity to explore the changes occurring in the village setting. However, the sample of participants did not include people in the community who were unfamiliar with the CBHC program's goals.

This could have been due to the sampling process by which people involved with the health committee and health promotion program were more likely to hear about the request for participants or felt more comfortable being interviewed. Nonetheless, when a program of any type is being considered, the majority of people in the village participate in the decision-making and implementation process, making it unlikely that people would be unfamiliar with the CBHC program.

Conclusion

This chapter has provided a discussion of the study's research methodology. A descriptive, ethnographic methodology was selected to explore the influences of cultural health beliefs and social capital on participation in the CBHC program. Ethnographic methodology was used because it explores human behavior within a cultural context.

Data collection methods included observation of the setting, focus groups, semi-structured individual interviews, and examination of available documents about health indices in the village. Trustworthiness of the study's methodology was addressed by the development of strategies that supported the credibility, dependability, transferability, and confirmability of the data. Rigor of the study was supported by maintaining an audit trail of research documents and developing a process to establish reliability of the coding process. Thematic analysis was used to identify codes, and a thematic matrix was constructed to help identify patterns that emerged in the data.

The purpose of this study is to describe how cultural health beliefs influence the adoption of health-related innovations in rural Papua New Guinea. This study explored how components of social capital (trust, reciprocity, social engagement) influence community participation in health promotion innovations facilitated by CBHC projects.

It is hoped that additional knowledge about the influence of culture and social capital on health-related behaviors will contribute to the expansion of effective and sustainable community health programs.

Chapter 4

Findings

The tourism motto for Papua New Guinea is "Land of the Unexpected" and this phrase is exemplified by the diversity of languages, cultures and geographic terrain found in this island nation. The highlands of Papua New Guinea (PNG) with its rainforests and mountainous interior was challenging to navigate; for example, to reach the village in the middle-Ramu region in Madang province required flying in a small plane through extremely rugged mountain peaks, and then landing on a small dirt airstrip located on a ridge.

Figure 4. **Airstrip in Middle-Ramu District. Photo taken by C. Bett, 2013.**

I had the opportunity to speak to people from the surrounding area about their lives, cultural beliefs, sociocultural changes, and their perception of the effects of the Community Based Health Care (CBHC) program. The middle-Ramu region is particularly isolated with no roads and only a few scattered aid posts that provide minimal health services. When a major illness or injury occurs, the individual is carried on a stretcher sometimes for long distances to the nearest airstrip to catch a flight to reach

a provincial hospital. This is an expensive proposition, particularly for the majority of people in this region who are subsistence farmers and have little access to cash. Treatment for less serious illnesses may involve walking several days to reach a health center staffed by nurses. In contrast, rural villages in Jiwaka province usually do not require air travel to access health care services; however, driving on muddy roads necessitates a four-wheel drive vehicle to traverse narrow bridges and cross rivers.

Figure 5. **Muddy road in Jiwaka Province. Photo taken by M. Galman, 2013**

The findings discussed in this chapter are based on ethnographic data gathered in villages in Madang and Jiwaka provinces. After describing demographics, this chapter will present the main themes and subsidiary themes obtained from semi-structured interviews with participants. Finally, a thematic analysis and synthesis of themes will integrate aspects of the cultural context with patterns of meaning discerned in the interviews.

Demographics

Interviews for this study were conducted in two rural areas in the highlands of Papua New Guinea. Eighteen interviews were conducted in the middle-Ramu region of the Bismark-Schrader Range of Madang Province at a central location where there is an

airstrip that is accessible to nearby villages. This area of Madang province does not currently have roads suitable for vehicular access, so travel is restricted to walking or light aircraft. An additional five participants were interviewed from a village in Jiwaka province (formerly part of the Western Highlands) to provide perspective from another rural area of the highlands.

The demographic characteristics of the participants who agreed to be interviewed for the study can be seen in Table 1, which includes details on gender, age, marital status, number of children, educational levels, and occupation. Of the 23 participants, there were 18 men and five women, ranging in age from about 21 to 79. All participants were adults, however many of the participants did not know their exact year of birth and were only able to provide an approximate age when asked. The predominance of men (78%) participating in the interviews is probably due to the fact that the many rural women are only fluent in their local language and are unable to communicate easily in Melanesian Pidgin (*tok pisin*). Women tend to have less access to education, particularly in rural areas; and of the four participants who had no formal education, two were men over 65 and two were women. Without access to education, women do not have the opportunity to become fluent in *tok pisin* or feel comfortable speaking to outsiders, particularly expatriates. Many of the women (and some of the older men) who agreed to be interviewed wanted the support of other people present, so although I directed questions to a single individual, she or he would sometimes consult with several friends for clarification prior to answering a question during the interview process.

Table 1. **Demographic characteristics of participants.**

Characteristic	N	%
Gender		
Male	18	78
Female	5	22
Age, years (approximate)		
21-29	3	13
30-39	7	30
40-49	5	22
50-59	4	17
60-69	3	13
70-79	1	4
Marital Status		
Married	21	91
Unmarried	2	9
Number of children		
0-3	3	13
4-6	16	70
7-9	4	17
Educational level		
No formal education	4	17
Pidgin School	5	22
Primary School (Grade 1-6)	3	13
High School (Grade 7-10)	5	22
Diploma/Certificate	6	26
Types of occupation		
Subsistence farmer	12	53
Pastor/church worker	7	30
Councilor/magistrate	2	9
Store owner	1	4
Security guard	1	4

Cultural Perspectives

The synthesis of traditional beliefs, religious practices and innovative health promotion strategies have a strong influence on how health and sickness are perceived in rural PNG. The Papua New Guinean worldview traditionally visualizes the concept of health not from an individual's experience, but from a collective perspective as a means of improving resources or status of the local indigenous community.

Being well: The garden as a metaphor for health. The majority of rural Papua New Guineans who live in the highlands are subsistence farmers who grow crops on the

mountainous hillsides or river valleys throughout the interior of the country (Sillitoe, Stewart, & Strathern 2002). Villages in rural areas are loosely organized by kinship groups and usually consist of less than a dozen homes located close to the gardens. The garden is integral both physically and metaphorically to the well-being of rural Papua New Guineans. Gardens and land represent a critical component of the daily context for the people, and it is important to understand this complex relationship among people regarding their lands. Land is traditionally held by families or clans, and boundary disputes periodically erupt into open warfare between ethnic groups in the highlands (Anere, 2004; Reilly, 2008). The source of wealth is based on the ability to grow crops either for consumption or for sale in small markets, cash crops such as coffee and as food for domestic animals such as pigs. When a new area is needed for a garden, the ground is cleared of trees and brush; this is often a communal effort by men and their close relatives (Brown, 1978). After the ground is cleared, drainage ditches are dug, a necessary practice due to an average annual rainfall of over 130 inches (325 cm). Garden plots, in many instances, resemble small farms that provide food for the family and are a source of money when surplus produce or specialty cash crops are sold in the markets. Unfortunately, due to the lack of access to roads, the sale of cash crops such as coffee requires the expense of paying for air shipment to the provincial capitals of Madang or Mt. Hagen.

Women perform the majority of the food production process by planting the crops, weeding the plots and then harvesting. In addition to gardening, women are also responsible to raise pigs that hold an important ceremonial role in Papua New Guinea society (Ayalew et al., 2001; Blanton & Taylor, 1995). Pigs represent wealth and status

in rural households and act as a form of currency required for bridal wealth exchange (called bride price), payment of compensation, ceremonial feasts, and funeral rites. The process of reciprocity inherent in the clan structure allows the provision of a pig for a feast to demonstrate wealth and the accumulation of status. Pigs also can represent a voucher for a future financial transaction or to repay debt (Blanton & Taylor, 1995). Traditional feasts or *mumu* in the highland regions are similar to Hawaiian luaus or New Zealand hāngi and commonly include pigs, chickens, sweet potatoes, taro, cooking bananas, and a variety of greens. Distribution of the food particularly meat from the pigs, is associated with maintaining kinship ties, reciprocal exchange of resources, and the payment of obligations (Ayalew et al., 2011; Strathern, 1978).

The use of stories or parables is a common means of transmitting information in traditional Papuan New Guinean cultures. The term *tok piksa* in Melanesian Pidgin means a spoken picture and refers to the use of an analogy or illustration to communicate meaning. The process of establishing and maintaining a garden can be used as an analogy or *tok piksa* to describe the health paradigm of Melanesian culture. The garden is viewed as the essential resource for the clan and extended family unit as it provides the resources needed to sustain life.

Contextually, the garden is associated with the environment, and a fence placed around a garden is representative of the prevention aspects of health promotion innovations. Fences are commonly placed around gardens to bar entry to animals such as pigs that would destroy the crops (Brown, 1978). Gardens in the highlands must be relocated every few years when the nutrient value of the soil is depleted. When a new

area is selected, trees covering the site are cut down, then the undergrowth is removed and the ground is prepared for planting.

Figure 6. **Women working in the garden. Photo taken by C. Bett, 2013.**

The development of land for a garden requires certain tools such as an axe, machete, and shovel. The axe (*akis)* is carried by the men who chop down trees in the ground-clearing process. Trees are representative of major, long established cultural customs that may be resistant to change, while the axe can be symbolic of cultural changes that communities adopt in response to societal pressures. The bush knife or machete (*bus naip*) is used to clear brush, small tree limbs, and cut grass. The undergrowth is symbolic of the status quo, and clearing the brush can represent the need to make a myriad of smaller societal and behavioral changes that impact different parts of daily life. The shovel or spade (*sped*) is used at every stage of the gardening process. It is used to break up the ground during the preparation stage, dig the drainage ditches, remove weeds, and then harvest the crops themselves. This multipurpose gardening tool represents the resources that communities need for empowerment through the provision

of tools for sustainable change. These tools can be viewed as contextually appropriate resources required by rural settings that encourage the community to continue to support the development and sustainable practice of health-related behaviors. The themes that emerged from the study are embedded in, and linked with these contexts.

Discussion of Major Themes

Theme I: Health as relational harmony

Strong kinship ties and relational harmony are considered to be essential elements of physical, environmental and psychosocial well-being. The ontological meaning of health in Papua New Guinean indigenous communities is a multi-factorial paradigm associated with relational harmony and the integral connection that the people have with their traditional land. The *tok pisin* term for health is *stap gut*; this can be defined as staying well, health, being/living well, or having wellness of body, mind, and spirit. The state of being in good relationships with relatives and others or relational harmony is considered foundational to individual and collective well-being. When asked about the meaning of health, participants frequently indicated that living together in good relationships was an essential attribute of health.

> I think that it means to live together well; when we live in harmony or live in good relationships it means that we look after ourselves. And sickness and other things don't affect us, we have a good life (Interview 2: Line 8).

> The meaning of health is to live in good relationships to others, so it will not cause me to become ill and will not cause me to die. It will make sure that you live well for a long time (7:4).

Due to its abstract nature, the term health was not well conceptualized in the interviews, even when using *tok pisin* terms such as *sindaun gut* (living well) or *stap gut* (being well). Due to familiarity with the term health from its usage in the CBHC

program, participants described health in relation to its connotation with the health promotion process. The CBHC program defines health as physical, mental, social, and spiritual well-being that enables people to work, fulfill their societal role expectations, and live a life pleasing to God. The spiritual aspect of health was frequently alluded to during the interviews, and several participants stated that following God's word was essential for individual and collective well-being.

> The most important thing when talking about living well…is my belief that God's word is the most important thing. I grow with God's word and I like it, God is holy…I must be like him. And I must teach others about this holy living, and I must tell others also about how to live in a holy way like this. (15:10)

> I am all well…I belong to church, I am able to work, I am alright with my work. When I sit down and do nothing then the body gets weak and so I work. I am a village woman; we work and help others with work. And...I look out after pigs and do these kinds of things…go to church and help others, (show) love to others. Doing these kinds of thing is how I live well. (22:11)

Several participants described health as doing well for oneself, one's family or tribe, and for the land. Health was also frequently associated with maintaining personal and environmental hygiene. The perspective of associating health with a clean environment was described as having tangible healing attributes.

> Now you must work together and become good, healthy, and work to make our environment good. And develop a good life here and work together. The bush, and ground and water will be good if we protect our resources. Protect it well and the environment will shelter you and we will live in it. And good air will be all around us and we will live in it. (18:216)

Sickness was, for the most part, described in the interviews as a somatic phenomenon, possibly because the term has more physiologic ramifications and mental illness uses terms more specific to psychological disorders, social dysfunction or associated with spiritual distress. The discussion of health as an abstract concept

reflected the communication difficulties that are present at times when using a trade language such as *tok pisin*. The people interviewed had a good comprehension of the term sickness and while some sicknesses were felt to be associated with biomedical causes, most individuals imbued the experience of illness with cultural and traditional meanings. An elderly man stated, "Our health is affected by broken relationships" (20:183). Other participants said:

> Health is a good thing. If I...I don't look after myself, I will damage myself, my body, my family and my community. So I understand that health is about doing good for myself and making sure that I live well here on earth, from now until I am old. Health has this kind of meaning (8:3).

> Health is how we live together, or when we aren't living well it is related to this… the basis for living well is developing a close clan relationship and the family must live together in a central location. And the family must strive together to do work and will be able to live well (12:4).

Participants were asked about the effectiveness of kinship ties on group functioning and social support. The component of trust is an integral component of social capital, and was predominantly focused toward *wantoks* or relatives who engage in mutual assistance and support. Individuals with kinship ties have a sense of trust associated with members of the clan and ethnic group. Traditionally, obligations between members of a kinship group would require the sharing of resources, knowledge, and mutual defense in time of conflict between ethnic groups. Reciprocity obligations enable the exchange of resources between kin and may be balanced between the positive aspects of a social safety net versus the negative burden of social obligations. Resources from the kinship groups were not consistently accessible to individuals living in areas outside their customary land, or in some cases to women who were married to a local man but were from another area. Two of the participants were pastors living in villages a distance from

their home areas. They stated that sometimes they felt they could not depend on the people of the local area to assist in times of difficulty. One participant stated that church members would help him and his family when they needed food, but the rest of the village was less willing to help outsiders.

