BARRIERS PREVENTING ACCESS TO HEALTH CARE SERVICES
FOR WOMEN IN RURAL SAMOA

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This study investigates and identifies the barriers preventing access to public health care services for women living in rural villages of Samoa. One hundred one women ages 20 years and older participated in personal interviews. The interviews probed the women’s use of traditional medicine, their sociocultural status, their perception of the quality of services, and the affordability and availability of health care services. The results indicate that a limited knowledge of available services, the utilization of traditional medicine, the high cost of prescription drugs, and younger age are barriers to the use of public health care services. The findings also reveal that older age, a high fertility rate, and a low education level contribute to a greater number of illnesses. Implications for improving the infrastructure of the public health care system and increasing communication between traditional healers and the public health care system are discussed.
DEDICATION

This thesis is dedicated to my extremely supportive, loving, and generous parents, Gerald and Lynn Miller, who have inspired me to realize all my goals.
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ABBREVIATIONS

AIDS: Acquired Immune Deficiency Syndrome
GDP: Gross Domestic Product
GOS: Government of Samoa
HIV: Human Immunodeficiency Virus

p: Probability
r: Pearson correlation
SD: Standard deviation

SPSS: Statistical Package for the Social Sciences
STDs: Sexually transmitted diseases
TBA: Traditional Birth Attendant
UN: United Nations

UNDP: United Nations Development Program
UNFPA: United Nations Population Fund
USAID: The United States Agency for International Development
USCIA: United States Central Intelligence Agency

WHO: World Health Organization
CHAPTER 1
INTRODUCTION

High maternal mortality rates, high fertility rates, inadequate access to contraception and the increase in the incidence of sexually transmitted diseases, obesity, and diabetes are major health concerns for women in developing countries. Since women’s traditional role is the family caregiver, they are chiefly responsible for the health of their children, husband, and other family members. Women’s health is important for developing nations since it has implications for contributing to the development and quality of life of all.

Samoan women also suffer from poor health conditions. The maternal mortality rate in Samoa\(^1\) is 130 maternal deaths per 100,000 births (UNDP, 2004). In contrast, the maternal mortality rate in the United States is only 8 maternal deaths per 100,000 births (UNDP, 2004). The low contraceptive prevalence rate of 38.5% in Samoa contributes to the high maternal mortality and the high fertility rate of 4.1 children per woman of childbearing age. Samoa’s fertility rate is the highest in the South Pacific region and more than twice the fertility rate in the United States (UNDP, 2004).

Sexually transmitted diseases are also a major health issue for women in Samoa. A study conducted with 472 female participants in the capital, Apia, found one STD in 42.8% of the participants (Sullivan, Koro, Tabrizi, Kaldor, Poumerol, Chen, et. al., 2004). Further, obesity and diabetes negatively affect Samoan women’s health due to modernization and limited physical activity. Eighty percent of Samoans are obese, with a

\(^{1}\) The country of Samoa was formerly known as the Independent States of Western Samoa to differentiate itself from the United States territory of American Samoa. In 1997, the term “Western” was officially dropped from its name. This study will refer to the Independent States of Samoa as Samoa.
greater prevalence in rural areas (Caterson, 2001; Collins, Dowse, Toelupe, Imo, Aloaina, Spark, et. al., 1994).

The susceptibility of women in Samoa and other developing countries to these poor health conditions is a direct result of poverty, inferior sociocultural status, and limited access to health care services. Poverty contributes to poor health through economic dependence, poor nutrition, substandard housing, and inadequate access to sanitation and safe drinking water (Buor, 2004; Wyss, 2003; Williams, Sobieszczyk, & Perez, 2000; Gijsbers Van Wijk, Van Vliet, & Kolk, 1996; Gellert, 1995). Without income, women are unable to obtain nutritious foods and adequate housing that protect and improve their overall health (Buor, 2004). The lack of potable water and proper sanitation facilities also contributes to the rapid spread of infectious diseases.

This study contends that women’s health problems in developing countries are curable and preventable through adequate access to health care services. However, limited access to health care services is an obstacle preventing the achievement of a healthy female population. Ease of availability, traditional medicine use, the perception of quality, affordability, and sociocultural factors all block access to care. These potential barriers will be investigated in rural Samoa to determine if they prevent Samoan women from accessing health care services.

**Research Questions and Hypotheses**

Previous research has not adequately addressed the barriers to public health care services for women in the country of Samoa, particularly rural women. This study seeks to uncover any barriers preventing adequate access to health care services. This study also aims to establish a link between sociocultural factors and illnesses. This research
articulates the views of Samoan women by enabling them to talk about their health status and the barriers preventing their access to health care services. It fills a gap in literature relating to public health in Samoa since the limited number of previous research studies focused on the major health issues affecting both men and women in the capital city, Apia, while village level explanations have been largely ignored. This study answers the following research questions:

1. What factors prevent rural Samoan women’s access to health care services?
2. What sociocultural factors are related to illness among rural Samoan women?

This study is guided by two hypotheses. First, wait time, traditional medicine use, and affordability constraints are the main barriers preventing access to health care services. Second, age, fertility rate, and marital status are the main factors contributing to a greater number of illnesses among Samoan women.

Synopsis

Chapter Two reviews the available published literature on women’s health in developing countries, exploring major health concerns, negative influences on women’s health, their level of access to health care services, and the factors preventing access to health care services. Chapter Three describes Samoa, its public health care system, traditional medical practices, and women’s socioeconomic, cultural, and overall health status. Chapter Four describes the research methodology, outlines the quantitative and qualitative approaches, and details the rationale for selecting the village of study. Chapter Five presents the results from the data analysis. Analysis, conclusions, and recommendations for future practice and research are explored in Chapter Six.
CHAPTER 2
LITERATURE REVIEW

This literature review examines the general literature on women’s health in developing countries, and explains the leading determinants and causes of poor health and the factors that prevent women’s access to health care services. A focus on poverty and limited access to health care services as the leading causes of women’s poor health conditions is center stage.

Women’s Health

Life expectancy is one of the most common statistics used to gauge the health of a population. It appears women globally are healthier than men since women have higher life expectancies in most developing countries (World Bank Group, 2004). However, life expectancy does not take into account the difference in health status and needs between men and women such as women’s reproductive abilities, menstruation, and breastfeeding. This difference is often neglected as women’s health is defined in male terms creating a system that is unable to respond appropriately to women’s needs (Puentes-Markides, 1992). As a result, even though women’s health needs are greater than men’s needs, women may utilize health care services less if they cannot access these services or if the services do not adequately treat their illnesses.

Women’s health status has implications for a country’s development and quality of life. Women’s health is important in developing countries since their traditional role as family caregiver makes them chiefly responsible for the health of their children, husband, and other family members in the home. In Samoa, women report feeling
responsible for the health of their entire family through their health care decisions and the foods they serve (Ishida, Toomata-Mayer, & Braginsky, 2000).

An obstacle in determining women’s health status in developing countries is the lack of health studies focusing on women (Sitthi-amron & Somrongthong, 2000; Berg, 1998; Zaidi, 1996; Puentes-Markides, 1992). Problems such as reproductive tract infections, breast cancer, and cervical cancer are only now being examined (Sen, George, & Ostlin, 2002). This dearth has been blamed on developing countries lack of research capacity. Berg (1999) recommends the use of researchers fluent in local dialects in order to conduct successful research. An increase in women’s health studies can help developing nations address problems and implement policies to improve health as good health and well-being is positively correlated with a socially and economically productive life. Currently, high maternal mortality rates, high fertility rates, inadequate access to contraceptive methods, and the spread of sexually transmitted diseases, obesity, and diabetes are major health threats to women in developing nations.

*Maternal Mortality*

Women of childbearing age, 15 to 44 years, are at risk for mortality during pregnancy and childbirth. Complications associated with pregnancy and childbirth are among the top causes of death for women in developing countries and the leading cause of death for young women ages 15 to 19 years. In developing nations, the average maternal mortality rate is 480 deaths per 100,000 live births (UNDP, 2004). In deep contrast, maternal mortality in the United States is only eight deaths per 100,000 live births (UNDP, 2004). Graph 2-1 compares the maternal mortality rates of the United States, Samoa, the world’s least developed countries, and Sub-Saharan Africa. The graph
portrays a major discrepancy between the rates in developed and developing countries (World Bank Group, 2004).

**Graph 2-1: Maternal Mortality Rates**

![Maternal Mortality Rates Graph](image)

*Source: World Bank Group, World Development Indicator Database, 2004*

Leading causes of maternal mortality are prepartum and postpartum hemorrhage, eclampsia, and sepsis. Lack of access to or low use of prenatal and postnatal services often contribute to high maternal mortality rates and other pregnancy complications. Also, lack of access to antibiotics, blood transfusions, and aseptic conditions contribute to high maternal mortality. Often these complications arise when women give birth with the help of untrained traditional birth attendants such as village midwives. In developing nations, 45% of women give birth with untrained traditional birth attendants and are unable to prevent or treat potentially fatal complications (UNDP, 2004).

Lower maternal mortality is also associated with fewer pregnancies, thus maternal mortality can be lowered with the increased use of contraception. Women who are able
to delay their first pregnancy, lower their fertility rate, increase the time between births, protect themselves from sexually transmitted diseases (STDs), and prevent late life pregnancy reduce their lifetime risk of maternal mortality. The use of contraceptive devices also helps to reduce unwanted pregnancies that may end in abortion since safe abortions are seldom available to women in developing nations.

Another benefit of using contraception is healthier children. Children born less than two years after their closest sibling are twice as likely to die in their first year of life than children born more than two years after their closest sibling. Narrowly spaced pregnancies are also more likely to result in low-birth weight babies. Women who are unable to space their pregnancies can also have difficulty breastfeeding. Prolonged breastfeeding, particularly in developing countries where potable water may not be accessible, plays an important role in child morbidity and mortality by reducing the incidence of diarrheal and infectious diseases. Breastfeeding provides children with increased immunological and nutritional benefits (Wolf, 2003).

Women who utilize contraception have more control over their fertility and health and this generates educational and economic opportunities that a woman might lose if she has many children to care for at home. With fewer children, a woman may have the chance to seek employment and raise their families' standards of living. A reduction in the number of children in developing countries also reduces the burden on food supply, natural resources, and social services.

_Fertility Rates and Access to Contraceptive Methods_

A high fertility rate contributes to women’s overall poor health in addition to maternal mortality. The current fertility rate of 5.1 children per woman of childbearing
age in developing countries is much larger than the 1.7 children per woman of childbearing age in developed nations (UNDP, 2004). Graph 2-2 illustrates the fertility rates of the United States, Samoa, least developed countries, and Sub-Saharan Africa (World Bank Group, 2004). Without the burden of overpopulation, developing countries can have greater educational and health resources to offer their inhabitants. Limited resources such as potable water, housing facilities, and employment will also be more abundant.

**Graph 2-2: Fertility Rates**

![Graph 2-2: Fertility Rates](image)

*Source: World Bank Group, World Development Indicator Database, 2004*

However, decreasing the fertility rate in developing countries is difficult because birth control methods are largely unavailable and little utilized by women. The United States Agency for International Development (USAID) estimates that 23% of married women of reproductive age have an unmet need for contraceptive methods in developing nations (2001). Barriers to using contraception include lack of accessibility, lack of
availability, lack of education about birth control, and cultural and religious practices preventing use.

Factors contributing to inaccessibility to birth control include cost and the distance a woman travels to obtain it. The cost of an annual supply of contraceptive pills or a yearly supply of condoms is an estimated US$100 or more in numerous developing countries (Bulatao, 1998). Without personal income, women customarily lack the funds to pay for birth control or transportation to a clinic. If birth control is unaffordable, women will not utilize it. Although a number of women may be able to afford a small payment for contraceptives in more advanced developing nations, in general, developing countries cannot afford the burden of import duties, advertising, or distribution.

Women living in urban areas of developing nations are more likely to have increased access to contraceptive methods than women in rural areas. Major hospitals are often located in large cities and offer an assortment of preventive services including family planning. Consequently, women living in rural areas are at a greater disadvantage.

Often assorted options for contraception are simply not available to women. Thus, women may not have a choice in deciding which method is most appropriate for their needs. While one method may have negative side effects, another method may be perfectly suited for a woman. The inability to choose may be due to government laws restricting the availability of a certain method and limited funding for family planning services by international aid organizations.

International aid organizations are particularly important sources of contraceptive supplies and funding. The largest supplier of population control assistance through the provision of contraceptive devices is the United Nations Population Fund (UNFPA). The
United States is one of its primary donors. Since 2002, the Bush administration has withheld the US$34 million allocated by Congress for the UNFPA (Farkas, 2002). The Bush administration withdrew this money to ensure that China received no assistance and monetary aid for its alleged coercive abortion and involuntary sterilization program. The United Nations estimates that each US$1 million decrease in birth control funding results in 360,000 unintended pregnancies worldwide (Krisberg, 2002).

Another barrier to the use of birth control is lack of education and knowledge about contraceptive methods. Inadequate knowledge of contraception may lead to fear of health complications that do not result from contraceptive use. Educational programs about the availability and assortment of contraceptive methods and their proper use and side effects are seldom available to women. The lack of promotion via radio, newspaper, and television about birth control also prevents women from gaining valuable knowledge.

Religion and culture can also create barriers for developing countries wishing to acquire funding for contraceptive methods. Certain religious beliefs may prevent a woman from deciding to incorporate birth control into their daily lives or their husbands’ opinions may dissuade her from using birth control. Men’s desires to have more children, men’s distrust of modern contraception, or the inconvenience of contraception are extra hurdles. Predominantly Catholic or Muslim countries have consistently condemned contraceptive use and women in these countries continue to be heavily influenced by their religion and culture. Some women are even sequestered and forbidden to use family planning services (Murphy, 2004). Women lack the right to openly embrace contraception and may frequently feel embarrassed to ask questions about birth control or
are afraid to use contraceptives due to punishment from their husband or family. Women who do not use contraceptives, particularly condoms, are at high risk for STDs.

**Sexually Transmitted Diseases**

Sexually transmitted diseases, particularly HIV and AIDS, are increasingly contributing to poor women’s ill health in developing nations. AIDS is the leading cause of death in Africa and the fourth leading cause globally. In 2001, there were five million people newly infected with the disease (UN Program on HIV/AIDS, 2002). Half of all people infected with the HIV virus are women. Women infected with HIV may be unable to provide care when ill to their family and they can pass on the disease to their children while giving birth and breastfeeding. Higher rates of sexually transmitted diseases such as syphilis, trichomoniasis, gonorrhea, and chlamydia also contribute to the transmission and spread of HIV and higher maternal mortality rates (Cohen, 1998; Wasserheit, 1989).

The WHO (2000) estimates a prevalence rate of 13% for Chlamydia and 11% for syphilis among sexually active individuals in the South Pacific region. In Samoa, testing is often not as routine or available as in other developing nations. A study conducted with 472 female participants in the capital, Apia, found one STD in 42.8% of the participants, while 11% of the participants had multiple infections. Chlamydia and trichomoniasis were the most prevalent with 29.7% and 20.8% prevalence rates, respectively (Sullivan, Koro, Tabrizi, Kaldor, Poumerol, Chen, et al., 2004). Half of all the teenage participants had one STD. Almost 21% of women between their teenage years and 38 years of age had one STD. There was no association between the village of residence and the type of infection. Even though STD rates are relatively high, there
have only been ten reported cases of HIV and six deaths from AIDS in Samoa since surveillance began in 1993, as low HIV/AIDS prevalence rates are characteristic of the South Pacific region (Sullivan, et. al., 2004).

**Obesity and Diabetes**

The rising prevalence of diabetes in developing countries, due in part to urbanization, obesity, and limited physical activity, is expected to double between 2000 and 2030 in urban areas (WHO, 2004). The WHO (2004) points out that those most affected by diabetes in developing nations are between the ages of 35 and 64, while those most infected in developed nations are above 60. Of those infected globally, more women than men are reported to have diabetes. In Samoa, the prevalence of non-insulin dependent diabetes has increased since 1978. Graph 2-3 compares the increasing prevalence of non-insulin dependent diabetes across age groups for female participants in the three Samoan villages of Apia, Tuasivi, and Poutasi.