The interviews reflected some of the ambiguity in how the *wantok* system is currently functioning. Many areas of Papua New Guinea are reflecting the social transition occurring due to urbanization and the influx of mineral wealth in some regions. In urban settings, there is less social pressure that compels adherence to customs such as traditional obligations, and this in turn weakens kinship connections. However, changes in traditional mores are occurring at a slower pace in most rural areas, probably due to geographic isolation limiting contact with outside influences. The majority of rural villages in PNG do not have electricity, access to telephones other than scare cell phone services or access to the internet.

Byford and Veenstra (2004) noted that the traditional Melanesian kinship pattern of social organization was still largely preserved in the middle-Ramu area. The importance of relational networks as conceptualized as the *wantok* system in PNG was alluded to in various interviews in both villages.

> I still need to work for things even if I get sick…if I don't I will die; this is the kind of man I am. I don't have much money so I have to work...if I get sick then I would die. If a good man has a family then they help him. If I am not a good person, then they would leave me and I would die. My wife and children would try to get me water, find a good place to sleep, cold water to drink and try to save me. But the sickness might get worse and I would die. The rest of my clan, my family, cousins, and brothers would try to help me. As for another clan, you would need to have something to give them in return for what they give me, you can't ask for something without having something to give in return; they won't help me for nothing. (1:113)

> The source of living well is…when you feel healthy you can work and you can raise your family and also you won't have disagreements and fights and are able to do work to live with the community. (20:11)

The context of rural village life exposes the dichotomous aspects of relational obligations: the positive supportive resources that are available to group members and act as a protective social safety net, and the negative aspects of the system that are associated with overwhelming obligatory reciprocity. In traditional settings, food and labor is shared by members of the community, children who lose their parents are absorbed into the extended family, and the elderly are cared for by their children or grandchildren.

Raising money for high cost items requires participation by all members of the clan. This practice is used for bride price (wealth exchange), compensation for injury or death, mourning feasts, but most of the interviewees stated that they had difficulty raising funds to pay for their children's school tuition. In cash-poor rural areas, the burden of social and financial obligation was not seen as overly onerous, unlike the problems experienced in urban settings or by those who have a business or are income-earning. The cultural importance of various resources available from the kinship network continues to have functionality in rural settings where there is a scarcity of resources. One woman said:

> If for example my child wants to marry, all of the clan will collect money, pigs, bananas and they will all bring them to a place to help arrange this marriage. Also if my father died or my mother dies, everyone will come to contribute (and) helps us buy the coffin. They will come and contribute money to buy us some lamb flaps and food to organize the place of mourning. They will give their condolences and sit with us and then they will leave. Also with food (they) will give this type of assistance when we are at the mourning place…when my father died we would be at the place of mourning and the next neighboring community cooked food, and put it on leaves and carried it over and gave it to us. And it also would happen this way…for school fees all the family relations would help, but only the family members related by blood. But in the community if someone is

> interested they would come and place 20 kina, 30 kina, or would give 50 kina. Initially this custom was not present, but now we see the importance of church and education. If I am married, and my child wants to go to school, it is just his uncle that would come to help. Just my brothers, not other people. (21:109)

The social engagement component of social capital was consistently described in the interviews as being embedded in church group activities and community work projects. Rural communities have a long-standing practice of having weekly community work days. The expectation was that community members participate in projects such as road cleaning, cutting grass near public buildings, and building public use structures such as classrooms or clinics. Social engagement is determined through the participation in community work days, church projects, participation in the CBHC program, and looking after others in the group. Participation on the community work days was reported to be consistently high, possibly due to social pressure and the opportunity for social interaction. Village leaders encouraged participation through promoting a sense of consensus for collective projects and by social pressure. The majority of groups in the village were associated with church functions; mainly women's groups and youth groups. Participation in the women's groups provided an opportunity for women to be engaged in community-level activities and in leadership roles that they are typically denied outside of the church setting.

> We have…community work groups here and we look out after our section of the road that we maintain from this side to the area down below. When you leave the main highway and come up here and you will see the difference. But you won't see it (being maintained) over there. Our leaders and the church people here and our community has come to an agreement to do work and so we work together. It's like I explained previously, the church has work days but not all of us participate. For example, if you are Nazarene and the Catholics need help over there when someone is sick then we will help. Some churches will help others, other denominations help others; we work together. (20:163)

During the interviews, the *tok pisin* term *haus lain* was used by several participants in the middle-Ramu area. The term is used in the Western Highlands to refer to an extended family group or clan, but in this instance referred to the practice of encouraging extended family groups to build homes in closer geographic proximity. In the middle-Ramu area, the homes are traditionally widely separated but the health committee members felt that housing built in closer vicinity would provide easier access resources for the population.

> The people were scattered all over the place. And this place is mountainous and the mountainsides are steep and the people live all over the place. But they don't live a long distance (from each other) now. When the pastor went and spoke to them, they moved closer to each other, built houses in groups and I saw that this benefited them. Most are still living, they have not died. (4:144)

Theme II: Collective efficacy

Consensual decision-making. Support for health-promoting behaviors is multifactorial and is linked to the collective ethos of consensual decision-making and reciprocal resource sharing. Consensual decision-making is essential for sustainable change in collectivistic societies, but in patriarchal societies such as in Papua New Guinea having a voice in community issues is restricted to the adult men in the tribe. While the socio-political structure of most highlands clans is nominally egalitarian, the decision-making process, although tacitly consensual, is commonly finalized by the opinions of elders and those with higher social status. Leadership roles tend to be informal and decentralized (Lederman, 2001). When asked about the decision-making process, a participant said: This is a customary way to speak; when we go to discuss things we come to a consensus. We are happy to follow the leaders and it is the custom to listen to others. (7:119)

Women are seldom included in the decision-making process. Decision-making begins with a group discussion of the issue with input from the participants, and is finalized with the elders and other important men summarizing the decision. When a tribal council is discussing potentially adopting a new custom, it is necessary for the group to collectively come to a decision, or the change will not be sustainable. One of the village men said:

> Yes, that is how we discuss things…the councilor gets the people of the community together and they listen to us and are in agreement. When we talk about building a gate (for the community) and get the people together and discuss it, and I teach them about it. Then he said he will come and we will hold a little community meeting to discuss what work is needed by the government or work for the health center, school, or for the good of the people. (4:134)

The CBHC program was initiated over ten years ago in villages located in the middle-Ramu district of Madang province and in Jiwaka province (formerly part of the Western Highlands province). Either a local pastor or another individual was selected by the community to attend the health volunteer training courses and educate the village on health promotion practices. Once the community leaders approved the program, they were encouraged to develop a local health committee to work with the CBHC staff to facilitate the community empowerment process.

Once the health committee members were selected, they worked to encourage community members to follow the health promotion innovations suggested by the CBHC program. The health committee was encouraged to identify the primary needs of the community and encourage collective participation in the program. The committee was guided in the process of identifying local assets to develop outcomes and achieve goals. The initial step after forming the health committee was focused on encouraging healthy

behaviors and decreasing health risks in the community. People living in the village were educated on behaviors that were detrimental to health and reinforced customary practices that were protective of health. These practices were focused on protecting clean water sources from animals with fences, proper disposal of waste by building toilets and digging rubbish pits, hand washing, and hygienic handling of food and cooking utensils. Prevention of malaria and diarrheal diseases was also considered important. A properly functioning health committee had a leadership role, an educational role, and a regulatory role. The regulatory function was operationalized when the health committee members and health volunteers inspected the homes and surrounding area for compliance with the health promotion practices, and would encourage compliance if the family was not following suggested innovations.

Sustainability of the health promotion practices was associated with support from the village leadership and willingness of those individuals who were able to act as health champions for the CBHC program. Unfortunately, the sustainability of the health innovations was adversely affected during times of inter-tribal warfare, intra-clan conflict, when there was mourning for a death, or when leadership of the program failed. One of the lead staff in the CBHC program was involved in a serious motor vehicle accident and was unable to visit participating villages for a long period of time. This incident was viewed by community members as a bad omen that cast doubt on the suitability of the program for their village. However, when the staff member recovered and was able to resume visits to villages, this provided a renewed impetus for the program.

The strategy of coming to a consensus for decision-making in a community is an integral part of any change process in rural areas. The traditional belief that relational disharmony is a common cause of illness continues to be prevalent, and is often integrated with information on pathologic or degenerative causes of disease. One man said:

> It is…like when we fight or have troubles or do things like that is the cause of sickness. This is what brings the sickness to us and death will find us. If we live well, then we won't have sickness. (17:31)

Relational harmony. Relational harmony extends beyond kinship ties with living relatives to relationships with ancestral and nature spirits. These traditional beliefs are often integrated with current knowledge of pathogens. The diagnostic process would then focus not on the identification of the pathogen, but would require family members or a traditional practitioner who specialized in divination (*glasman*) to discover the underlying cause of the illness. The sick individual and his or her family would be questioned about their actions to discover the cause of the sickness. One participant said that in his village they would gather together and pray for the sick individual and take him to the hospital.

> The doctor will check him and look all over him, (and say) this is malaria or T.B. or a spleen problem or headache and will treat that. If he says, no I can't find out the cause of the sickness, it is a type of local illness; in the case of a local illness, another brother must be angry about something. If I don't do something to fix the problem, then I will be very unhappy. If this same brother comes and says to his relative to kill a chicken and they'll eat it (together) and will come apologize and first we'll pray. Ok, I will return to the village and I will tell this relative to come; first we will pray, then kill a chicken and we will cut it up and also cook the food. Tomorrow when I return the sickness will be all right. (6:182)

Marginalization of women. In patriarchal societies in the highlands, women have a limited voice in any group or clan decision-making process, except in women's

groups or in church settings. Social relationships in PNG are inherently gendered and must be understood within the larger cultural and economic context in which they are experienced (Hinton & Earnest, 2011). Gender inequity is widespread through the country and the customary practice of bride price or wealth exchange has lost its traditional purpose of uniting clans, and is often perceived as signifying ownership of the woman (Hinton & Earnest, 2010). Despite the gender-based inequities that highland women experience and their limited voice, the women verbalized ways that they coped with their lack of voice in the community and ways that they were able to access resources to mediate the effects of poverty and disenfranchisement. The separation of genders in gatherings is a metaphor of the experience of how gender is expressed in PNG culture. In community gatherings and in church, the men and women sit in separate areas and the women seldom participate publically in discussions. Two of the women said:

> I think that women don't speak, they are not listened to. The women are afraid. We must behave well and so I must also do what they do. (3:148)

> The men are the leaders here, the men have a voice, but as women we don't have a voice. Sometimes in the church programs they give some time for us women to speak. But when there is a tribal fight or these kinds of problems happen, it is the men who will go first and handle this. (23:155)

Breakdown in relational harmony. Conflicts in middle-Ramu and in rural Jiwaka were commonly associated with land disputes regarding ownership or boundaries, damage to gardens by wandering pigs, and issues involving adultery or disputes regarding bride price. Non-payment of compensation for injury, death, property damage, or in some cases insult was also associated with violence between ethnic groups. The process of negotiating for compensation acts to defuse potential violence by allowing for

time to defuse a volatile situation allow tempers to cool, and settling a monetary value on a situation that otherwise would require bloodshed.

Marriage, particularly in rural areas, is considered a means of providing a connection between unrelated groups rather than simply the relationship between two individuals. Bride price, also called bride wealth exchange, has traditionally been a means of compensating a group for the loss of the woman's value in labor and children. In some areas of PNG, the cost of bride price has continued to increase to the point that it is difficult for the groom's family to pay, causing future disagreements between kinship groups and the couple when it is not paid. One older man said that there are four main problems that commonly occur in the village setting:

> When a pig gets into someone else's garden and steals food; when one of our young people goes and acts badly with...a young boy or young girl of another clan. Tribal fights over land; a fight over land is first, a pig eating someone else's crops is second, boy-friend girl-friend problem is third, and stealing things is fourth. (1:85)

Restoration of relational harmony. Conflict resolution or mediation when effective allows for the setting of compensation to repay the other clan or tribe for a theft, insult, injury, or death. Compensation may consist of money, pigs, or other goods to recompense the offended tribe for an injury or loss. Determining the amount of compensation or handling problems on the local level is often settled by negotiating an acceptable amount of money or goods for a loss. Intra-family or inter-clan disputes are negotiated by local elders, pastors, magistrates, or village councilors who act as mediators. The mediator role is very important and is often assumed by a village elder or big man (*bikman*) who is trusted to be impartial. In some cases of intertribal conflict, a third-party mediator may be mutually agreed on to handle a difficult situation. Some

problems may be referred to a governmental authority such as the criminal justice system particularly in cases of extreme injury, death, or if the situation escalates into widespread intertribal violence.

> When a problem occurs in the community, they call me and I come and gather some good men to help me deliberate. We all get together, sit down and call for the people with the problem, and say "You all come, we want to talk about this issue." I call them and the group comes together. (1:166)

> If what is stolen is very small then we settle it in the church by discussing it with the pastor and the church board and come to a settlement. If we see that it's become a big problem and it can't be settled now, we bring the councilor or the entire village together and bring it in front of them. Then the village magistrate will settle it. (11:115).

Theme III: Synthesis of beliefs

In rural areas of PNG, the conceptual paradigm for understanding the cause of sickness is a syncretic arrangement of western beliefs and indigenous knowledge systems. The practice of western medicine is widely accepted, but in many rural settings traditional beliefs are used to explain health and illness (Connell, 1997; Koczberski & Curry, 1999). The synthesis of traditional health beliefs and innovative health promotion practices is associated with how health-related activities are perceived and implemented. Social structures in collective societies are also integrated into people's cultural belief patterns to the extent that attempting to tease out connections between social relationships and behaviors proved somewhat elusive.

Traditional beliefs regarding causes of sickness. Traditionally, rural Papua New Guineans may differentiate between indigenous beliefs regarding cause and types of local conditions (*sik bilong ples*), and those that have no perceived social or spiritual cause (*sik nating*) and can be diagnosed and treated by western-style biomedical interventions. Certain forms of sickness are traditionally believed to be caused by forest

or nature spirits (*masalai)* that cause sickness when a taboo is broken, particularly when someone trespasses in a forbidden place or cuts down trees without showing proper respect. Traditional beliefs indicated that disrespect to ancestral spirits was also associated with ill health. Those illnesses that are believed to be caused by social disharmony either between living relatives or ancestral spirits do not respond to biomedical treatments and require indigenous healing methods. As one participant stated:

> The cause of sickness is…many of us from the village believe this way, some people of the village also have this belief. Some people think that the masalai cause illnesses in children. Sometimes when the children wander around or go to a place such as a cemetery or where an ancestor died or where we buried a father or mother who died, that's when the children get sick. And sometimes our children wander around and go down there and jump around on these (graves) and then they get sick…that's what we believe. It is often thought that the masalai have come and stolen their spirit. Some people believe the dead ancestors come…their spirits come and cause sickness, and some of us think that sickness is caused by this…Sometimes they believe that a poison man curses them and they get sick. The people at one of the villages believe that this is the cause of illness. But now since the CBHC program started and continues, we have found out that this is not so. Sickness is caused by things we ourselves in the village do; we don't drink clean water and we don't dig a pit for a proper toilet for feces to go into. This is something we have learned about (13:21).