**Graph 2-3: Female Non-Insulin Diabetes Prevalence Rate in Samoa**

![Graph showing female non-insulin diabetes prevalence rate in Samoa across age groups from 1978 to 1991.](source)

*Source: Collins, Dowse, Toelupe, Imo, Aloaina, Spark, et. al., 1994*
In Apia, the Samoan capital, the incidence of diabetes increased from 8.2% to 13.4% and in Tuasivi, a rural village, the rate increased from 4.4% to 7.5% in women (Collins, et. al., 1994). Overall obesity prevalence rates increased among the participants from 26.8% to 46.6% among men and 46.6% to 65.3% among women between 1978 and 1991 in the same three villages (Collins, et. al., 1994). Notably, the rate increased more in rural areas than urban areas. As obesity is strongly related to diabetes, the Human Nutrition Unit in Australia is concerned because 80% of Samoans are now obese due to their high intake of carbohydrates and fats from their traditional food which includes taro, breadfruit, coconut cream, and fatty meat (Caterson, 2001).

**Influences on Women’s Health**

All of the above major health issues for women in developing countries are caused or worsened by poverty and sociocultural factors. Poverty is defined as “the denial of opportunities and choices most basic to human development” (UNDP, 2004). Poverty contributes to poor health through economic dependence, poor nutrition, substandard housing, and inadequate access to sanitation and safe drinking water. The low sociocultural status of women can also negatively influence women’s health in developing countries since a major barrier to improved health is the unequal status between men and women. Health policies, created by male policy makers, often fail to consider gender (Zaidi, 1996). Lower education levels, age, and marital status also contribute to women’s poor health conditions.

**Poverty**

Female employment encourages economic independence and offers women an opportunity to contribute to family income. However, women in developing countries
are often expected to remain at home to perform household duties. The proportion of
groups in the workforce is low compared to developed countries. In the United States,
57.5% of women over the age of 16 actively participate in the workforce (United States
Census Bureau, 2004). In Algeria, women make up only 36% of the workforce (UNDP,
2004). Even when income is available, women may not have a voice in how the money
is used. Without income, women are unable to obtain nutritious foods and adequate
housing to protect and improve their health (Buor, 2004).

Poor nutrition is a particular problem, especially during pregnancy as it can
weaken a woman’s future reproductive abilities and both increase maternal mortality and
infant morbidity. A poor diet can also negatively affect breast milk quantity.
Breastfeeding helps reduce the risk of postpartum hemorrhage and provides natural
spacing between births. For infants, breast milk provides protection against disease and a
stronger bond between mother and baby while reducing the risk of breast cancer. Since
lactation suppresses ovulation, breastfeeding also helps to decrease fertility rates.
Fertility would increase by 50% if the higher breastfeeding rates of developing countries
lowered to the level of developed countries (Ostlin, et. al., 2004). In developing
countries, prolonged breastfeeding is often women’s only means to control their fertility,
given limited access to birth control.

Sub-standard housing is another consequence of poverty. Without proper shelter,
women’s health can deteriorate due to environmental conditions and contaminants. Rural
populations also often lack potable water and sanitation facilities that can effectively
prevent contact with human and animal excreta, a major cause of infectious diseases.
Improved facilities should range from simple but protected pit latrines to flush toilets. To
be effective, facilities must be correctly constructed and properly maintained. In the least developed countries, only 55% of rural populations have access to a potable water source and only 25% have access to improved sanitation facilities (World Bank Group, 2004). Health risks for women are associated with water that has been contaminated with human and animal excreta since women usually are responsible for cooking, washing clothes, and carrying water (Buor, 2004).

Sociocultural Factors

The health of women in developing countries is also challenged by sociocultural factors such as low education levels, age, and marital status. Having at least a primary education contributes positively to the health of women by providing them with prospects for employment and income. However, young girls often do not attend school in developing countries or are more likely to stop schooling sooner than their male counterparts. Educated women are more likely to know about and use contraception which lowers their fertility rate and improves their health (Williams, Sobieszczyk, & Perez, 2000). In Ethiopia, female education allowed for a greater understanding of available health facility services and a rise in use of services (Kwast, Rochat, & Kidane-Maríam, 1986).

In India, only 48% of females and 62% of males are enrolled in primary, secondary, and tertiary level schools while only 46.4% of females and 69% of males over the age of 15 are literate (UNDP, 2004). A similar situation exists in Grenada where only 57% of females and 73% of males are enrolled in primary, secondary, and tertiary level schools (UNDP, 2004). In Samoa, 71% of females and 68% of males are enrolled in primary, secondary, and tertiary level schools and 98.4% of females and 98.9% of males
over the age of 15 years are literate (UNDP, 2004). Since there are high rates of female enrollment in primary schools, it is very possible that women’s health in Samoa is not affected by low female education enrollment rates. The discrepancies are much larger when considering only secondary and tertiary education. In Samoa, female enrollment is 65% in secondary education and only 6% in tertiary education (UNDP, 2004). In Papua New Guinea, a South Pacific country, female enrollment in secondary education is 20% and only 1% in tertiary education.

Age has the most obvious effect on women’s health since chronic illnesses are associated with aging. Age at marriage is also important as higher fertility rates are correlated with a younger age at marriage. Marriage can also limit educational and economic opportunities. Marriage creates a double burden on women who labor outside the home and cook, clean, and tend to children upon completion of the work day. A study in Argentina concluded that a woman’s work day is three to four times longer than a man’s (Feijoo & Jelin, 1989). A married woman may also spend more time caring for her husband and his health, neglecting her own well-being.

Access to Health Care

Many health problems are preventable and curable through improved access to health care services. The creation of an acceptable definition for access is difficult since it is influenced by many factors. Some researchers have defined access as the ability to use health care services. Others have argued that access is shaped by factors influencing the use of services. Gulzar (1999) defined it as the “fit among personal, sociocultural, economic, and system related factors that enable individuals, families, and communities, to have timely, needed, necessary, continuous, and satisfactory services” (p. 17).
Puentes-Markides (1992) argues it is difficult to identify all variables contributing to accessibility because many combined factors affect access including various health care providers (private or public), the type of health care system, and the demographic profile of health care seekers. System infrastructure affects access by accommodating or limiting use through hours of operation, the appointment system, walk-in facilities, and telephone services. Culture influences access through inherent inequalities in the social system. Gender also affects access, pushing women into gender specific roles that negatively influence their health or force them to seek permission to obtain health care.

Penchansky and Thomas (1981) define access to health care services as a combination of affordability, accommodation, accessibility, acceptability, and availability. Other researchers measure access via cultural beliefs, communication between patients and doctors, patient waiting time, and modes of transportation to and from facilities (Wyss, 2003; Gijsbers Van Wijk, Van Vliet, & Kolk, 1996; Gellert, 1995). Access in this study is defined as the ability to use health care services, particularly the number of times a woman visits a health care facility in a one year period. Access can be determined or prevented by availability, traditional medicine use, perception of quality, affordability, and sociocultural factors.

*Availability*

Availability refers to the distance a patient lives from a health care facility, transportation, total travel time, wait time, and available services (Hjortsberg & Mwikisa, 2002; Perry & Gesler, 2000; Stock, 1983; Allman, Blumhagen, & Brown, 1992). In Andean, Bolivia, where travel times are greater than one hour by walking, Perry and Gesler (2000) found limited physical access to care to be a major obstacle in improved
health. Limited access is especially important in rural areas where there are fewer health care facilities and villages may be physically isolated.

Stock (1983) showed that a travel distance greater than five kilometers in Nigeria prevented patients from seeking basic or preventive health care. The highest proportion of facility users are those located within a radius of five kilometers (Thaddeus & Maine, 1994). In Zambia, 56% of surveyed rural households perceived distance as an obstacle (Hjortsberg & Mwikisa, 2002). In the same study, only 17% of individuals living more than 40 kilometers from a facility sought care when sick compared to 50% of individuals living less than five kilometers from a facility.

Another barrier in rural areas is that travel time often takes longer per kilometer than in urban areas due to poor quality of roads and the burden of having to use several modes of transportation. Climate is also a factor, especially during the rainy season when heavy rains and flooding create even worse road conditions. Advanced transportation is often non-existent in developing nations and health care may be unattainable if the means of transportation are inadequate or time consuming such as walking, bicycling, or using the bus (Perry & Gesler, 2000). These longer travel times deter individuals from traveling particularly to access advanced technology that may only be available in large health facilities located in cities.