Sanguma or witchcraft is also viewed as being a cause of illness; a *sanguma* man or woman could be someone who practices sorcery or is possessed by an evil spirit or the spirits of dead ancestors. This is believed to give the individual power to curse others leading to illness or death. The practice of sorcery is suspected whenever there is an unexpected death, particularly of an important person. Unfortunately, a number of individuals who were accused of sorcery or causing an unexplained death in the village are killed each year, regardless of any evidence to the contrary. In 2013, a young woman was accused of sorcery and killed in the public market in Mt. Hagen. She was suspected

of causing the death of a person in her village and after being tortured was publically burned to death (Blackwell, 2013). Unfortunately, this is not an isolated incident; between 1997 and 2013 in the Eastern Highlands province alone, 32 people were attacked and 27 people died as a result of accusations of practicing witchcraft (Eves & Kelly-Hanku, 2014).

While many of the people interviewed denied that belief in *masalai* or *sanguma* is part of their current worldview, they confirmed that a number of people still hold these belief systems. Some of these traditional views of sickness are also integrated into the deeply held understanding of relational disharmony as a cause of many forms of sickness. These sicknesses are treated by discovering the source of disharmony and mediating a solution. The solution may be a demonstration of concern by a relative or presenting a gift of food or money so that the relationship can be restored. Although illnesses can be viewed from either a relational disharmony or a biomedical perspective, a synthesis or hybridization of these two paradigms has been developed. An example is an illness such as malaria, which can be viewed as both being caused by the Plasmodium falciparum parasite and the effect of an enemy's curse that caused the person to be bitten by the mosquito.

> Before I was born it was thought that an enemy was the real cause of an illness attacking us, (that's) what was thought. We would accuse them this way...the enemy has performed a spell, black magic to cause the illness or made something bad to happen to hurt us...to us...or has caused an unnatural animal to bring a curse to us. When a pig bites someone we would say this is what happened…our enemy performed black magic and caused this cursed pig to bite the person. This caused a lot of suspicion, lots of suspicion that witchcraft caused the illness. That is what we say if a dog defecates and a man steps in it and gets sick. (It was believed that) the enemy has turned into a dog and spreads the bad thing and when we walk in it we get sick from it. When someone gets a large sore, large

> flies land on and we say that the sorcerer is here. That's what we suspected when the flies did this (1:42).

Traditional treatments of sicknesses. Traditional treatments for sickness was reliant on the social context of health and indigenous knowledge systems to explain illness (Koczberski & Curry, 1999). Most participants were willing to discuss the traditional forms of treatment that their parents or ancestors practiced but all denied the current use of indigenous forms of treatments that combined magico-religious rituals with herbal remedies. They did allow that some of the more isolated villages still used some of these traditional forms of treatments.

> The cause of sickness? They say that for these kinds of illness...we will pray and find out if there is a person who lives a distance away who has evil thoughts and has come to cause this sickness. And the spirits follow these words like a ghost or the spirits that live on the mountain or the water such as lakes, this kind of thing. One of the men states that this is the cause of the problem that is killing the child. Now they discuss this kind of thing and then later we will pray and when we do this he will recover. In the past it was like this; we believed in calling out to the lake and bush, the mountain and other (things). But now we pray to the Lord that the sickness will be healed (17:76).

In focus group discussions, people mentioned that they continued to use some of the herbal remedies such as *salat* (a variety of nettles) and *kawar* (ginger). However, despite the medicinal value of some herbal remedies, a number of individuals stated that they no longer used them due to the herbs' traditional connection with the practice of sorcery. I was told by several participants that as Christians they no longer followed these indigenous healing practices because they are sinful.

> In the past, the ancestors would move the (boundary) stones around and it was not good, this would cause sickness to happen and we would suspect sorcery or magic. Now we don't believe in it; if we have this belief I would speak out strongly (and say) "Don't hold onto this belief, abandon it." We believe in the Almighty God who is powerful, so we don't believe in sorcery. But if there is sorcery, we don't worry. We believe in God and God will drive away any

> sorcery…we kneel and pray to the Lord. It is God who will get rid of this sorcerer or the curse, he will get remove it. If a man carries a piece of bark around, he should get rid of it...he would throw it away, go and burn it in the fire. I go and visit a lot of people, the people come and tell me about this...so we will need to do certain things…get the piece of bark and bring it and we will throw it in the fire. Also some have gone to get some kawar, to and plant it near their house. We will go and get rid of that as well; then we'll boil water and pour it on the kawar plant (13:256).

Participation in both western-style medical care and traditional treatments was commonplace, resulting in syncretism and synthesis of therapeutic practice (Connell, 1997; Koczberski & Curry, 1999). Most of the people interviewed were familiar with western medical care due to rural health clinics established by mission groups, and were interested in accessing this form of health care whenever possible. However, the majority of rural areas have limited access to any but the most basic of health care services. Transportation to hospital or health centers is costly, and many people would need assistance from friends and relatives to carry the sick individual. This perceived imposition would create an obligation for a future payment of services.

A common theme in the interviews was the desire for health services to be developed closer to the villages. The village in middle-Ramu had started building a small health center near the airstrip, but it was unclear if they would be able to hire a health worker, or if funding for salaries and supplies would be available from the provincial health department. It is often difficult for rural villages to hire or retain health care workers due to the remote location, lack of accessible transportation, and the shortage of goods or services. In some instances, there was also an underlying tension present when outsiders were hired to work in a village since they lack many of the traditional protections and access to social resources available to members of the group. Several of

the village leaders voiced their frustration with the difficulty that their children had in obtaining placement in a tertiary educational institution after high school. They hoped that if members of the clan became teachers or nurses then they would be more likely to return to their home villages.

Because of the continuing issues that make access to health care services problematic, the community members expressed interested in learning new methods of preventing or treating sicknesses. Even when a village had an aid post, health center, or a hospital there were inconsistencies with the care that was available. Staffing is a continual problem since even when there were health care workers on the payroll they may have difficulties getting flights into rural areas, leaving the health center unmanned. It is also a common problem for supplies to be unavailable and a health center may close due to a shortage of medications such as anti-malarials, antibiotics, or analgesics. Basic protective equipment such as gloves are often in short supply, making nurses less willing to help with deliveries in regions where there are HIV positive clients. When health centers are closed, this can create a greater degree of hardship for people who may have walked for hours to get to a clinic that may not be consistently open or have any medications or other supplied. Because of these difficulties with access to services and availability of supplies, many communities in rural areas look beyond the hospital/health center model of treatment to the prevention paradigm that is integral to the CBHC program.

Prevention methods. During the interview process, many of the people interviewed expressed a positive impression of the CBHC program, and viewed the health promotion practices as very beneficial to the overall health of the community. One

individual stated that their community has required all homes in the village to build toilets, dig pits for rubbish disposal, build racks to keep dishes clean, and protect water sources from animal waste. Washing hands after toilet use and before cooking was mentioned as an important practice, but easy access to clean water was difficult due to the distance of available water sources. One participant indicated how water access influenced where people lived.

> Water is the problem…we live on top of a mountain so the people know that the water is a long distance away and so they go and stay there; if the stream has water in it they live there. So now I go and stay there also; I live near the water and another of our magistrates also lives down there near the water. And those here on the mountain know there is no water, so we live a long way away from them (14:210).

Digging wells is not feasible in these mountainous locations, but some people had access to water tanks that collected rain water from building roofs. However, permanent homes with metal roofs suitable for water collection are a rarity in many rural villages. While the village in Jiwaka province had a number of water tanks, the villages in the middle-Ramu district only had water tanks on the village store, a politician's home, and houses built for the use of church employees. The majority of rural villagers did not have the financial resources to purchase rain barrels, and the thatched roofs of the local homes made catching runoff from rain water impractical. Water for the community was commonly obtained from the nearest river and then was carried back to the village. The difficulty of carrying water back to the village and the lack of money for soap made basic hygienic practices challenging. During one focus group discussion, the community members discussed a variety of ideas about improving their access to water. One suggestion was to pipe water from a nearby stream above the village; another suggested

that water tanks be brought in for the buildings that have metal roofs to provide drinking water for the community.

Figure 7. **Entrance gate to village in Jiwaka Province.**

Photo taken by C. Bett, 2013

Theme IV: Religious practices are viewed as integral to societal stability and psychosocial health

The social center of most rural communities in PNG is the local Christian church. The particular religious group present in the village setting is strongly supported by loyalties that encompass familial, social, and historical ties. The territorial government during pre-Independence days used the comity system to divide the country between various denominations that were responsible to provide services (such as health and education) for their area. Comity agreements in colonial times allotted mission groups to different parts of the country in which to work. The purpose of this division of territory was to prevent inefficient duplication of services and dissuade interference between groups (Beaver, 1962). Although the comity system is no longer in use, many areas of

PNG continue to be strongly associated with a particular Christian denomination. In the middle-Ramu region where the study took place, the current site of the village was settled initially in the 1960s after an airstrip, a church, and permanent houses were built by members of an evangelical mission group. The presence of an airstrip connecting the area to urban centers formed a nexus, drawing people from the local area to build their homes closer to the center of social activity and commerce.

Religious practices are viewed in many Papua New Guinean villages as integral to biopsychosocial health in the community. In *tok pisin* the term *banis* or fence has meanings that include both the structure of a fence that indicates a boundary or enclosure, or its symbolic meaning associated with a protected or exclusive relationship such as within a marriage. One of the interviewees used the term *banis* to indicate the societal functions of the church and the protective qualities that certain innovations have. One participant stated that following church teaching and God's word was an important safeguard against illness.

> I think that…if they build a village area and live there to look out after themselves, I think this will help to avoid sicknesses. So that it will keep the sickness a long way away. And they will live a long time and will not have problems or fighting. And another thing is this, if they will listen to God's word it will give them strength, God's word is like a fence. If they leave this (fence) and go outside, I think that their lives will be ruined. So the main thing is God's word, this is about the spiritual side of things. On the physical side of things, it is about other things like the tribe, about relationships. CBHC has talked about this and I think that if they do this they will be healthy and have a good life. (4:166)

I noted that the church had a proxy kinship role in the village, and that most rural villages only had a single denomination that the majority of people attended. The network between church members also provided support and resources for other church

members, whether or not they were related to the local clan. The pastor as a local leader frequently played the role of mediator to handle disputes, especially if the problem was between church members. The social engagement component of social capital was expressed in church settings through fund-raising for projects and philanthropic endeavors. Women's groups were involved in caring for the sick and collecting funds for meetings and conferences, while youth groups provided assistance to the elderly or poor.

A number of people stated that their Christian religious beliefs were an important part of their lives and how they interacted with others. An illness can be seen as occurring as a result of breaking God's law, or acting in a way that breaks customary laws or harms relationships. This medicalization of morality closely associates ill-health with sin or wrongdoing (Eves, 2010). Biomedical care accessed at a hospital or clinic was frequently used in combination with spiritual belief in the power of prayer and healing.

> So now when sickness comes we go worship Father God and pray. We pray and leave it in the hands of Papa God to help and heal the sickness. He is our best doctor. Some will go to the hospital and the doctor will check them and give some medicine and this helps some. (19:40)

God is seen as the source of health and healing, and following God's word is viewed as protective against social unrest and illness. Treatment for illnesses was in some instances integrated Christian beliefs with indigenous healing practices. When a community member gets sick, then the relatives would gather to support the individual and discuss possible causes of the illness. The relatives would pray and read the Bible as a means of addressing the source of the sickness and asking God for healing. The

spiritual and social aspect of group support and the availability of resources is integrated into the response to the illness.

> Now that God's word has come we pray, and pray, and call out to ask the prayer group to come and pray. Then we go and look at what there is in the Bible about my sickness, what it says in it about the problem and sickness. I would call out to anyone who is angry with me and call him to come and meet with me to pray and made peace and the sickness will be finished. The sickness will be gone and we say that the Father is here and helped me now I am a believer. They will go and turn their hearts and give their hearts like this to God. Now we believe in God, we believe he can look out after us and we give thanks to God that the sickness is healed. (9:91)

Ashwell and Barclay (2009a) state that a health-motivated person acting as a catalyst for change was an important factor in the adoption and sustainability of health promotion practices. The CBHC program commonly works with a local pastor and the local religious group; health promotion practices are then initiated among church members, and are then diffused to the rest of the community.

> We need to follow what the church teaches and we must live together (and) be in harmony. And we are part of the church, whichever church, as there are different kinds of churches. If one of the church here organizes a gathering and all of the other churches are in agreement, we collect food and collect money. We are all in agreement and are (involved) with this. We say no to all these kinds of practices like stealing, these kinds of problems. We must be in unity here and participate in church (22:79).

I observed that the local church members frequently acted as health champions for the community, either in the roles of health committee member, community health volunteer, or village birth attendant. In Jiwaka province, some groups were resistant to changing customary practices that had a negative impact on health outcomes, but were willing to support the work of village birth attendants (VBA). The beneficial impact of the village birth attendants on maternal and infant mortality would then persuade the

community to introduce additional health promotion practices. Unfortunately, some of the women involved with the VBA program were faced with marital problems due to the husband's unwillingness to allow them to work outside the home. There were instances of domestic violence when the husband perceived that household responsibilities were neglected or the woman was gone from home at night for a delivery. To address this problem, one community was building a small birthing house in the center of the village to allow the VBA to deliver babies in a central location. It was felt that the VBA would not need to be gone from home at night, and would not be placed in danger by walking alone after dark. The birthing house would also have a light source such as a kerosene lamp and supplies such as gloves, scissors, and cord clamps that are not readily available in village settings. The middle-Ramu district however has not been as accepting of VBAs; many of the women are not familiar with the training that the VBAs have received, and the distance between villages is much greater in this part of the highlands, making access to VBAs problematic.

Subsidiary Themes

Operationalization of CBHC program. Although CBHC was developed to provide health education, support health promotion strategies and empower communities to identify needs and assets, there was a recurring theme that people felt their efforts should result in more than just a decreasing incidence of sickness. A dissonance existed between the CBHC objective of improving health through empowering change and how the community perceived the adoption of innovative hygienic practices. An implication of the adoption of CBHC methods and subsequent ritualization of these practices is the desire for development as a path to obtain economic resources. There was the

expectation of material goods being provided after the initial stages were completed. There was a cargoistic perspective voiced by some community members that seemingly inferred that the performance of certain rituals would result in acquiring goods. For example, a part of the initial health promotion expectation was that the surroundings of every house would be cleaned and have a toilet, a dish rack, animals fenced, and flowers planted along the paths. I was asked several times about the future of the health promotion process. One man said, "Stage one is finished, now what is stage two? We have the green light, but what is the next step?" Another man said:

> I worked here to fix things and now we having finished with the first round of projects for the CBHC program. And so they say, "we have built houses, we have finished building them." And they said "we have built toilets, built dish racks, dug rubbish holes; we have finished these already. But we are not clear about what we should do for the second step, we are not sure so we are just waiting" (14:206).

It was suggested that improved health and decreased number of deaths in the community that occurred due to the CBHC health promotion strategies were beneficial to the community, both as a result of improved ability of people to work and a decreased need for expensive plane fares to fly out for medical care. In one village, there was a misconception about the role of the local people in the change process that demonstrated a need for further facilitation of the community empowerment process. Initial CBHC projects developed in the 1990s required the participating village to complete a set list of environmental improvements to prove that the village was serious about the program, and had reached consensus before the next step of economic development with financial incentives would begin. This inflexibility was inconsistent with a participatory structure necessary for sustainable change, and led to community disempowerment in several of

the villages. The expectational incongruities could have occurred due to a communication breakdown or as a result of strategies used by the previous program, e.g. the distribution of funding from external sources without a clear long-term development strategy or input from the local health committee.

The operationalization process of the CBHC program was closely associated with its potential for sustainability. The facilitation of the community empowerment process began with encouraging the community to identify its priority needs, resources, and future goals. This process was problematic at times because of a sense of dependence that had been historically fostered by a colonial-era style of public health services that provided standardized health services without making adequate adjustments for the diverse cultures, social structures, and geographic locations. Post-independence Australian influence on the PNG National Department of Health has diminished, but the focus on health care in the country continues to be influenced financially and philosophically by groups such as AusAid (Australian Aid Organization) and the World Health Organization (Denoon, 1989). A mentality of disempowerment may have been fostered at times by outside groups who built buildings such as churches or health centers in rural communities but inadequately integrated local leadership into the organization of sustainable staffing, financing, and procurement of supplies. By utilizing existing indigenous church leadership and community structure, the CBHC program has attempted to overcome this potential problem.

Program benefits. Benefits of incorporating practices promoted by the CHBC program were clearly articulated during the interview process. The participants stated that the number of illnesses in the community had consistently decreased since the

beginning of the program. Infant and childhood mortality had decreased, and there was a reduction in the amount of diarrheal and infectious diseases. The participants in Jiwaka province stated that they have had very few instances of maternal demise due to the VBAs. The middle-Ramu regions also saw that the areas with active VBAs have had a decline in the number of women who have needed to have a medical evacuation due to maternity-related complications. This was seen as a financial benefit due to the diminished need to spend money on air flights. In Jiwaka province, the CBHC program has been in operation for a number of years and has an active Village Birth Attendant (VBA) program. The participants recounted the positive effects of the VBA program and how they had no reported infant or maternal deaths over the past several years. One man stated:

> I understand that there were big changes that came to the community when the practices that were introduced came to impact the community. We have seen some changes and we have seen a decrease in some sicknesses like diarrhea and some other types of minor sicknesses that were common here. When we received CBHC training, it helped us to curb many illnesses. It has been nearly 15 years since it began and there have not been any major sicknesses happen, though in the past many sicknesses had come into the community. And regarding the CBHC program, it has come and brought VBA training under CBHC. It has helped them with many safe deliveries in the community. So far I think that over 160 mothers were delivered…It's not a small (thing) to have saved them the cost (of going to the hospital). The work done by CBHC is out in the open so it can be seen by the community….it has provided help and gave the training that we have learned and we have benefited from it. Each house must have a toilet and a dish rack must be built. And along the community road flowers are planted and all these kinds of things that the CBHC program has brought are the good things that have happened (21:198).

Another benefit noted by several participants was the increase in community collaboration and consensus. The formation of a health committee had the effect of

encouraging the village leaders to think more about health-related issues. In addition, when the community worked together to accomplish the CBHC program interventions there were the positive results of unifying the community to work collectively for the common good. After the initial health committee organization was achieved, the people who received the CBHC training (TOT—Training of Trainers courses) were encouraged to work with other community members to perform desired health-related innovations utilizing available resources. This had the result of increasing the sense of collaboration between the community members and in some instances resulted in the resettlement of small household groups to a more centralized location. The closer geographic proximity of homes was believed to be beneficial in that mutual aid could be accessed in times of illness or other problems. This proximity would also enable health committee members to provide guidance and oversight on health promotion to a greater number of people.

> When CBHC began doing its work here, as I already mentioned, they did not follow CBHC practices. They lived all over the place; some lived near the river, some lived on the mountain, some lived in the jungle, some lived near the road and did things that way. So when they got sick, when sickness affected them they did not want to stay here, they would just die. And we didn't live close enough to the village to help others so since they were alone, they died. CBHC suggested that you should live closer together so we think if someone gets sick we could help them. We can pray together, prepare food and gather firewood for everyone. And it's nice to do this for them. And before CBHC came, we did not see others too often. We would live by ourselves (8:227).

> This work is very important and I talk about it and I tell the men to go fix things. Dig a pit, build the clan homes, move the clan there and build the homes closer together. Dig good toilets and dig rubbish pits. Build the homes like this...build a very good house like mine. (13:244)

Figure 8. **Rural village homes. Photo taken by C. Bett, 2013.**

Program Shortcomings

During the interviews, several people described concerns about the limitations observed in the CBHC program. The availability of support personnel who were adequately trained to maintain the program structure and continuity was one concern expressed. There was the sense of a continued reliance on the CBHC project staff to provide both structural support and the impetus to continue to follow the health innovations. Participants stated that the majority of people in the villages continued to be interested in following the CBHC guidelines, but some had grown tired of the extra effort it took. One village had social problems related to gambling that was felt to have a detrimental effect on people participating in the CBHC program. Another village began participating in the CBHC program but its health committee had dissolved, having a negative impact on the sustainability of the program due to a lack of local leadership and support. Events such as fighting between indigenous ethnic groups, or extended mourning rituals reportedly had a negative impact on the sustained practice of the health promotion interventions.

When CBHC personnel were unable to visit one of the villages for an extended period of time, the community felt neglected and discouraged. This in turn caused a decrease in participation in some of the more mundane aspects of health promotion such as hygiene, cleaning, and proper disposal of waste. Rural societies in PNG tend to be event-oriented, with an increase in interest and participation in activities occurring cyclically. After a period of time, people naturally become less interested in commonplace activities that do not appear to have clearly visible results. As traditional health beliefs viewed illness as resulting from relational disharmony, it was also difficult for some participants to view health as a positive outcome in and of itself despite the consensus that the CBHC program was beneficial and resulted in decreased morbidity and mortality.

Summary of Findings by Specific Research Questions

The research questions were designed to explore the influence of cultural health beliefs on the adoption of health-related innovations among rural Papua New Guineans.

Research Question #1: What is the influence of cultural health beliefs and religious practices on people's view of individual and community health?

The first research question explored the influence of health beliefs and religious practices on how people viewed health both individually and collectively. The findings revealed how a synthesis of traditional beliefs and a Christian worldview were integrated to support the acceptance of health-related practice innovations. In the interviews, the underlying influences of indigenous beliefs formed a backdrop to current understanding of health and illness; yet the majority of participants stated that although their ancestors had followed indigenous practices they had left these customs behind. There was the

perception that traditional herbal remedies were associated with the 'old ways' and were tainted by their association with the practice of magic. The use of indigenous healing methods has declined in many parts of PNG and those remedies still in use have been 'repackaged' to avoid negative connotations (Eves, 2010). Western-style medical care was viewed positively but the difficulty accessing even limited health services in rural areas was problematic.

Participants consistently described their understanding of health in regards to good relationships as being of primary importance to their perception of health. Health was viewed from a collective perspective and the *tok pisin* terms *stap gut* (being well) and *sindaun gut* (living well) were used interchangeably. The imperative to maintain positive social relationships between clan members was seen as an essential component of personal and communal health. Daily life in traditional rural Melanesian society is not compartmentalized into discrete segments but integrates aspects of the past, present, and future into an overarching worldview that lacks division between the empirical and non-empirical world (Bartle, 2001). Maintaining an understanding of the flow of village life and supporting sustainability of healthy behaviors through periodic health promotion events was seen to be more beneficial than a short-term development process that does not provide adequate resources for long-term change. Health is viewed as a desired outcome and is attained through maintaining individual and collective harmony of the physical, social, and spiritual domains (Bartle, 2001). These outcomes occurred as a result of practices ensuing from a synthesis of indigenous knowledge and newly adopted health promotion interventions.

Both health and illness were believed to be the result of how people within the kinship group interacted, and how they fulfilled societal expectations and obligations. Most people interviewed denied that they followed traditional practices associated with ancestral spirits, however, they reported that in rural areas some of these customs were still followed. Other traditional practices associated with nature spirits (*masalai)* and rituals connected to sorcery (*sanguma)* and other forms of magic are still performed. Even among those individuals who follow Christian beliefs, these practices are considered to be the underlying cause of many of the illnesses that occur unexpectedly or that do not respond to western-style treatment.

Treatment of illnesses is closely associated with spiritual practices. Traditionally, the process of diagnosing the illness and determining causation was initially the role of close relatives who would question the sick person and their immediate family for situations that could disturb relationships. If the cause was believed to be due to the influence of the masalai or sanguma, then a traditional diagnostician (*glasman*) could be consulted. In villages with a predominately Christian presence, these practices are no longer followed, but church members would come to pray with the sick person and ask about possible relational or spiritual dysfunction. Instead of killing a pig for the ancestral spirits, the members of the church would come and pray, or ask the pastor to pray and act as a mediator to work with those involved in the relational disharmony.

A synthesis of cultural beliefs, Christian religious practices, and health interventions derived from CBHC training has caused a significant amount of behavioral change in rural communities. Despite the continuing problem of accessing health care in isolated communities, those villages who have adopted the CBHC health innovations

have consistently reported positive outcomes from these strategies and have stated their determination to continue to support these changes.

Research Question #2: What role does social capital have on the implementation of health promotion innovations in communities involved with CBHC projects?

The second research question delves into the role of social capital, and how the sociocultural resources derived from kinship ties influence the implementation of health promotion innovations. Kinship ties in PNG are conceptualized as the *wantok* system, which can be described as the system of relationships expressed in terms of the obligations and reciprocal exchange of resources (de Renzio, 2000). Although the *wantok* system codifies the customary obligations between relatives, the interviews reveal some of the problems inherent in the system. The individuals who live in socioeconomically deprived areas related the difficulty raising funds for school fees or medical transportation expenses. This was a problem in rural areas, particularly for women who have limited access to financial resources and for individuals who are not native to the region. People living in rural areas who have not developed long-term or marital relationships with another indigenous ethnic group frequently lacked access to social resources that would be available to them if they lived in their home area.

Collectivistic societies that use consensual decision-making strategies require that the majority of community members agree to changes that will have a substantive impact on the group as a whole. In rural areas of PNG, components of social capital are integrated in the sociocultural paradigm that guides relational interactions and customs. As a component of social capital, trust is intrinsic to the kinship bonds within a clan. Trust between members of the clan was assumed to be present and provides a means for

community acceptance of new information. Trust also played an important role in the ability of the local religious denomination to provide access to health services either from church-run health centers, hospitals, or community-based health care projects. In both middle-Ramu district and Jiwaka province, the desire of the community to participate in the CBHC program and adopt health innovations was related to the trust garnered from a number of decades of partnership with the local religious denomination and the church health program. The process of adoption and diffusion of innovative health promotion practices would certainly require trust between group members. Papua New Guinean social structure is maintained both by the relational ties and by pressure to conform to cultural norms through shame-based directive mechanisms.

The traditional system of obligation and reciprocity encompasses the exchange of material goods, financial resources, and physical services. This system of reciprocal obligations sustains interpersonal harmony and strengthens social networks. Although health is an abstract concept that was not viewed as an actual resource, the participants articulated the financial hardships associated with an illness including the expense of transportation, inability to work in the garden or look after children, and the need to ask family or friends to carry the sick person to a clinic. All of these situations would entail the formation of an obligation that would require repayment at some point in time.

The social engagement component of social capital is innate to collective societies, especially indigenous cultures that value interpersonal interaction and cooperative effort. Despite inequities of health care access and governmental services, social engagement was frequently mentioned as an important resource in rural villages. Every community had scheduled work days with the expectation that people living in the

village would volunteer to work on assigned community projects such as cutting grass, cleaning weeds in public areas, or building houses for teachers or health workers. Although these work days were considered voluntary, there was social pressure to participate. It also provided women the opportunity to interact with others socially, and with other women in an accepted venue. This tradition of community work days sets a precedent for the acceptance of village-wide projects such as the environmental innovations promoted by the CBHC program.

Research Question #3: How does participation in the CBHC program impact the health status of rural communities in PNG?

The third research question addressed how the community perceived participation in the CBHC program impacted health status in the village. Despite the lack of accessible health services in both the middle-Ramu and Angalimp South Wahgi districts, the participants had a positive perspective of overall health in their communities due to their role in practicing health promotion interventions. Interviews described the positive health outcomes associated with the CBHC program and consistently reported the decreased incidence of illness. Participants also related that both social and physical health benefited from the health promotion practices that the community had adopted. In addition to the decreased incidence of illness, the resources developed from participation in health activities and increased health literacy were considered positive results of the community empowerment process. There is significant data linking community empowerment promotion to improved community participation in health promotion practices (Graves, 2009; Running, Martin & Tolle, 2007).