The organizational structure of a health care facility also plays a role in determining its level of availability. Penchansky and Thomas (1981) define availability as an adequate supply of services provided to patients in relation to their medical needs. They found that doctors provide services in different manners when the demand for services is greater than the supply. A decrease in services creates extreme demand on
individual doctors and leads to a reduction of preventive services. Women’s inadequate knowledge of the various types of services provided at a health care facility lowers the availability of services through simple lack of awareness (Penchansky & Thomas, 1981).

Organizational barriers such as long waiting times, lack of supplies, and shortages of doctors and nurses also diminish access to health care services (Allman, Blumhagen, & Brown, 1992). In Nigeria, a lack of obstetric services and supplies deterred women from giving birth at health facilities since they were personally responsible for providing supplies (Allman, et. al., 1992). In 1997, Taylor and Dower reported that women expressed such intense frustration with long waiting times that they left health care facilities before acquiring medical attention. Moreover, they felt guilty asking their doctor questions because of the many patients waiting to be seen. These sometimes overwhelming obstacles may also encourage women in developing countries to turn to traditional medical practices.

*Traditional Medicine*

The World Health Organization (2003) defines traditional medicine as “health practices, approaches, knowledge, and beliefs incorporating animal and mineral based medicines, spiritual therapies, manual techniques and exercise, singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being” (p. 1). Culture and society shape traditional medical beliefs and practices. Traditional medicine is often used when the economic, social, and cultural costs of using public health care services are perceived as too high. In Africa, up to 80% of the population utilizes traditional medicine for health care (WHO, 2003). In Ghana, Mali, Nigeria, and Zambia, 60% of children with malaria are treated with herbal medicines (WHO, 2003).
Traditional birth attendants are also considered a part of traditional medicine. Women are often more comfortable with traditional practices and the individuals performing these services, which in turn alleviates the stress of using unfamiliar western style medical services at health care facilities.

Scientific evidence for the efficacy and safety of traditional medicine is ambiguous. Also, the lack of coordination between traditional medicine and western medicine creates problems of competition, communication, and safety. Overdoses of some traditional medicines can have negative health effects. In China, the herb Ma Huan or Ephedra is traditionally used to treat upper respiratory infections, however, overdoses have caused heart attacks and strokes in the United States (WHO, 2003). In South Africa, the Medical Research Council is studying the efficacy of traditional medicines for treating AIDS patients. The gene sequence of Prostratin, a drug extracted from the bark of the mamala tree in Samoa is under investigation by the University of California, Berkley, to also determine its effectiveness in treating AIDS (Toronto Star, 2001). Further research is needed to assess the benefits and side effects of traditional medicine.

Affordability

The cost of health care services, prescription drugs, and transportation determine the affordability of health care. Hjortsberg and Mwikisa (2002) found cost to be a “critical determinant” (p.75) of health care access in Zambia. They argue that this is mostly a rural concern where a large percentage of the population lives in poverty and has difficulty paying for services. People residing in rural areas pay a larger proportion of their income than urban counterparts. Studies in Ghana, Swaziland, Zaire, and Uganda showed a decline in use of health care services as a result of the introduction of user fees.
In Tanzania, there was a 53.4% decline in the use of antenatal care while Nigeria reported a 56% rise in maternal mortality after the introduction of user fees (Bennett & Gilson, 2001; Haddad & Fournier, 1995; Yoder, 1989). In Zambia, several studies found that low income people have higher incidences of illnesses but use services less often (Hjortsberg & Mwikisa, 2002). Yoder (1989) shows that an increase in the cost of health care especially affects poorer patients who need to make return visits to a health care facility and those who deem their illness not serious enough to seek care.

As women in many developing countries are expected to conform to social and gender roles and remain at home to perform household work, they cannot develop economic independence. As a result, they may be unable to afford services, especially since essential goods such as food and education must be purchased before health care. Thus, their access to health care services is limited.

Quality

Measuring patient satisfaction offers insight into possible inadequacies in a system. The importance of understanding patients’ perceptions of the quality of care is important since a higher perceived quality is positively correlated with an individual’s level of utilization. The quality of facilities also influences the frequency of use of maternal health services (Thaddeus & Maine, 1990). Factors in the quality of care influencing an individual’s decision to seek health care include the perceived quality of the services including attitudes of personnel, the knowledge and abilities of staff, availability of supplies, and the level of satisfaction with the diagnosis and the effectiveness of the treatment provided.
Haddad, Fournier, and Potvin (1998) measured quality through patients’ satisfaction with the diagnosis of their illness and availability of prescription drugs during exit interviews as patients left facilities in Guinea. They concluded that the most common reason for seeking health care in developing nations is the acquisition of quality prescription drugs. Individuals who must travel great distances for health care also place great value on the quality of drugs and interactions with staff. In Guinea, a study by Haddad, Fournier, Machouf, and Yatara (1998) found that 78% of female participants stated the wide availability of drugs as the top reason for seeking care. In Fiji, a study reported that the availability of drugs and staff was the second most often mentioned reason for going to a facility (Attah & Plange, 1993). When patients are dissatisfied with the care and quality they receive, they may not return to a facility. Often this underutilization of health care services is blamed on ignorance or the reliance on traditional medical practices.

Ondimu (2000) disproved this assumption by finding that patient dissatisfaction in the Nana province in Kenya created a loss of community confidence in the local public health facility. This negatively affected the health of vulnerable groups such as the poor, children, and pregnant women. On the other hand, satisfied patients continue to seek medical attention and develop strong interpersonal relationships with their doctor resulting in improved health outcomes (Fournier, Machouf, Yatara, 1998). Descriptive words such as kindness, respect, and compassion are identified as important doctor traits to possess in Guinea (Haddad, Fournier, Machouf, Yatara, 1998). In Nigeria, a common complaint among women seeking obstetric care is the absence of doctors (Prevention of Maternal Mortality Network, 1992). In Samoa, a similar situation occurred when a
woman noted that the doctor was sleeping when she sought care at night. The night watchman was sent to wake the doctor, postponing her treatment and causing her great frustration (S. Mumu Sue, personal interview, July 6, 2005).

Sociocultural Factors

Sociocultural variables also affect access to health care services. The education level of a woman often affects her health care use (Buor, 2004; Hoffman, Pick, Cooper, & Myers, 1997; Zaidi, 1996). Attaining at least a primary education contributes positively to the health of women by providing women with skills training for employment and personal income, thus enabling women to afford health care services (Wickrama & Lorenz, 2002). Education level, employment, family income, and marital status shape women’s use of health care services.

Basu (1993) argues that women with employment opportunities have improved health over women who do not work since they are able to afford services when sick. Furthermore, income provides women with the ability to access improved nutrition and adequate housing, both of which protect and advance their health status (Buor, 2004). A woman’s marital status can also affect health. Women may spend more time caring for their husbands and families, which imposes a strain on their health. Women may also have to obtain consent from their husbands prior to seeking health care like women in Nigeria who cannot leave the family’s compound without their husband’s permission, even during an obstetric emergency (Prevention of Maternal Mortality Network, 1992).

Conclusion

The poor health of women in developing countries is caused by factors such as poverty and low sociocultural status. In order to improve their health, women need
adequate and improved access to health care services. However, access to health care services can be prevented by barriers such as availability, the perception of quality, traditional medicine use, affordability, and sociocultural factors. The next chapter presents a general picture of Samoan women, focusing on their health, sociocultural, and economic status. It also provides context for understanding the Samoan public health care system, traditional Samoan medical practices, and the services provided by these health care systems.
CHAPTER 3

SAMOA: COUNTRY BACKGROUND

This chapter examines the history, government and economy of Samoa, and structure of its health care system including a thorough description of the country’s national health care system and traditional medical beliefs and practices. The chapter also describes Samoan women’s sociocultural, economic, and health status. This chapter provides both background information about Samoa and a deeper understanding of the research village of Iva, Savai’i, described in Chapter Four. This chapter also offers a point of comparison for the data analysis presented in Chapter Five.

Samoa

Samoa is the largest and most populated of the Polynesian Island countries in the South Pacific. Although Samoa is comprised of eight islands; only four islands, Upolu, Savai’i, Manono, and Apolima, are inhabited. Samoa’s closest neighboring countries are American Samoa, Tonga, and the Cook Islands. (See Appendix A for a map of the South Pacific Ocean region.) Samoans make up nearly 93% of the population while the remaining 7% are people of mixed European and Samoan descent (Government of Samoa, 2001). The official language is Samoan and English is the official business language. The Samoan language is similar to other Polynesian languages such as Hawaiian, Tongan, and Tahitian. It belongs to the Austronesian family of languages and is most likely the earliest of all Polynesian languages.

History

The first contact of non-Samoans with the country was in the mid-1770s when European trading ships, sailing along the spice route, landed on the islands. Much of the
early encounters involved bloody battles between the Samoans and Europeans. Because they had no natural immunity, Samoans suffered from diseases that arrived with the European ships. In the early 19th century, Christian missionaries landed in Samoa to encourage a lifestyle of purity and wholesomeness (Davidson, 1967). The Samoans enthusiastically welcomed the missionaries since the Samoan war goddess, Nafanua, had predicted the coming of the white men or palagi with a new religion that would be more powerful and generous than the Samoan gods (See Appendix B for a Glossary of Samoan terms). The Samoans accepted Christian beliefs which remain an integral part of the culture today. Religions currently practiced by Samoans include Catholicism, Congregationalism, Methodist, Mormon, Baha’i, and Jehovah Witness.

By the late 19th century, the United States, Britain, and Germany all laid legal claims to the country. In order to resolve the ensuing dispute, these nations divided Samoa into two distinct countries. The Germans acquired Samoa and the Americans received American Samoa. Britain went home empty-handed. With Germans in power in Samoa, they forced the Samoans to disregard their local customs and follow the new foreign rule. In 1908, the Samoans formed the Mau a Pule Movement, to resist the German rule and establish independence for the country (Field, 1991). Although the Mau Movement dedicated itself to a peaceful resistance, the Germans killed 11 Movement members, including the leader, Malietoa Tanumafili, during a peaceful demonstration march in the capital (Field, 1991). After World War I began in 1914, Britain persuaded New Zealand to seize the country from the Germans (Davidson, 1967). The Germans openly welcomed the New Zealanders due to their inability to maintain control over the
Samoan population since most Samoans wanted independence. New Zealand maintained control over Samoa until World War II.

During World War II, the New Zealanders rule on Samoa relaxed and the islands became a United Nations Trust Territory. In 1961, the overwhelming majority of Samoans voted in favor of freedom from foreign rule and a proposal for independence was given to the United Nations (Field, 1991). Samoa gained independence from New Zealand in 1962 and earned the distinction of being the first independent sovereign state in the South Pacific.

Government

The current government structure of Samoa is similar to a British based parliamentary system which has been revamped to accommodate local Christian customs and principles. It consists of a Head of State, a Prime Minister, a Legislative Assembly (Fono), and a Cabinet. The Head of State is reserved for the country's traditional leader, the paramount chief, the highest chief in the country. He appoints the Prime Minister from the 49 member Legislative Assembly. Each village is governed by a smaller version of the Legislative Assembly. The universal suffrage age is 21 years. Non title holding Samoans, including women also earned the right to vote in 1990. The country is divided into 11 political divisions, 41 political districts, and 320 villages (See Map 3-1).

Demographics

The population of Samoa is 177,714 people (UNDP, 2004). Seventy six percent of Samoans reside on the island of Upolu, where Apia, the capital, is located (UNDP, 2004). Population growth is estimated at 0.9% annually (GOS, 2001). Table 3-1 highlights the distribution of the population by region and indicates that an overwhelming
Map 3-1: Samoa Political Divisions and Districts

*Source: Government of Samoa, 1996
majority of Samoans (78%) reside in rural areas. Males have outnumbered females during every census count in Samoa since the census count began in 1921. Similar to other developing nations, there is a possibility that females have been underrepresented through inaccurate counting in terms of numbers due to their inferior status in the culture.

<table>
<thead>
<tr>
<th>Region</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apia Area</td>
<td>18,999</td>
<td>19,837</td>
<td>38,836</td>
<td>22%</td>
</tr>
<tr>
<td>Northwest Upolu</td>
<td>25,191</td>
<td>27,523</td>
<td>52,714</td>
<td>30%</td>
</tr>
<tr>
<td>Rest of Upolu</td>
<td>20,090</td>
<td>22,384</td>
<td>42,474</td>
<td>24%</td>
</tr>
<tr>
<td>Savai'i</td>
<td>20,438</td>
<td>22,386</td>
<td>42,824</td>
<td>24%</td>
</tr>
<tr>
<td>Rural Areas</td>
<td>138,012</td>
<td>78%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Areas</td>
<td>38,636</td>
<td>22%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Government of Samoa, 2001*

Even though modernization has taken place as an effect of globalization, the traditional Samoan way of life or *fa'asāmoa* remains the guiding principle of the culture. The *ʻāiga* or extended family is the prominent unit in the *fa'asāmoa*. Every family is headed by a *matai*, or chief, (elected by its family members) who has authority over land, serves on the village council, and is responsible for its members, natural and adopted. Recently, there have been a growing number of female chiefs. There is roughly one chief for every nine Samoans or 56 chiefs per village.

**Economy**

Since the minimum legal wage for employees at private companies is only WST$2.50 (US$0.90) per hour, some Samoans travel overseas to Australia, the United
States, and New Zealand to search for employment and higher education. This exodus has resulted in a loss of skilled workers in Samoa. Remittances from overseas play an important role in the economy as the main source of income in Samoa. The balance of payments between imports and exports is almost made up for by the WST$160 million (US$57.6 million) of remittances from Samoans living overseas to their families, churches, or schools (Bank of Hawaii, 1997). Total remittances are almost three times what the country receives in foreign aid. The biggest remittance sources are the United States (39%) and New Zealand (31%) (Bank of Hawaii, 1997).

Forty eight percent of all Samoans live under the poverty line, with more than half of those living in poverty residing in Savai’i (World Bank, 2001). In 2001, the gross domestic product (GDP) per capita was US$1,530 (WST$551). In comparison, the GDP for the United States was US$32,514 (WST$93,750) (World Bank Group, 2004). The services sector including hotel and restaurants, trade and transport, government, professional, and personal services accounts for 63% of the GDP in Samoa. Industry and agricultural production account for 23% and 14%, respectively (U.S. CIA, 2004). Seventy five percent of Samoans rely on subsistent agricultural farming crops such as taro (talo), yams (ufi), breadfruit (‘ulu), coconuts (popo), and cocoa (koko). The main export product is coconut cream (pe’ep’e).

Although sixty four percent of the workforce participates in the agricultural sector, agricultural development has been unstable since 1990 as a result of two devastating

\[2\] The currency of Samoa is the Samoan talā or Samoan dollar, abbreviated as WST. The current exchange rate is WST$1 = US$.36 (Universal Currency Converter, 2005).
cyclones and the taro plant leaf blight (Bank of Hawaii, 1997). The South Pacific Ocean has a large potential for commercial fishing, yet this resource is largely untapped due to the lack of adequate fishing equipment. Almost three-fifths of the GDP comes from tourism revenue, which exposes the economy to fluctuations in the world tourist market. Tourism contributed over WST$12 (US$4.32 million) to the economy with more than 85,000 visitors traveling to Samoa in 1999 (GOS, 2001).

In 2001, the Government of Samoa spent 4.7% of its GDP on public health expenditures (UNDP, 2004). This total is comparable to other South Pacific countries such as Tonga’s GDP of 6% and Vanuatu’s GDP of 2%. Nevertheless, Samoa’s health expenditure is small compared to developed countries such as the United States, where health expenditure is 14% of the GDP (World Bank Group, 2004). For health care expenditures in Samoa, 63% come from public sources, 21% from private sources, and 16% from international donors. A majority (44%) of total health expenditures occur in the public health sector, 18% in the private, 19% in public and private pharmacies, and the remaining 19% in overseas treatments (WHO Regional Office for the Western Pacific, 2002). The Department of Health has recently increased awareness and emphasis on primary health care in order to reduce curative care costs. The Department of Health is a non-revenue making entity. However, due to a current lack of assets, the Department of Health states that availability of human personnel, services, and quality is endangered. By ensuring there is an adequate budget for the public health care system, there will be adequate services for the population.
Health Care

Private doctors, traditional Samoan healers, and public facilities headed and administered by the Department of Health provide health care services. The country’s national health care system is provided by the public health sector. The Department of Health provides primary, secondary, and limited tertiary care through a network of facilities. All Samoans are eligible to use public health care facilities for a nominal user fee. The principles of public health care include equity, sustainability, quality, and appropriateness of health services (GOS, 1996). Services and staff are distributed throughout the country’s public facilities based on demand. This paper focuses on the public health care and traditional medicine system because nearly all of the participants (99%) access services from these two systems.