Although one of the main foci of the CBHC program is the provision of education regarding health risk factors to individuals in the community, the adoption of a program requires extensive community buy in. The people interviewed stated that they saw varying degrees of improvement in the health of the community, including a decrease in the incidence of infectious diseases and the number of children dying of dehydration. One village in the middle-Ramu region had a very active health committee that exhibited a marked degree of empowerment by organizing a village school and building a new health sub-center for the area. In Jiwaka province, the participating village had joined forces with another nearby village to participate in a development organization that crossed over clan and religious denominational boundaries.

In addition to improving community health outcomes through health promotion interventions, several social innovations were initiated by the villages involved in the CBHC program. Rural villages often lack government services such as police stations, court systems, and access to development funding. The health committee members were encouraged to perform a community self-assessment to identify and prioritize needs and resources. In one of the focus groups, a participant said that they waited for the government to provide services for a number of years but it has not happened so they decided to do something for themselves.

Because of incidences of ethnic violence between clans in the highlands, the need for social justice was identified by some villages as a priority issue. The community identified the ongoing need for conflict resolution by mediators, councilors, and pastors. To settle disputes through negotiation and the determination of mutually acceptable compensation rather than destruction of lives and property was seen to be beneficial to

the entire clan. One area of the province had recently resolved a tribal fight that had persisted for a number of years. A woman related how her family had needed to hide in the bush to escape enemy incursions, and that a number of children and elderly had suffered from exposure and died without access to health care.

The empowerment process helped the community identify the resources present in their village, and encouraged a sense of collective pride and accomplishment. The CBHC program provided basic support such as education on health literacy and methods to facilitate community development. Several people interviewed related how proud they were of what their village had accomplished due to the CBHC program. One woman was pleased with the appearance of the area surrounding the village, particularly the flowers planted around the roads. She brought back flowers from the training program to plant around her own home and told others they were CBHC flowers.

Conclusion

The impact of the health promotion program on rural villages is closely associated with a changing belief system that is integrating traditional beliefs with both religious beliefs and newly acquired health-related knowledge. Information concerning pathologic or degenerative causes of disease has been integrated into the cultural perspectives of health and illness. With exposure to people from various areas of PNG as well as from other countries, the customary practices of rural villages have begun a change process. Urbanization, adoption of a cash-based economy, and movement of people away from customary lands has furthered the transition from the cultural isolation that has long been part of rural life.

Traditional tools for gardening included stone axes and digging sticks, which were used in the highlands well into the 1970s. Although in many rural areas women still use the digging stick as an essential tool for planting and harvesting crops, most of the traditional tools have been supplanted by steel axes, machetes and shovels that made the process of clearing jungle and planting gardens less labor intensive. This change enabled the cultivation of cash crops that provided money for the purchase of imported goods. Similar changes occurred as the result to the village integrating health promotion innovations into customary practices. Biomedical health information has been integrated into the customary worldview, including the ontological perspective of relational harmony. Included in this point of view was the role of religious practice in understanding the cause of illness, and the role of the church in maintaining the social structure in the village. The *wantok* system, as a source of social capital, also provided essential resources that enabled the community to work together for desired change. Due to the salient features of the *wantok* system in PNG, changes in village practices that were consensually accepted and supported by social pressure were seen to be more sustainable in the majority of the villages.

Chapter 5

Discussion

The close relational ties that exist between ethnic groups in rural Papua New Guinea (PNG) has an important influence on societal functioning and the adoption of health promotion practices. Geographic isolation and a lack of economic opportunities have caused the rural population to experience issues of disenfranchisement and inequality in comparison to urban areas, yet their stories expressed a sense of hope and the desire to adopt changes that they felt would benefit the overall well-being of the community. The themes identified during the interview process showed that the people of the villages strive to deal with a changing society without losing their sense of cultural identity.

The collectivistic attributes of traditional Papua New Guinean societies use components of social capital to facilitate change in customary behaviors that in turn impacts health on both an individual and community level. Organization of the health committee in a rural village was an initial step in empowering the community to determine which health-related innovations could be successfully integrated with local beliefs and customs, and which would be in conflict with the community's worldview. The findings explored how the villages participating in the Community Based Health Care (CBHC) program were able to identify and prioritize their needs, and successfully operationalize health promotion interventions.

Summary of Findings

The thematic findings bring to light what Connell (1997) called the process of synthesis that link indigenous and introduced health belief systems. A summary of the

themes from Chapter Four will expound on the conclusions derived from the interviews. Following the summary of thematic findings, a discussion of the impact of social capital on community health outcomes and implications for further nursing research will follow.

As is common in qualitative research, identification of themes is followed by a recursive process of thematic analysis that requires flexibility in identifying the patterns of meaning in the data (Braun & Clarke, 2006). The themes have some overlapping attributes, yet each provided unique perspectives of the lived experience of the people. In the interviews, the participants described the influence of traditional and current beliefs on health practices, the importance of relational harmony, and how their religious beliefs gave shape to changing societal norms.

Researcher Reflections: Planting and Harvesting the Garden

The metaphor of gardening including the steps of tilling, planting, and harvesting is particularly apt due to the importance of gardens in Papua New Guinean culture. Gardens are symbolic of 'living well' and exemplify the relational ethos that characterizes Papua New Guinean culture. The stages of cultivating the soil, removing weeds, planting seeds, and ultimately harvesting can be subsumed in the content of the research questions. Developing an understanding of the societal context inclusive of traditional and innovative health practices prepares the ground for planting. Identification of the best location for a new garden requires knowledge of soil characteristics and recognition of potential barriers to growth. The CBHC program has facilitated health promotion innovations by the use of preliminary steps that act to address potential barriers to health promotion by developing a partnership with the community. Ashwell and Barclay (2009a) support the necessity of developing self-

reliance within the community through the 'bottom-up' rather than 'top-down' approach to health innovations.

Working in a garden can also be used as a metaphor for the need for sustainability; after the soil is prepared and the seeds planted, the daily tasks of maintaining the garden by weeding and keeping the drainage ditches open are necessary. The work of keeping pigs out of the garden, staking up sugarcane plants so they will grow straight, and covering the bunches of bananas to protect them from fruit bats are all necessary tasks that must be performed on a regular basis. For health promotion innovations to successfully reduce the burden of disease, hygiene and environmental sanitation activities also need to be practiced consistently. As women perform much of the day-to-day work involved with gardening and maintaining environmental hygiene, they are a key component to the sustained practice of health promotion interventions.

At the end of the interview process, participants were asked if they felt that the CBHC program had resulted in positive outcomes for the community and the response was consistently affirmative. In *tok pisin* the term for a positive (or negative) outcome of an action is *karim kaikai,* which literally means 'to bear fruit'. Participants clearly felt that the CBHC program had produced good fruit by acting as a catalyst for community cohesiveness resulting in increased self-reliance and behavioral transformation.

Cultural Perspectives

The hybridization of the western health care system and traditional beliefs have a clear implication on how theories of health and illness can be integrated with various healing strategies. The practice of adopting new rituals or customs is common throughout PNG; for example, during a cultural show, I was told that it was common for

one ethnic group to purchase the rights to practice a ritual or *singsing* (ceremonial dance) style from another cultural group. Although there are hundreds of cultures associated with the numerous linguistic groups throughout PNG, cultural practices are extremely porous, and acceptance of customs from other groups are a common practice. This willingness to accept new customs is congruent with the adoption of health-related practices in rural areas. Although health promotion education tends to be framed from a western perspective, operationalization of the CBHC program occurred in a culturally sensitive way by supporting ownership of the process by the local community. It was evident that the villages participating in the CHBC program continued to be interested in utilizing the innovations as a means of proactively addressing the needs of the community.

Health as relational harmony. The theme of health as relational harmony was clearly expressed in many of the interviews and is imbedded within the cultural context of collective societies. Relational harmony is associated linguistically with the Melanesian pidgin terms *stap gut* and *sindaun gut* which mean 'being well' and 'living well'. Since relational harmony is viewed as an essential component for health, contextualization of health promotion interventions is necessary to support individual health and community well-being. In the context of rural Papua New Guinean social structure, the kinship ties internal to clan structure strongly influence cultural beliefs concerning health, sickness, and healing strategies. Social structure in the highlands of Papua New Guinea has traditionally followed an egalitarian leadership configuration within a patriarchal framework rather than the rigid hierarchy present in many political systems (de Renzio, 2000; Lederman, 2001). Sillitoe (1998) refers to traditional

Melanesian groups as having a stateless social order that participates in informal mechanisms of exchange to regulate behavior. The importance of reciprocal exchange to kinship relationships can be exemplified by the system of ritualized transfer of resources between members of the group.

The indigenous understanding of illness correlates a breakdown in relational harmony between members of the kinship group with the development of an illness, particularly those forms of illness that do not respond to western-style treatment. Common conflicts such as damage to gardens by pigs, theft or damage to property, unapproved romantic relationships between young people, adultery, and land disputes all have the potential to cause relational disharmony. Although these situations may initially involve a single pair of individuals, the impact of the conflict will inevitably have a wider reaching negative impact.

Lack of consensual agreement also has the potential of creating societal disruption that impacts group functioning. Part of the tradition of striving to achieve consensus in rural villages is due to the homogeneity of local linguistic and cultural groups. Villages throughout the highlands predominately consist of extended families and this homogeneity has a positive influence on group acceptance of health promotion innovations; since once group consensus had been achieved, there is societal pressure to comply with health promotion innovations. During the interviews, the participants stated that the CBHC interventions had a beneficial influence on health outcomes and that their community worked together to support health promotion practices in the village.

When supporting community empowerment, it is necessary to facilitate the community's strengths and encourage the development of required resources. The

kinship ties also provided essential resources that are necessary to support change processes in the community (Keck, 1993). The interviews supported the perception that a western biomedical model does not fit effortlessly into a cultural context that stresses the importance of maintaining a sense of harmony within the clan (Hinton & Earnest, 2011). Health was strongly associated with religious faith and following Christian practices; many of the participants described the role of spirituality in maintaining their own health and the well-being of the community.

In the villages, there was a shared worldview associated with spiritual beliefs and an understanding of the role of faith in health and healing that influenced the group's consensual decision to participate in the CBHC program. An overlap between themes was seen to be present in participants' comments about the community's social structure, decision-making structure, and methodology of identifying resources within the community. The theme of relational harmony as being integral to collective well-being follows the operationalization of health promotion behaviors.

Collective efficacy. To support change in behavioral practices that are congruent with cultural norms, a source of interconnectedness within the collective social structure is needed. In the interviews inquiring about the decision-making process and support structure, some customs were ingrained within the cultural system to such an extent that when I asked about obtaining food or support from relatives I was regarded with a look of incredulity at my lack of knowledge about such a basic tenet of the society. One participant simply said that "it is our way" to give food or assistance to kin, while another said if he was hungry he would just go and ask a family member and he would receive a bag of *kaukau* (sweet potatoes) or *kumu* (greens). The issue of financial support was less

obvious. Money for large expenditures that would have an impact on the whole community such as bride price, funeral expenses, or payment of compensation is traditionally collected from the entire clan. However, raising funds for school fees or for personal needs is restricted to the family group, and is especially difficult for women who are widowed or lack support from their husband or his family. One woman said, "They don't help me with the school fee problem...I have found it very hard and there is no way to get money. I have sold a few chickens here and there; I have saved and saved, but there is no one who helps me to pay school fees."

Due to the importance of relational harmony and the customary reciprocal obligations, when there are broken or damaged relationships the implications of that fracture goes beyond those immediately involved to impact the overall health of the kinship group. Relational harmony is maintained through the three components of social capital: 1) trust between members of the clan and linguistic group; 2) maintenance of reciprocity through the provision of financial, informational, and supportive resources; 3) social engagement enabling capacity-building and developmental opportunities in a variety of venues. Participation in social groups associated with the local church, sports, and community projects is common and provided an appropriate venue for women to have a voice in the community.

The importance of relational harmony in collective societies has an equally influential impact on both the decision-making process and the means of adopting cultural innovations. For change to become sustainable, the group works together to reach a consensus on the contextual congruency of the behavioral change, and if there are adequate resources to maintain the interventions. During my time in Jiwaka province, I

was able to see the process of consensual decision-making on several occasions. In a village that was considering initiating the CHBC program, local leaders and interested community members gathered in a neutral location. The CBHC facilitator suggested a series of capacity-building steps starting with the organization of a community health committee and assessment of community resources and needs. Those interested in participating in the committee were asked to prioritize the needs, and then identify the internal and external resources needed to support change in the community.

Contextualization of Health Promotion Practices

Synthesis of beliefs. In rural Papua New Guinea, the indigenous concepts of health and disease exist in concert with introduced western beliefs and Christian interpretations of the meaning of illness (Connell, 1997; Eves, 2010; Koczberski & Curry, 1999). Indigenous health beliefs are heavily contextualized and require rituals that support maintenance of the relational bonds with living family members, deceased ancestors, and nature spirits. It is believed that showing disrespect to the spirits is associated with poor health. Traditionally, illnesses are linked to specific social or spiritual context and may occur as a result of relational disharmony between the living and the spirit world (Bartle, 2001; Koczberski & Curry, 1999). In a number of interviews, the participants mentioned that the traditional perception of disease etiology had remained consistent through a hybridization of indigenous beliefs, Christian healing practices, and concepts from the biomedical model. For example, knowledge about the pathologic causes of malaria and gastroenteritis were generally understood due to health education sessions in the community; however, the underlying reason why a particular

person contracted an illness was understood within the sociocultural and contextual worldview of the group.

The synthesis of traditional beliefs and innovative health promotion practices was associated with supporting sustainable change in rural villages. Participants related how their understanding of health and illness was influenced by their Christian worldview and sociocultural understanding of well-being. Illness was understood as a physical expression of sinful behavior and was viewed as the consequence of a broken relationship with God (Eves, 2010). One participant relayed the importance of being respectful to others; she said, "You must follow customs and laws and this means that you will have a good life and you will live well." It was understood that those who broke laws by stealing or killing would either become sick or cause sickness and other problems to occur within the group. Behaving appropriately was necessary to avoid causing personal or collective shame.