Public health care includes one National Hospital, located in the capital, Apia, Upolu; one main referral hospital located in Tuasivi, Savai’i; three district hospitals; twelve health centers; and seventeen sub centers (See Map 3-2) (GOS, 1996). Of these 34 health facilities, 14 are located on Savai’i, the largest island. These facilities include one main referral hospital, one district hospital, five health centers, and seven sub centers. The Samoan public health care system provides health care services for anyone seeking care at public facilities. Private doctor fees are not covered by the public health care system. Private doctors offer services in their offices. There is one private doctor in Savai’i. The user fee at a private doctor’s office is WST$20 (US$7.20). Since the user fee at private doctor’s offices is quite expensive, mostly working Samoans utilize their services.
Map 3-2: Public Health Care Facility Locations

*Source: Government of Samoa, 1991
The National Hospital in Apia is the largest hospital and offers a greater number of services to its patients compared to other facilities in the country. Almost 35% of all Samoans utilize services at this hospital because of the large number of Samoans living in this urban area and because the hospital offers more services than any other hospital (GOS, 1996). The National Hospital offers maternal, child health, and family planning; immunizations; nutrition counseling; health education and promotion; environmental health and sanitation; tuberculosis, filariasis, and leprosy control; the prevention of STDs; surgical procedures; laboratory testing; pharmaceutical supplies; radiology and ultrasounds; and dental services.

The second largest hospital, Malietoa Tanumafili II is located in Tuasivi, Savai’i, and serves as a back up to the National Hospital. This facility does not offer the same types of services as the National Hospital. It does not offer nutrition counseling; health education and promotion; environmental health and sanitation; and ultrasounds. District hospitals offer even fewer services than the Tuasivi Hospital. Most health centers and sub-centers are underutilized due to a lack of staff and services. This places a great pressure on the National Hospital, Tuasivi Hospital, and three district hospitals.

All public health facilities are walk-in facilities open twenty-four hours a day, seven days a week. Facility user fees are WST$.50 (US$.19) for adults, WST$.30 (US$.11) for children, and free for individuals over the age of 60 years. The user fee pays for a walk-in appointment to consult with a doctor and any other services a patient

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3 Malietoa Tanumafili II Hospital was named Tuasivi Hospital, after its village location, prior to its renewal program in 1995. It is most commonly referred to as Tuasivi Hospital in Samoa. These two names will be used interchangeably in this study.
may need during their visit. In order for the Department of Health to defray the cost of other expenses, inpatients are responsible for providing bedding materials and food when checking into the hospital. All individuals over the age of 60 receive a government pension of WST$100 (US$60) a month.

Prescription drugs are also an extra expense and can be purchased at government pharmacies at the National or Tuasivi Hospital or through privately owned pharmacies located in the capital. The public health care system does not offer prescription drugs free of charge. However, free drug prescriptions for chronic illnesses are available through government pharmacies. The extra cost of prescription drugs begins at WST$5 (US$1.86) and can cost as much as WST$25 (US$9). The facility user fee is fairly affordable; however, the trip to a facility becomes expensive when bus fare and the cost of prescription drugs are added to the total cost. For complicated health treatments not available in Samoa, such as heart surgery, dialysis treatment, cardiac surgery, and ophthalmology procedures, patients are medically transported to Auckland, New Zealand, at the expense of the government.

The number of infectious diseases such as diarrhea, rheumatic fever, and typhoid fever has declined in Samoa and has been replaced by non-communicable diseases such as obesity and diabetes (GOS, 1996). Increasingly, non-communicable diseases are contributing to the high rates of mortality and morbidity in the country. Table 3-2 lists the five leading causes of morbidity and mortality in 2002. Polio, tetanus and diphtheria have been virtually eradicated in Samoa due to consistent high rates of immunizations. Non-communicable diseases are more often associated with developed nations and can be
attributed to modernization, a rise in sedentary lifestyles, consumption of high fat foods, and the use of alcohol and tobacco.

<table>
<thead>
<tr>
<th>Morbidity</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childbirth</td>
<td>Cerebrovascular disease (i.e. stroke)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>Septicaemia (disease causing bacteria)</td>
</tr>
<tr>
<td>1st Degree Perineal Laceration</td>
<td>Congestive heart failure</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Acute bronchitis</td>
<td>Heart attack</td>
</tr>
</tbody>
</table>

*Source: WHO Regional Office for the Western Pacific, 2002

The prevalence of diabetes among Samoans ages 44 to 60 years was 31% for men and 25% for women in 1995. Cancer was the fourth leading cause of death between 1999 and 2000 (WHO, 2002). Prevalence of smoking in 1995 was 56% in males ages 29 to 43 years, 60% in males ages 43 to 60 years, 27% in females ages 29 to 43 years, and 22% in females ages 43 to 60 years (WHO, 2002). There is not a national alcohol and drug control prevention program to address these health issues. An increase of high fat imported foods from New Zealand, Australia, and the United States has contributed to an increase in consumption of high fat foods and less reliance on subsistence farming.

Dengue Fever and filariasis still remain major health concerns with Dengue fever endemics occurring every few years. Dengue Fever is an infectious disease carried and transmitted by mosquitoes. It is referred to as the break-bone fever since it causes severe
Joint and muscle pain. Filariasis, also known as elephantitis, is a disease of tropical regions. It is transmitted by mosquitoes and is caused by round, thread-like parasitic worms which can cause severe damage to the lymphatic system if untreated. In 1996, there were 376 reported cases of Dengue Fever (GOS, 1996). In 2002, there was a filariasis prevalence rate of 1.6% of the population (WHO, 2002).

Since 1992, the number of outpatient and inpatient admissions at rural facilities has declined. The Government of Samoa reports that more than 50% of all Savai’i facilities were significantly underutilized in 1996. Government officials have been unable to identify reasons for this. However, as the rural facilities are often understaffed with inadequate services, it appears Samoans are not seeking treatment when ill or traveling to seek health care services at the larger hospitals.

Health care facility admissions due to complications of pregnancy, childbirth, and newborn health issues made up over 50% of inpatient admissions and have increased since the last investigation of inpatient admissions in 1993. Table 3-3 lists complications due to pregnancy and childbirth as the top reasons for inpatient admissions in 1993 and 1996. This corresponds with the high maternal mortality rate of 130 deaths and the high infant mortality rate of 2,000 deaths per 100,000 births (UNDP, 2004). In comparison, the maternal and infant mortality rates in the United States are 8 maternal deaths and 700 infant deaths per 100,000 live births, respectively (UNDP, 2004). Typical of developing countries, diseases related to infectious and parasitic diseases are also among the top reasons for inpatient admissions.
The top five causes of inpatient death in 1996 were diseases of the circulatory system (23.7%), newborn complications (16.3%), diseases of the respiratory system (11%), infections and parasitic diseases (7.3%), and endocrine, nutritional, and metabolic diseases (7.3%) (GOS, 1996). Although diseases of the circulatory system were the top cause of inpatient death, it was not one of the leading reasons for inpatient admissions. This suggests that public facilities do not have adequate preventive services to identify or treat these types of illnesses. The number of personnel and services available to treat outpatient and inpatient admissions vary by facility.

Public Health Personnel and Services

There are 34 doctors for every 100,000 Samoans or one doctor for roughly every 2,900 individuals. In the United States, where there are 279 doctors for every 100,000 individuals or one doctor for every 358 Americans (UNDP, 2004). In 1996, there were 57 practicing licensed physicians in Samoa (GOS, 1996). Of these physicians, 46 worked in the public system, and 11 were private doctors. Table 3-4 shows the number of practicing doctors from 1990 to 1996. In 1996, only one doctor worked at the Tuasivi
Hospital and eight of the available 57 doctors were expatriates from New Zealand, Australia, and England working as United Nations Volunteers. Private doctors have their own medical offices and do not provide services for the Department of Health at public facilities. Doctors that work at public health care facilities have three years of training after university level schooling.

Table 3-4: Practicing Doctors in Samoa, 1990-1996

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoans</td>
<td>38</td>
<td>42</td>
<td>53</td>
<td>49</td>
</tr>
<tr>
<td>Expatriates</td>
<td>14</td>
<td>18</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>60</td>
<td>62</td>
<td>57</td>
</tr>
</tbody>
</table>

*Source: Government of Samoa, 1996*

Nursing personnel represent the largest component within the Samoan public health care system. Nurses provide assistance to doctors and are often the only personnel available at rural facilities. In 1996, there were 257 registered nurses, a decline of 16% from 298 nurses in 1992 (GOS, 1996). The Ministry of Health notes that nurses’ working conditions are “often not conducive to staff retention” because nurses frequently live away from their families and work long hours, especially novice nurses who are placed in rural villages, where the need is greatest (GOS, 1996). Table 3-5 shows the distribution of nurses by region and discipline, highlighting an obvious lack of nursing personnel in Savai’i. The ratio of one nurse for every 64 Samoans is significantly higher
than the patient to doctor ratio. Without sufficient staff, health care facilities may not adequately serve patients’ needs.

Table 3-5: Registered Nurses by Region and Discipline, 1996

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upolu Urban</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>8</td>
<td>3%</td>
</tr>
<tr>
<td>Medical &amp; Community Nursing</td>
<td>153</td>
<td>60%</td>
</tr>
<tr>
<td><strong>Upolu Rural</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Nursing</td>
<td>18</td>
<td>7%</td>
</tr>
<tr>
<td>Clinical Nursing</td>
<td>41</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Savai'i Island</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Nursing</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td>Clinical Nursing</td>
<td>30</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>257</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Government of Samoa, 1996*

Public Health Care Services

Preventive health care services make up the largest percentage of services offered at facilities. These services include maternal, child health, and family planning; immunizations; nutrition counseling; health education and promotion; environmental health and sanitation; tuberculosis, filariasis, and leprosy control; and the prevention of STDs, HIV, and AIDS. Other services include surgical procedures; laboratory testing; pharmaceutical supplies; radiology and ultrasounds; and dental services (GOS, 1996).

The facilities do an exemplary job of immunizing Samoans as the country boasts an immunization rate of 100% for children under the age of 5 years (UNDP, 2004). Immunization services are the most effective service provided for infants and children.
Community level delivery began in the early 1980s and the country offers immunizations for Tuberculosis, Hepatitis B, Diptheria, Tetanus, Whooping Cough, Polio, and Measles. The immunization rate in the United States is much lower. However, the maternal and infant mortality rates remain high, among the highest for the South Pacific region, suggesting a lack of trained staff or adequate obstetric services. Tuberculosis, filariasis, and leprosy prevalence has declined, showing that the facilities are quite capable of disease control. Nonetheless, STD rates were high at 31% for Chlamydia and 21% for trichomoniasis in a population of 472 pregnant women between the ages of 18 and 45 years (WHO, 2000). HIV/AIDS prevalence rates are extremely low with the first case reported in 1990. Only 12 Samoans have contracted the HIV virus. The majority of these individuals contracted the disease overseas and returned home to be with their families (GOS, 1996). The low rate of HIV prevalence is most likely due to Samoa’s geographical isolation from other countries.

Even though many types of medical services are available, Samoans may be unaware that they exist if they have not had previous experience with them. Information about health care, mostly diseases, is relayed via television, radio advertisements, and posters at facilities. Secondary school children are taught basic health awareness classes only if the subject is available through their school’s curriculum. Even though there is some transmission of information to the population, many Samoans remain unaware of the types of medical services available to them. Consequently, women, especially those living rurally, may not inquire about the purpose or use of specific services when seeking
care. In turn, they may turn to traditional Samoan medical practices when they believe that the public health care system does not have the capability to cure their illnesses.

*Traditional Samoan Medicine*

Many Samoans utilize traditional medicine as often as they utilize public health care services because they are more familiar with the healers and services. Samoans believe that an illness or disease is multi-factorial in origin and can be due to physical causes such as broken bones, social causes such as a stressful social relationship, or supernatural causes such as spirit possession (Macpherson, 1990). Samoans consider illnesses to be a result of an imbalance in these elements.

The Samoan words *fofō*, *fōma’i*, *taulāsea*, and *fa’atosaga* refer to various types of healers and practices. *Fofō* is the use of massage including stroking, rubbing, and pressing to bring about a cure. *Fofō* is such an integral part of traditional healing that when used as a noun, it means a traditional healer or doctor. *Fōma’i* generally refers to a western medical doctor, however, the term is often used interchangeably with *fofō* to describe a traditional healer. *Taulāsea* is the polite and respectful way to address a Samoan healer. A *fa’atosaga* is a traditional village midwife who may or may not have adequate medical training.

A traditional healer usually acquires skills from an older family member he or she has observed from childhood. The role and knowledge of a village healer generally is passed onto younger family members. The apprentice must learn to recognize more than 100 rainforest plants during training. Giving small gifts or *meaalofas*, instead of money, is the acceptable form of payment for treatment.
There have been a limited number of studies on Samoan traditional health practices, its prevalence rate, and its effectiveness in comparison to western medicine. This study found a 57% traditional medicine use prevalence rate among the participants. One study of Samoans who migrated to American Samoa, Hawaii, and Los Angeles, found a 41% prevalence use rate (Mishra, Hess, & Luce, 2003). Among the 652 participants that used traditional medicine in the 2003 study, 30% sought the services for musculoskeletal problems, followed by 18.7% with gastrointestinal problems.

Samoans believe there are certain illnesses unique to Samoans called ma’i Sāmoa. In Mishra, et. al.’s study (2003), 40% of the participants surveyed agreed that there are illnesses that only affect Samoans such as ma’i aitu (spirit possession), ila (skin rash), and nifoloa (tooth disease caused by the spirit, Nifoloa, the long-toothed one). On the other hand, Samoans also consider some conditions to be western illnesses, ma’i palagi or white people sicknesses, since they were first introduced by the white man. These can only be treated by western medical services. They include yellow fever, influenza, tuberculosis, high blood pressure, cancer, diabetes, and STDs (Macpherson, 1990).

After a cause of an illness and corresponding diagnosis has been identified, the healer prepares and administers a medicine, massage, or a non-contact treatment such as counseling. Medicines are made from raw materials such as roots (a’a), sap (ʻāpulupulu), fruits including young coconuts (niu) and ripe coconuts (popo), seeds (fatu), flowers (o fuā la’au), salt water (suāsami), fresh water (suāvai), raw fish (ota), charcoal (malāla), and breast milk (suāsusu) (Macpherson, 1990). Traditional healers are aware of the
healing powers that these materials possess from medical knowledge handed down through the generations.

Massage is the oldest traditional treatment and includes four styles. The type of massage to be used is determined by examining the points of tenderness and muscular tension with the fingertips. *Tu’itu’i* is the pummeling of the body. *Lomi* is kneading muscle groups with the fingertips. *Mili* is a gentle massage with the palms using coconut oil (*suău ‘u*) to reduce friction. ‘*Ene* involves pinching of the skin and is used for conditions which are not located in the joints and muscles (Macpherson, 1990). A number of non-contact treatments including counseling, incantations, and fasting are also employed. Samoan women often seek help from traditional birth attendants during home childbirth.

Traditional Birth Attendants (TBAs) assist mothers during childbirth. They acquire their skills either by delivering babies themselves or by apprenticing themselves to other Traditional Birth Attendants. Most have no professional training at all in midwifery (WHO, 2003). A skilled attendant “has been educated and trained in the skills needed to manage normal pregnancies, childbirth, and the immediate postnatal period such as a midwife, doctor, or nurse” (WHO, 2003). Only 33.9% of births in the world’s least developed countries are attended by a skilled birth attendant.