Healing and prevention strategies were greatly influenced by innovative strategies taught by the CBHC program. These strategies enabled the community to make environmental and behavioral changes on the local level that had an immediate positive impact on health outcomes. The innovative practices that selected individuals learned at training sessions were communicated back to the community as a whole. Once environmental changes were initiated, the village continued to implement a further series of steps that supported community empowerment. Several participants remarked that after the community worked together to improve the area surrounding the village, they noticed a decrease in malaria and diarrheal diseases.

Religious practices and health. A significant theme in the interviews described the influence of the local church on health and social relationships. Religious beliefs were described as having an essential protective role in the maintenance of health and social harmony. Several participants mentioned that following the law (alluding to the Ten Commandments and customary practices) was imperative for maintaining a sense of psychosocial well-being. Over the past fifty years, a Christian worldview has replaced many of the traditional beliefs, customs, and taboos previously present in the highlands. This has resulted in a paradigm shift resulting in illness being viewed as a punishment for moral failings (Eves, 2010). To address this changed perception of illness, healing strategies frequently incorporate confession, prayer, and support from other members of the religious group. Ashwell and Barclay (2009a) evaluated the long-term impact of a community health promotion project in ten PNG provinces, and noted that "communities with a strong religious affiliation had a sense of connectedness that was quickly strengthened following the intervention" (p.10). By integrating resources from the local church and commonly accepted religious beliefs with health promotion education, the CBHC program has provided a framework for sustainability. The local church provided leadership for the community health committee, health champions, and access to networks that connect to external resources.

Operationalization of the CBHC program. Operationalization of the health promotion interventions at the community level had beneficial elements as well as some shortcomings. During the interviews, participants reported a decreased number of individuals suffering from infectious diseases and maternal/infant mortality. However, because of the absence of a local health center or an individual in charge of keeping

statistical health data, there were few formal reports available that provided epidemiological information at the village level (Ashwell & Barclay, 2010). Several people also mentioned the financial benefits of the health promotion interventions and reported that the number of medical flights had decreased resulting in significant financial savings.

Isolation and limited access to health services in the villages molded the community's perception of their ability to initiate contextually and culturally acceptable changes. Community participation was also enhanced by the kinship ties exemplified by components of social capital. The majority of participants indicated that they trusted their relatives to help them in times of sickness and financial need. There was also a sense of trust in western style medical care, however since health services were frequently unavailable many community members were interested in obtaining contextually appropriate health education. The environmental benefits of the health innovations were described by a number of the participants with pride, and the clean roadsides and flowers were considered a visual representation of the village's status.

Shortcomings of the health promotion program were associated with concerns about the sustainability of healthy lifestyle practices in the absence of an external supportive structure. As rural Papua New Guinean societies tend to be event-oriented, the continued performance of routine health promotion strategies proved to be problematic over the long term. The issues of sustainability were felt to be problematic without the presence of a local health champion to act as a catalyst for continued health promotion interventions. One village in the middle-Ramu region had been participating in the CBHC program for nearly a decade but did not currently have a functioning health

committee. It was in the process of revitalizing the health promotion interventions in the local area because village leaders had noticed a reoccurrence of preventable illnesses in the community. The village in Jiwaka province had developed new partnerships with a local development cooperative and the CBHC program which helped meet some of the development goals of the community.

Influence of Social Capital on Health Promotion

Trust, reciprocity, and social engagement as components of social capital supported access to networks that encourage diffusion of health promotion education throughout the community. In traditional PNG society, trust is essential for the expenditure of social capital for health promotion practices. The presence of trust between community members facilitated the adoption of new customs into the traditional belief paradigm. Health committee members were selected by village leaders and were generally people well-known and trusted by the community. As a result of this trust, the information disseminated by the health committee was deemed to be beneficial and was adopted by the entire community.

Reciprocity is an important component of social capital, and is integrated into the expectation of the reciprocal exchange of goods and services that is integral to the *wantok* system of PNG. Reciprocity was expressed through interpersonal behaviors such as exchange of labor, time, or social support that in turn provided a framework for the implementation of health promotion innovations. It also provided access to material and informational resources needed to facilitate behavioral change.

In rural areas of PNG, social engagement is demonstrated by participation in group activities that reinforce social ties. Ceremonial rituals associated with birth,

marriage, death, and celebrations are practiced collectively and sustain relationships between members of a kinship group. Community engagement activities such as participation in women's groups, sports teams, and church groups served to increase levels of social capital and support collective efficacy. These community-level processes demonstrated the cohesion that facilitates collective social action including the networking and resource-sharing needed to promote and sustain health promotion behaviors throughout the community.

Recommendations

Implications for Health Care

The findings of the interviews provided a number of important implications associated with the provision of health care in rural settings. Participants all described the difficulties accessing health care services. Those villages that had a functioning aid post or health center faced impending staffing problems since many of the current staff were aging and scheduled to retire. The expense of transportation from remote regions to a hospital was more than most people could afford, leading to a high mortality rate in many rural villages. The centralization of health care services and administration also created issues of limited availability of supplies, staffing, and a continued problem with communication. Rural areas communicated with urban centers via short-wave radio to the provincial base hospital, but if the radio was inoperative or the solar battery system was not functioning then communication was negatively impacted. The rural villages lacked electricity other than limited electrical power from a few generators that relied on the scarce fuel that was flown in by small aircraft. I was informed that a cell phone call

was possible if you hiked up a nearby mountain for over an hour and then climbed a tree. However, internet service was only available in the provincial capitals and larger towns.

The system of health patrols, maternal health and immunization clinics that provide scheduled visits to isolated villages depended on an adequate number of health workers and sufficient supplies. Unfortunately, due to staffing and supply issues, these clinics have not been consistently implemented. Community members in both middle-Ramu and Jiwaka province suggested that having a health sub-center in the village would be helpful to provide access to health care and medical supplies. Although Village Health Volunteer (VHV) training provided some education on treating common conditions, access to medical supplies was inconsistent. Educational opportunities for both VHV and VBA programs were seen to be beneficial both for informational content and the opportunity to develop relational networks.

Several participants mentioned that safe drinking water was a priority and a necessity for the village. One suggestion was that the need for safe drinking water and permanent housing could be simultaneously addressed by obtaining funding to build homes with metal roofs with attached water tank systems to catch rainwater. Despite the encouragement to establish villages with higher population density, the majority of middle-Ramu villages consist of small family groups, making the development of larger community water systems impractical. The use of rainwater tanks for drinking water is widespread throughout PNG, and it was suggested that tanks be purchased for buildings that already have metal roofs in the villages to provide a community water source. This solution is also problematic since permanent homes with metal roofs are extremely rare in remote highland villages due to the cost and difficulty transporting building supplies.

Rural areas lacked sufficient finances to purchase the water tanks, and the cost of flying in building materials exceeds what most communities can afford. The search for additional financial resources to develop a village water system continues to be a goal for many communities that lack access to clean water.

Health care workers are scarce in rural areas; middle-Ramu district has seven nurses for a population of 57,879 and the Angalimp South Wahgi district of Jiwaka province has 49 nurses for a population of 96,570 (National Research Institute, 2010). During one of the focus group discussions, a village councilor felt that the health care access problem was due to the fact that very few local youth were selected for tertiary education after completing high school. Tertiary schools including nursing colleges, teachers colleges, and community health worker (CHW) schools accept students from a national pool of applicants. Unfortunately, students who attend rural high schools find it difficult to be accepted into professional programs, or raise funds for tuition if admitted to one of these colleges. Since rural students are underrepresented for post-secondary school educational opportunities, this has a negative impact on both the availability of teachers and nurses in rural areas and the economic benefit of having salaried workers as part of the local economy. The village leaders naturally felt that if local youth were able to complete higher education programs they would be more likely to return to their home villages as teachers and health care workers. Unfortunately, many rural youth who completed teacher's training or nursing education sought work in urban areas for higher salaries rather than returning to their home villages. This may be due to employment opportunities, or as a way to mitigate the sometimes onerous social and financial obligations that burden those individuals with a steady income. One solution to this

problem could be the provision of financial incentives such as tuition assistance or a bonus from the community to encourage local youth who are accepted into professional education to return to their home village.

Implications for Future Nursing Research

Papua New Guinea has long been a popular venue for anthropologic and ethnographic studies due to its numerous languages and diverse cultures, still additional research on health promotion practice innovations in both urban and rural settings would be beneficial. Although several community health programs have been evaluated in the past, the community-based participatory research approach has not been used, and would be a suitable method to support community empowerment (Ashwell & Barclay, 2009a, 2009b, 2010). The literature points out that there are persistent problems with health care systems that foster a dependency on health professionals (Connell, 1997). Studies in PNG suggest that a people-centered approach to health promotion is vital to overcome poor health outcomes (Ashwell & Barclay, 2009a; Welsch, 2009).

Participants in middle-Ramu were interested in developing partnership networks to support their economic and educational goals. Formation of these partnerships was felt to potentially have a beneficial influence on the overall health and well-being of the community through access to external resources. The community in Jiwaka province was less geographically isolated than the middle-Ramu, yet it also had difficulty accessing health care services due to poor roads, a lack of transportation, and a history of inter-tribal conflict that restricted free travel to nearby health centers. Participants in both provinces indicated an interest in obtaining further health education opportunities and access to developmental resources for the community.

Future studies based on focus group comments and individual interviews would include the impact of social engagement on sustainable health promotion practices and how community empowerment could facilitate local development projects. Based on the small sample and limitations of the current study, an extended study of villages participating in a health promotion program using a community-based participatory research approach could provide strategic guidance for health promotion innovations.

The topic of health literacy is an issue that should be addressed, particularly in communities located in the highlands of Papua New Guinea with limited exposure to health information. A survey of health literacy in rural villages could be used to assess the current knowledge base and provide a baseline for future health interventions. Additionally, studies that focus on women's health issues could provide additional resources that focus on nutrition, hygiene, child health and health-related practices.

Summary

Issues of developmental and economic disparities continue to be problematic in rural areas of PNG. To facilitate positive outcomes in village settings, it is necessary for the community to attain a sense of ownership and commitment toward the practice of sustainable behavioral changes. The positive outcomes or "fruit" of a community-based health program is not simply the performance of ritualized health behaviors, but occur as the community itself works to develop and implement contextualized strategies that result in a healthy village. The development of a comprehensive understanding of sociocultural influences on the adoption of health promotion practices can help nurses facilitate community empowerment and the sustainability of community-based health care programs in rural areas.

The Community Based Health Care program partners with communities to strengthen components of social capital to support attainment of positive health outcomes. Higher levels of trust within the community facilitates the collective efficacy necessary to initiate implementation of health promotion innovations. Community-based development projects could assist rural villages to obtain tangible assets such as pigs, money, or crops providing the means to reciprocate when a community member is ill or when materials are needed for a building. Study findings showed that community engagement forms an essential underpinning to health promotion innovations through the reinforcement of networks and relational connections. Promoting these connections provides access to those physical, spiritual, and emotional resources that the community requires to encourage health-related strategies.

Cultural health beliefs in PNG are undergoing a time of transition in which synthesis of indigenous knowledge systems and health-related innovations affect how health-related behaviors are enacted. The implementation of health promotion innovations in rural PNG communities is also influenced by the socio-cultural context of the indigenous group. In both the middle-Ramu region and Jiwaka province, the components of social capital provided the supportive framework and resources that reinforced the practice of health promotion innovations. Practice of these health-related interventions was viewed by community members as resulting in improved health status, and an increased capacity for community development.

This study investigated the cultural context influencing the adoption of health promotion innovations in Papua New Guinean villages. Despite geographic isolation and lack of material resources, the people in rural areas of the highlands have a relational

wealth that people in western societies have lost in our search for individualism. Support from friends and relatives forms a network of multilayered relationships that emphasized the collective good of the community over individual achievement. In conclusion, the findings of this study describes the importance of socio-cultural practices and religious beliefs on implementation and sustainability of the CBHC program. The improved health status of Papua New Guinean villages that adopted health promotion innovations resulted from the collective action and capacity-building on the part of the community.

Figure 9. **Bismark Schrader Mountain Range. Photo taken by C. Bett, 2013**

Appendix A

Nazarene Health Ministries
COMMUNITY BASED HEALTH CARE
P O Box 456, Mt. Hagen, WHP. Papua New Guinea 281
Phone: 675-5462228/ 546 2208 Fax: 675-5462208

March 5, 2013

University of New Mexico
Human Research Protections Office

To Whom It May Concern:

To improve community health services in rural Papua New Guinea (PNG), we have accepted Mrs. Carol Bett's offer to study our community based health program and to provide recommendations for improvement in conjunction with her doctoral dissertation. Mrs. Bett will be working with villages that are currently participating in the Community Based Health Care (CBHC) program. The village leaders and representatives of the community health committees in villages involved in the CBHC program have agreed to allow Mrs. Bett to recruit participants for her study and to interview people in the villages. These villages include Dusin, Wilum, and Gebra in the Middle Ramu region of Madang Province; Tuning, Bolba, and Tsingoropa in Jiwaka Province.

Community Based Health Care, a program in the EDEN (Effective Development Empowering the Nation) network, has been operating in Papua New Guinea for nearly 20 years. The community health services offered by CBHC are in line with the PNG National Department of Health's millennial focus. By permitting Mrs. Bett to conduct research on our community health program, we are assisting the Department of Health to achieve one of its millennial goals and to help the rural majority of Papua New Guinea to achieve better health.

Respectfully,

Rebecca Morsch MD, MPH
Coordinator
Melanesia and South Pacific Fields
Community Based Health Care

Appendix B

Demographic Questionnaire (English/Melanesian Pidgin)

ID #_____	
Name (*Nem)*	
Sex *(Man o meri)*	
Age *(Hamas Krismas)*	
Tribal affiliation *(Nem bilong lain bilong yu)*	
Home village/province *(Asples bilong yu we?)*	
Village where currently living. How long? *(Yu stap long dispela ples hamas yia?)*	
Where do your nearest relatives live? *(Femili bilong yu stap we?)*	
Marital status *Yu marit o nogat? Man i gat hamas meri?)*	Polygamous Relationships: Female (What number wife are you? Total number?) Male (How many wives do you have?)
Number of children *(Yu gat hamas pikinini?)*	
Religious affiliation *(Yu bilong wanem haus lotu?)*	
Educational level *(Yu bin skul? Hamas yia?)*	
Occupation *(Yu save mekim wanem kain wok mani?)*	
Association with CBHC *(Yu bin mekim wanem kain wok long CBHC?)*	

Appendix C

Interview Guide: Questions & Probes
(English with translation in Melanesian Pidgin)

Beliefs about health and sickness

1. What does the word 'health' mean to you? *Helt i gat wanem mining long yu? (Olsem stap gut long bodi, spirit, tingting o sindaun).*
    a. What does it mean to be healthy? *Hel em wantem samting?*
    b. Do you feel you are healthy? *Yu ting yu yet stap gut olsem o nogat?*
2. When someone gets sick, what does that mean? *Wanem samting i as bilong sik?*
    a. Are all sicknesses physical? *Sik inap kamap long bodi tasol?*
    b. What types of sicknesses do people get? *Wanem kain sik i save kamap long man o meri long dispela ples?*
    c. What are the reasons why people get sick or die? *Wanem samting i as bilong sik?*
    d. What do other people say causes illness? *Ol arapela manmeri i tok sik I kamap olsem wanem?*
    e. What did your grandparents (or ancestors) say caused sickness? *Ol tumbuna i tok sik i kamap olsem wanem?*
3. What do you do when you get sick? *Sapos yu o femili memba bilong yu i gat sik, bai yu mekim wanem samting?*
    a. What do other people do when they get sick? *Ol arapela o tumbuna i save mekim wanem long taim sik I kamap?*
    b. How did your grandparents treat an illness? *Ol tumbuna i save mekim wanem long taim sik I kamap?*
    c. What do you do next when the first treatment for an illness doesn't work? *Sapos dispela samting i no helpim, bai yu mekim wanem?*

Social Capital

1. How would you describe your relationship with your family, line, tribe, clan or village? *Yu stap gut wantaim femili na lain bilong yu?*
2. How do people handle problems or disagreements between individuals or groups? *Olsem wanem ol manmeri long ples i save stretim hevi o daunim krospait?*
3. What kind of problems are there in your community? How are these problems settled? *Wanem hevi i bin kamap long ples? Olsem wanem ol i save stretim hevi?*

4. Has anyone in your community stolen from you or lied to you? *Ol lain long ples i save stilim samting o mekim ol giamin pasin long yu o long arapela?*
5. If you need money or food, does anyone in your community share with you? *Sapos yu gat nid long long samting, femili o lain inap helpim yu o nogat?*
    a. When you get sick, does anyone from your family or community take care of you or help you get to the health center? Who? *Sapos sik i kamap, wanpela inap lukautim yu o helpim yu go long haus sik?*
    b. Is there anyone you could trust to look after your garden, house, children, or possessions if you were gone for a while? Who? *Yu inap trustim o bilipim tok bilong arapela o nogat? Husat?*
6. What groups are you a member of? (e.g. church, women's group) *Yu save bungim arapela long wanpela grup? Wanem grup?*
    a. Do you attend church in the village? *Yu save go long lotu; wanem lotu?*
    b. How often do you attend services? *Yu save go long lotu hamas taim long wanwan wik?*
7. How many people usually help with village work projects like building houses, roads, gardens? Do you participate in village work projects? *Hamas manmeri I save kam long komuniti wok de? Yu save bungim arapela long taim bilong komuniti wok? Sapos komuniti laik mekim sampela wok, husat lida?*
8. Do you feel like you have a voice in community decisions that affect you? Who do you go to if you have a problem? *Yu inap mekim tok long helpim grup skelim tok o nogat?Husat inap helpim yu sapos yu gat hevi?*

Community Based Health Program (CBHC)

1. How would you describe your village? (Environment, Social, Spiritual) *Mi laik yu helpim mi kisim sampela save long ples bilong yu? Em i luk olsem wanem? Ol manmeri i stap gut (long bodi, tingting, spirit) o nogat?*
2. Do you think that your village is a healthy community? Why or why not? *Komuniti bilong yu i stap gut o nogat? Bilong wanem yu tok olsem?*
3. What needs does your village have? *Ples bilong yu gat nid long wanem samting?*
4. What resources (assets) does your village have to help change things and what barriers are there to change? *Wanem samting i gutpela moa long ples bilong yu? Wanem samting i banisim sampela gutpela senis ol I laik kamap long ples?*
5. What happens in your village that either helps people stay healthy or makes them more likely to get sick or die? *Wanem samting long viles i helpim ol manmeri i stap gut long bodi o tingting o spirit? Wanem kain senis inap helpim manmeri long ples i stap gutpela moa? Ol manmeri bilong ples inap mekim dispela senis o nogat? Wanem samting I mekim sik I kamap long wanpela man o meri?*
6. Is sickness common in your village? *Planti sik i stap long viles bilong yu o nogat?*

    a. What sicknesses are common in your village or in your family? *Wanem kain sik i stap long ples o long femili bilong yu?*
    b. What do you think is causing these sicknesses? *Wanem samting i as bilong sik?*
7. Do you have any health care services in your village? *Wanpela helt senta i stap klostu long viles o nogat?*
    a. Where is the nearest health center or hospital? *Helt senta i stap we?*
    b. How do you get there? Are there any roads? *Yu inap go long helt senta olsem wanem (wokabaut, PMV, truk, balus)? Rot i stap klostu long viles o nogat?*
8. Do you think that the community health committee has been doing a good job? Why or why not? *Ol komuniti helt lida i mekim wanem long helpim ol manmeri long ples i stap gut? Ol i mekim gutpela wok o nogat?*
9. How would you rate people's interest in the community health project? *Ol manmeri i laik bihainim CBHC pasin o nogat?*
10. What changes have you seen since the village started the CBHC project? *Wanem kain senis bin i kamap long ples bihain taim yupela bihainim pasin long strongim helt bilong ol manmeri?*

Appendix D

Thematic Matrix		
Themes	Codes	Descriptions
Well-being as Relational Harmony	Health: *Stap Gut* *Sindaun Gut*	Living well, being in good relationships and in harmony with others (clan/tribal members). Following laws/customs, e.g. don't kill or steal. Being healthy means you are a good person.
	Healthy Behaviors	Look after self, using mosquito nets, personal hygiene—hand washing, handling food properly. Good nutrition. Wash clothes, dish racks to dry dishes. Building toilets.
	Environmental Health	Environment: clean water sources, fence animals away from water and homes, rubbish pit, toilets. Building good home with windows to limit smoke exposure.
Synthesis of Beliefs	Traditional Beliefs on Causes of Sickness	Cause of illness is often unknown. *Masalai*: forest spirits. Trespassing or hunting near lakes, rivers, mountains, or territory belonging to another tribe. Ancestral spirits: being near taboo places such as graves or cemeteries, ghosts. *Sanguma*: enemy has evil feelings about someone and curses that person or hires a *poisonman* to curse another individual.
	Current Beliefs on Causes of Sickness	Environmental issues: lack of toilets, animals in living area, relational. Illnesses may be caused by relational disharmony; hidden sin or anger with a relative can cause sickness. Illness is something God controls
	Illness Types: *Sik bilong ples* *Sik nating*	Biopsychosocial illnesses. Examples: *pigbel* (enteritis necroticans), mental illness, deafness, fractures, blindness, dental problems, nausea, diarrhea, malaria, headaches, swelling in abdomen or skin, shivering, tremors, cough & shortness of breath (pneumonia).

	Traditional Healing Practices	Customarily used herbal treatments such as ginger or *salat* combined with traditional magic practices. Ask ancestral spirits for help; hire *glasman* to identify cause of illness or the person responsible.
	Innovative Healing Practices	Christian religious practices: prayer, take sick person to health center or hospital. Stay with the sick person and ask about possible causes of sickness (relational conflict), wash person, give water. Eat good foods.
Collective Efficacy	Decisional Consensus	Consensus model of group decision making and problem solving. Everyone involved in making a decision that would affect the group, except women. Women's voice is limited.
	Community Resources	Community works together for change/innovation adoption. Benefits of rural communal societies: family looks out after garden, children.
Social Resources: Components of Social Capital	Interpersonal Trust	*Wantok* system: Trust is given to blood relatives within the clan or tribe: men trust other male relatives more than women, local community members are trusted more than outsiders.
	Reciprocity	Assistance and access to resources are available to relatives and is expected to be reciprocated. Good people get help while bad or selfish people don't.
	Social Engagement	Communities work together for communal benefit. There is a long history of scheduling work days for projects. Groups are usually gender/age specific: men, women, and youth.
Community Concerns	Community Needs	Lack of health care access (long distance to nearest health center and many die). Lack of roads, no businesses, transport for cash crops. Water problems (villages built on mountainsides, streams are located in the valley). Need for permanent homes.
	Cost of Sickness	Financial cost: plane fares, inability to work, hiring transport, and medical fees; will have an obligation to relatives for helping carry a person to hospital.

	Conflict	Intra-clan or tribe disputes: Food security issues—pigs getting into garden, theft of crops, land disputes. Damaged relationships: immorality, adultery, domestic violence. Inter-tribal disputes: fights, killing, theft from other groups, historical disagreements.
	Conflict Resolution	Verbal negotiation by elders, mediators, village councilors, pastors to settle conflicts. Most disputes require compensation (pigs, money) to settle fight and restore relationships. May escalate into a tribal war. Mediator role is very important culturally.
Societal role of the church & religion	Supportive role of local church groups	Village churches have a proxy function that corresponds to clan/kinship relational status. God's word seen as protective…*banis or* fence. Pastor and church members act as negotiators, mediators, resources, peacemakers. Some individuals act as health educators- health champions are needed for adoption and sustainability of program, act as catalysts for change. Women have leadership roles and have a voice in church governance.
CBHC Program: Operationalization & Outcomes	Empowerment	Development of health committee, community assessment, resource and needs identification, planning, implementation of innovations. Developing *haus lain* structure.
	Program Shortcomings	Lack of ongoing support, resources for the community. Unclear on what the next step is. Non-functioning committees, people tired of doing work.
	Resource Development	Support for social justice, health literacy. Decreased sickness, malnutrition. Clean environment, community pride (flowers). Identification of community assets.

Appendix E

Government of Papua New Guinea
Medical Research Advisory Committee
National Department of Health

PO Box 807
WAIGANI 131, NCD
Papua New Guinea

Phone: + (675) 301 3693
Fax: + (675) 323 9670
Email: ken_wai@health.gov.pg

FILE:54-6-2
DATE: 11/04/2012

Carol Bett
22108 W. Pretty Prairie Rd.
Langdon, Kansas 67583
United States of America

cbett@salud.unm.edu

Dear Ms. Bett,

This is to certify that the proposal:

Influence of social capital on community-based health programs in rural Papua New Guinea: An ethnographic study

Submitted by you and your colleagues has been examined by the Medical Research Advisory Committee of Papua New Guinea and assigned **MRAC No. 12.04**. The proposal was approved and given ethical clearance for it to be carried out in Papua New Guinea.

The Medical Research Advisory Committee of Papua New Guinea act as the National Ethical Clearance Committee and as the Institutional Ethical Committee for the Papua New Guinea Institute of Medical Research and so there is no further bar to this project being carried out in Papua New Guinea.

Investigators are reminded of the importance of keeping provincial health and research authorities informed about their study and its progress, and of submitting progress and outcome reports to the Medical Research Advisory Committee.

With best wishes.

Yours sincerely

Dr. Urarang Kitur
Chairperson

SERVICE DELIVERY TO THE RURAL MAJORITY AND URBAN POOR

Appendix F

The University of New Mexico Health Sciences Center
Consent to Participate in Research

Influence of social capital on community-based health care in rural Papua New Guinea: An ethnographic study

03/2/2013

Introduction

You are being asked to participate in a research study that is being done by Dr. Jennifer Averill, PhD, RN who is the Principal Investigator and Carol J. Bett, PhDc, RN from the Department of Nursing who will be using the information for a doctoral dissertation. This research is studying health beliefs, why communities decide to participate in community based health care (CBHC) projects and how the program affects the health of the community.

You are being asked to participate in this study because as a community member who lives in a rural village participating in the CBHC program, you are in the position to help the researchers understand how you feel about how well the CBHC program works. There will be 25 people selected from several rural villages in Papua New Guinea who will participate in the study.

This form will explain the research study, and will also explain the possible risks as well as the possible benefits to you. We encourage you to talk with your family and friends before you decide to take part in this research study. If you have any questions, please ask one of the study investigators.

What will happen if I decide to participate?

If you agree to participate, the following things will happen: You will be asked questions either one-on-one or in small groups. We would like to find out if the social relationships in the community influences if people decide to participate in community

based health care (CBHC) projects and how people perceive their own health and health in the community after participating in a CBHC program. We would like to ask some questions concerning what you believe about health and sickness and how you feel that the CBHC program has helped your community. With your permission, we would like to audiotape the interview so that we will be able to accurately transcribe the conversations and we will take notes as we talk. We would also like to take photographs; the photographs will be used to present the research at various conferences.

How long will I be in this study?

Participation in this study will take a total of 1- 2 hours.

What are the risks or side effects of being in this study?

There are risks of stress, emotional distress, inconvenience and possible loss of privacy and confidentiality associated with participating in a research study. Since some questions may involve information about community relationships, pseudonyms will be used to protect your privacy. If you are uncomfortable with any question or topic, you do not need to answer. For more information about risks and side effects, ask the investigator.

What are the benefits to being in this study?

There are no direct benefits to you, but your participation in the study may benefit other communities in Papua New Guinea by helping the CBHC program judge how well the project works and if any changes need to be made when working with other communities.

What other choices do I have if I do not want to be in this study?

You do not have to participate and if you decide at any time during the interview or group discussion that you do not want to participate, you may withdraw your consent without worrying that it will affect the CBHC program in your community.

How will my information be kept confidential?

We will take measures to protect the security of all your personal information, but we cannot guarantee confidentiality of all study data.

Information contained in your study records is used by study staff. The University of New Mexico Health Sciences Center Human Research Review Committee (HRRC) that oversees human subject research and/or other entities may be permitted to access your records. There may be times when we are required by law to share your information. However, your name will not be used in any published reports about this study. A copy of this consent form will be kept with other research records.

Consent forms and identifying information will be kept in a locked drawer in Dr. Averill's office for approximately 18 months. Audio-tapes will be transcribed and the transcripts will not have your name on it or the name of the village. The audio-tapes will be heard only by the research team and will be erased following completion of the project. When the project is completed, within 18 months the information will be shredded.

Your answers will be kept confidential and will not be discussed with anyone outside the research team. The audiotapes, photographs, and transcriptions of the interviews will be stored securely in a computer file using passwords.

What are the costs of taking part in this study?

There will be not cost by participating in the study.

What will happen if I am injured or become sick because I took part in this study?

No commitment is made by the University of New Mexico Health Sciences Center (UNMHSC) to provide free medical care or money for injuries to participants in this study. If you are injured or become sick as a result of this study, UNMHSC will provide you with emergency treatment, at your cost.

It is important for you to tell the investigator immediately if you have been injured or become sick because of taking part in this study. In the event that you have an injury or illness that is caused by your participation in this study, reimbursement for all related costs of care will be sought from your insurer, managed care plan, or other benefits program. If you do not have insurance, you may be responsible for these costs. You will also be responsible for any associated co-payments or deductibles required by you insurance.

If you have any questions about these issues, or believe that you have been treated carelessly in the study, please contact the Human Research Review Committee (HRRC) at the University of New Mexico Health Sciences Center, Albuquerque, New Mexico 87131, (505) 272-1129 for more information.

Will I be paid for taking part in this study?

Although you will not be compensated for participating in this study you will be given a small gift of appreciation for being interviewed.

How will I know if you learn something new that may change my mind about participating?

You will be informed of any significant new findings that become available during the course of the study, such as changes in the risks or benefits resulting from participating in the research or new alternatives to participation that might change your mind about participating.

Can I stop being in the study once I begin?

Your participation in this study is completely voluntary. You have the right to choose not to participate or to withdraw your participation at any point in this study without affecting your future health care or other services to which you are entitled.

A subject who does not speak English or Melanesian Pidgin well enough to answer interview questions or who is not considered an adult by Melanesian custom will be withdrawn from the study.

Whom can I call with questions or complaints about this study?

If you have any questions, concerns or complaints at any time about the research study, Carol Bett or her associates will be glad to answer them at 316-978-5711; or you may email Carol at CBett@salud.unm.edu or locally care of Community Based Health Care P.O. Box 456 Mt. Hagen, WHP Papua New Guinea Phone: 675-546-2208. If you would like to speak with someone other than the research team, you may call the UNMHSC HRRC at (505) 272-1129 or by mail to 1 University of New Mexico, Albuquerque, NM 87131-0001 USA.

Whom can I call with questions about my rights as a research participant?

If you have questions regarding your rights as a research participant, you may call Carol Bett at 316-978-5711, email: CBett@salud.unm.edu; or contact her locally care of Community Based Health Care P.O. Box 456 Mt. Hagen, WHP Papua New Guinea, Phone: 675-546-2208. If you would like to speak with someone other than the research team, you may call the UNMHSC HRRC at (505) 272-1129 or by mail at 1 University of New Mexico, Albuquerque, NM 87131-0001 USA. The HRRC is a group of people from UNM and the community who provide independent oversight of safety and ethical issues related to research involving human participants. For more information, you may also access the HRRC website at http://hsc.unm.edu/som/research/hrrc/.

CONSENT

You are making a decision whether to participate in this study. Your signature below indicates that you have read the information provided (or the information was read to you). By signing this consent form, you are not waiving any of your legal rights as a research participant.

I have had an opportunity to ask questions and all questions have been answered to my satisfaction. By signing this consent form, I agree to participate in this study. A copy of this consent form will be provided to you.

Name of Adult Subject (print)	Signature of Adult Subject	Date

INVESTIGATOR SIGNATURE

I have explained the research to the participant and answered all of his/her questions. I believe that he/she understands the information described in this consent form and freely consents to participate.

Carol J. Bett
Name of Investigator/ Research Team Member (type or print)

(Signature of Investigator/ Research Team Member)	Date

Appendix G

The University of New Mexico Health Sciences Center
Consent to Participate in Research (Melanesian Pidgin Version)

Influence of social capital on community-based health care in rural Papua New Guinea: An ethnographic study

03/5/2013

Tok i Go Pas

Mi laik askim yu long helpim mi long wanpela rises stadi mipela mekim. Dr. Jennifer Averill, PhD, RN em i bosmeri bilong dispela stadi na Carol J. Bett, PhDc, RN em i wok bung wantaim em. Tupela i wok long Koles bilong Nurs na wokim dispela stadi long pinisim skul wok Carol Bett i bin mekim long Universiti bilong Niu Meksiko. Dispela stadi i laik kisim save long helt bilip sampela manmeri bilong ples i holim na pasin bilong wokbung long viles. Mipela laik kisim save long wok CBHC i bin mekim long viles bilong yu; bilong wanem viles bilong yu i laik wokbung wantaim CBHC na painimaut wanem samting i bin senis long ples bilong yu bihain taim CBHC i bin kirapim wok.

Yu stap long wanpela viles i bin wokbung wantaim CBHC, na mipela ting yu gat planti save long wok CBHC i bin mekim long ples bilong yu. Mipela painim 25 manmeri i stap long sampela viles long bus long helpim mipela long dispela stadi. Dispela pepa i gat tok long ol samting mipela mekim long dispela stadi na ol samting i gutpela o nogut inap kamap. Bipo yu tok orait long helpim mipela long dispela stadi, em i orait sapos yu laik toktok long femili o wantok bilong yu. Sapos yu gat sampela moa askim long dispela stadi yu inap askim mi.

Wanem samting bai i kamap sapos mi tok orait long helpim yu long dispela stadi?

Sapos yu tok orait, dispela samting bai i kamap: Bai mi sindaun wantaim yu na askim sampela kwestin o bai mi askim yu long bung wantaim arapela manmeri na askim sampela kwestin long yupela olgeta wantaim. Mipela laik kisim save long sampela pasin bilong ples: sapos ol i sindaun gut na wok bung o nogat. Mipela laik kisim save long

tingting yu gat long helt na as bilong sik. Mipela laik kisim save tu long wok CBHC i bin mekim long ples bilong yu. Sapos yu tok orait, mi laik yusim tep rekoda long mi inap raitim ol tok bilong yu strait. Mi laik kisim piksa tu sapos yu tok orait; bihain bai mi laik soim piksa long taim mipela mekim tok long konferens.

Hamas taim yumi sindaun na toktok?

Bai mipela sindaun na toktok wanpela o tupela hau.

Wanem hevi inap kamap sampela taim long stadi?

Sampela taim manmeri i gat wari o kirap nogut long taim em i sindaun na tokaut long arapela man o meri long hevi bilong ples. Sampela i prait arapela manmeri bai i harim tok bilong em. Bai mi askim yu long wanem kain hevi i stap long ples. Mi no inap tokim arapela long tok yu bin mekim long mi o long nem bilong yu. Sapos yu les o prait long bekim ansa long wanpela kwestin yu ken tok maski na pinisim tok. Sapos yu laik kisim save moa long stadi yu inap askim wanpela wokmanmeri bilong dispela stadi.

Wanem gutpela samting inap kamap long dispela stadi?

Sapos yu tok orait long bekim ansa long ol kwestin mi askim yu, dispela save mi kisim inap helpim wok bilong CBHC na helpim arapela manmeri bilong arapela viles tu. Dispela stadi bai i helpim CBHC skelim wok bilong ol na stretim samting sapos i kranki.

Bai mi mekim wanem sapos mi les long toktok long wokmanmeri?

Sapos yu no laik toktok long wokmanmeri bilong dispela rises stadi o bung wantaim arapela manmeri na bekim ansa long sampela kwestin em i orait. Yu inap tok nogat na dispela i no inap bagarapim wok CBHC bai mekim long viles bilong yu.

Bai yupela mekim wanem long haitim tok bilong mi?

Mipela bai mekim wok long haitim nem bilong yu na tok yu bin mekim, tasol sampela taim mipela no inap haitim olgeta tok bilong yu.

Wok manmeri bilong dispela rises stadi tasol bai i yusim i tok bilong yu. Univesiti bilong Niu Meksiko Health Science Center (UNMHSC) Human Research Review Committee (HRRC) i lukautim dispela kain stadi na ol tu inap luksave long tok bilong yu. Sampela taim gavmen lo i gat tok long samting bilong stadim manmani, tasol mipela no inap tokaut long nem bilong yu. Bai mipela holim dispela konsent pepa wantaim ol arapela pepa bilong dispela stadi.

Bai mipela pasim ol konsent fom na pepa i gat nem bilong yu long en long wanpela boxis i gat lok long opis bilong Dokta Averill long 18-pela mun. Mipela yusim tep rekoda na bihaim raitim dispela tok long wanpela pepa, tasol mipela no inap putim nem bilong yu o long viles bilong yu long dispela. Ol wokmanmeri bilong stadi tasol inap harim tok yu bin mekim long tep rekoda, bihaim mipela raitim tok bilong yu long pepa bai mipela rausim dispela tok i stap long tep rekoda. Bihaim taim mipela pinisim wok bilong dispela stadi (i go inap long 18 mun) bai mipela kukim olgeta pepa i gat nem bilong yu long en.

Mipela haitim tok bilong yu na mipela no inap tokim arapela manmeri i no wokman bilong mipela long tok yu bin mekim. Bai mipela putim olgeta tep, piksa, na pepa i gat tok yu bin mekim long en long wanpela ples i gat lok na arapela i no inap luksave long em.

Prais bilong dispela stadi?

Mipela no askim yu long mani samting sapos yu tok orait long helpim mipela long dispela stadi.

Wanem samting bai i kamap sapos mi bagarap long dispela stadi?

Universiti bilong Niu Meksiko i no inap givim yu nating helt sevis o mani sapos yu bagarap long dispela stadi. Sapos yu kisim bagarap o sik long wok dispela stadi i mekim, UNMHSC inap helpim yu, tasol yu yet mas baim fe bilong haus sik.

Sapos yu kisim bagarap o sik long dispela stadi yu mas tok save long mipela kwik taim. Sapos yu kisim bagarap o sik long wok yu bin mekim long dispela stadi, yu yet mas baim fe bilong haus sik o kisim mani long haus sik long insurans kompani bilong yu yet.

Sapos yu gat askim long dispela o tingim wokmanmeri bilong dispela stadi i no bin mekim gutpela pasin long yu, yu inap tok save long Human Research Review Committee (HRRC) long University of New Mexico Health Sciences Center, Albuquerque, New Mexico 87131, USA (505) 272-1129.

Bai mi kisim pe long dispela stadi?

Yu no kisim pe long dispela stadi tasol yu bai kisim liklik presens long tok tenkyu long dispela helpim yu bin mekim long rises stadi.

Sapos nupela samting i kamap long dispela stadi husat bai tokim mi na bai mi mekim wanem sapos mi senisim tingting bilong mi long helpim yupela long dispela stadi?

Mipela bai toktok long yu sapos wanpela samting i senis long dispela stadi; olsem sapos mi tingim samting i gutpela o samting nogut bai i kamap o arapela samting inap senisim tingting bilong yu long helpim mipela long dispela stadi bai mipela tokim yu.

Sapos mi no laik bekim ansa moa long dispela stadi bihaim taim mipela statim stadi, em i orait o nogat?

Yu yet inap tok maski na pinisim tok sapos yu laik. Sapos yu no laik bekim ansa bilong mipela yu inap tok olsem o sapos yu les long bekim ansa moa namel long stadi, dispela tu em i orait na dispela i no bagarapim helt sevis bilong yu o long narapela samting bai i kamap long viles long helpim yu.

Sapos yu no save long Tok Englis o long Tok Pisin, bai mipela no inap askim yu long helpim mipela long dispela stadi. Sapos yu pikinini yet, mipela no inap askim yu sampela kwestin long dispela stadi.

Husat mi inap askim sampela kwestin long dispela stadi o givim tok save long em sapos mi gat hevi?

Sapos yu gat sampela askim, tok save, o hevi long dispela resis stadi yu inap ringim Carol Bett o wanwok bilong em long 316-978-5711; email: CBett@salud.unm.edu o long Community Based Health Care (CBHC) P.O. Box 456 Mt. Hagen, WHP Papua New Guinea Phone: 675-546-2208. Sapos yu laik toktok long arapela manmeri i no wok long dispela resis stadi yu inap ringim UNMHSC HRRC long (505) 272-1129 o salim pas i go long 1 University of New Mexico, Albuquerque, NM 87131-0001 USA.

Sapos mi gat sampela kwestin long pasin ol wokmanmeri bilong rises stadi i bin mekim long mi, bai mi askim husat?

Sapos yu gat sampela kwestin long pasin bilong lukautim ol manmeri i bekim ansa long ol kwestin bilong dispela stadi yu ken ringim Carol Bett long 316-978-5711, email: CBett@salud.unm.edu; o salim pas long Community Based Health Care P.O. Box 456 Mt. Hagen, WHP Papua New Guinea, Phone: 675-546-2208. Sapos yu laik tok long arapela manmeri i no wok long dispela resis stadi yu inap ringim UNMHSC HRRC long (505) 272-1129 o salim pas long 1 University of New Mexico, Albuquerque, NM 87131-0001 USA. Human Research Review Committee (HRRC): manmeri i wok long UNM na long komuniti i stiaim pasin bilong stadi i luksave long manmeri na lukautim ol. Sapos yu laik kisim save moa long HRRC yu ken luksave long http://hsc.unm.edu/som/research/hrrc/.

KONSEN (TOK ORAIT)

Yu tok orait long helpim mipela long dispela rises stadi. Mak bilong yu i tok yu bin ritim toksave i stap long dispela pepa (o arapela i bin ritim samting long dispela pepa long yu). Em i laik bilong yu yet sapos yu laik helpim mipela long dispela stadi o nogat. Mak bilong yu i tokaut yu bin ritim ol toksave i stap long pepa, nay yu tok orait long wok wantaim mipela long dispela stadi. Ol samting i stap insait long lo i wok yet long helpim yu na sapos yu putim mak bilong yu long dispela pepa i no inap rausim wok bilong lo.

Mi inap askim kwestin na wokmanmeri bilong dispela stadi i bin bekim ansa long mi. Mi tok orait long helpim ol long dispela stadi long taim mi putim mak bilong mi long dispela konsen pepa. Yu bai kisim wanpela pepa olsem dispela konsen fom.

_____ _____ _____

Nem bilong bikpela manmeri(print) Signature Det

INVESTIGATOR SIGNATURE

I have explained the research to the participant and answered all of his/her questions. I believe that he/she understands the information described in this consent form and freely consents to participate.

Carol J. Bett

Name of Investigator/ Research Team Member (type or print)

_____ _____

(Signature of Investigator/ Research Team Member) Date

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