The majority of TBAs worldwide are women, as is commonplace in Samoa. Samoan TBAs generally acquire their skills during an apprenticeship with an older relative and usually lack training in scientific medicine. They assist women during pregnancy, childbirth, and the postnatal period, as skilled birth attendants do.
**Women in Samoa**

Female life expectancy at 73.3 years is higher compared to 66.8 years for men in Samoa (UNDP, 2004). However, there remains a need for health care services for older women for issues related to menopause and aging that are not widely available in Samoa. The low use of contraceptives among women at 38.5% contributes to a high fertility rate. Depo-Provera, oral contraceptives, and tubal ligation are the most utilized methods (United Nations, 1997). Family planning services are offered to men and women of all ages. Family planning is offered to help reduce maternal mortality by reducing the number of births and high-risk pregnancies. Samoan women who utilize contraception provided by family planning services may gain more control over their fertility and health. With fewer children, Samoan women may increase their opportunities to seek employment, contribute to family income, and gain greater access to health care services when needed.

Samoan’s fertility rate is high compared to other countries in the South Pacific region at 4.1 children per woman of childbearing age (World Bank Group, 2004). Fertility rates in both Fiji and Tonga are 3 children per woman of childbearing age (World Bank Group, 2004). Maternal mortality is also high at 130 deaths per 100,000 live births (UNDP, 2004). In contrast, maternal mortality in Fiji is only 38 deaths per 100,000 live births (UNDP, 24004). Estimates of Samoan in-hospital and out-of-hospital births in 1995 indicate that 65% of infants were delivered in public health facilities and traditional birth attendants in village settings delivered 35%. Table 3-6 shows that younger women are more likely to deliver at a facility than remain at home.
Table 3-6: Births at Health Facilities and by Traditional Birth Attendants, 1995

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Health Facility Births</th>
<th>TBA Births</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;19 years</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>20-29 years</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>30-44 years</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>45+ years</td>
<td>9%</td>
<td>81%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>65%</strong></td>
<td><strong>35%</strong></td>
</tr>
</tbody>
</table>

*Source: Government of Samoa, 1996*

This rise in the rate of health facility births may be due in part to the recent increase in maternal and childbirth services available at public facilities. Currently, data is not available from the Department of Health on maternal mortality differential in the two settings. However, women giving birth at home with the assistance of untrained birth attendants may have higher risks for maternal or infant mortality because village midwives seldom have adequate training. Samoan women can receive nutrition counseling at the National Hospital in Apia to prevent low birth weight babies, diabetes, obesity, and high blood pressure. However, access to these services is limited for rural women.

Making, giving, and eating food is a sign of respect, wealth, and love in the culture and until recently, Samoans did not believe that obesity negatively affected health. As increasing numbers of Samoans are diagnosed with diabetes, obesity, and high blood pressure, and are using medications to treat their conditions, more attention has been placed on these illnesses and their causes. Public facility staff has recently started to provide information about these conditions. Culturally appropriate educational
campaigns to combat obesity should focus on encouraging Samoans to eat the fruits and vegetables native to Samoa, which are often found in the rainforest.

Data available from the Samoan Department of Education reveals that 88% of females and 84% of males ages 5 to 19 years were enrolled in full-time education in 1991 (GOS, 1991). However, young women who become pregnant while attending school are forced to leave school to remain at home due to the shame on their family. On the other hand, the fathers are able to remain in school and continue their education. The Population Census reported that 94% of females age 15 to 19 and 59% of women ages 20 to 24 were single in 1991. The mean age at marriage for women was 24 years for women and 28 years men, respectively (GOS, 1991). A higher incidence of widowhood among women is due to their longer life expectancy than men.

Women in Samoa are viewed as the primary caretakers of their families. Samoan women are responsible for the health of their children, husband, parents, and other family members living within the home. In 1992, the average household size was 13.3 persons while in Savai’i, the average number was 14.6 persons (United Nations, 1997). Only 16.5% of these households were headed by women. According to the 1991 census, 40% of women over the age of 15 years were reported as economically active, while 77% of males reported being economically active (GOS, 1991). The majority of non-economically active women perform household work, while the majority of their non-economic male counterparts participate in full-time education. Female employment is important for women because it encourages their economic independence and has been shown to aid in improving health status by allowing them an increased access to health
care services (Basu, 1993). The background information about Samoa and the general characteristics of Samoan women addressed in this chapter provide for a more insightful understanding of the participants from the research village of Iva, Savai‘i, described in the next chapter.

**Conclusion**

Women’s health status in Samoa appears to be consistent with the major health issues affecting women in other developing nations, especially high maternal mortality, high fertility rates, and decreased access to contraceptive methods. As modernization takes place in Samoa, a rise in sedentary lifestyles, the consumption of high fat foods, and the use of alcohol and tobacco have led to a rise in non-communicable diseases such as diabetes, high blood pressure, and obesity. The previous discussion also offers insight into the leading causes of inpatient admissions and death. The inadequate numbers of services and personnel create an imbalance of supply and demand that public health care facilities are not equipped to handle. Consequently, rural facilities are extremely underutilized and many Samoan women turn toward traditional medical practices to treat their health conditions and to seek help and assistance during childbirth.
CHAPTER 4

METHODOLOGY

This chapter outlines the methods employed in this study. The first section describes the mixed, exploratory research design and the benefits it brings to this type of study. Then, I explain the rationale for selecting the participating village of Iva and the informants as well as the variables and the procedures used to gather data. In conclusion, I describe data analysis techniques. The Institutional Review Board in the Office of Research and Compliance at Ohio University approved this study prior to data collection (See Appendix C).

Research Design

I used an exploratory, quantitative and qualitative mixed design in this study. I conducted exploratory research because few determinants of access to services and sociocultural variables related to greater number of illnesses for rural Samoan women have ever been clearly identified. A mixed research design allowed for increased generalizability of the results while answering a broader range of research questions. The use of a mixed design also allowed the strength of each method to interact to develop a comprehensive investigation of the variables and the research questions. I incorporated a quantitative research methodology in order to measure quantifiable variables of interest, formulate and test hypotheses, and draw inferences from the sample to the entire population.

I utilized qualitative methodology, particularly ethnography, to allow for a descriptive analysis of women’s health and their beliefs and attitudes about health care in
respect to their culture. A qualitative approach explored the women, variables, and women’s relationship to their health and health care services with as little disruption of their natural setting as possible. In doing so, I gave careful attention to cultural factors such as traditional medicine and healers and the interaction of these practices with the public health care system. An ethnographic approach allowed for data to be analyzed from the perspective of the women in a subjective and holistic manner.

**Village Selection**

I determined the village of Iva to be a suitable location for studying women’s health and women’s access to health care services because it is a rural village where most of the participants access services at one public health facility, the Tuasivi Hospital. Although western culture has a significant influence in Iva, indicated by the number of televisions, radios, and cars, women’s status is still inferior to men’s status and childcare and household tasks remain the main responsibility of women. In this sense, it is a typical rural Samoan village. I conducted research and collected data for this study from July through August 2004.

The village of Iva is located on the southeast coast of the rural island of Savai’i in the district of Fa’asaleleaga Number 1 (See Map 4-1). According to the 2001 population census, Iva has 755 residents, 357 are females (GOS, 2001). However, the actual number may be lower due to a high rate of internal migration from rural to urban regions for employment and higher education since the district of Fa’asaleleaga Number 1 loses between 100 and 200 inhabitants a year. Since the Samoan population census does not
Map 4-1: Internal Migration and Location of Iva, Samoa

*Source: Government of Samoa, 2001*
report age specific information for village inhabitants, I used the United States Census Bureau (2004) estimation that more than half (53%) of female Samoans are 19 years and younger. Having a large percentage of young people is a common characteristic of a developing nation (See Graph 4-1). The Population Pyramid in Graph 4-1 once again highlights that males have outnumbered females during the census count. Similar to other developing nations, there is a possibility that females have been underrepresented through inaccurate counting in terms of numbers due to their inferior status in the culture.

**Graph 4-1: Population Pyramid: Samoa, 2000**

Accordingly, through these estimates, there are approximately 172 females age 20 years or older residing in Iva. I selected a sample of 101 females (59%) in this age range by interviewing women in each house as I walked through the village. The rationale behind selecting women 20 years of age or older is that most Samoan women finish
secondary school at around 19 years of age, receive permission to marry, and become the primary caregivers within the family.

Iva has six churches, one primary school, and one government public secondary school, Mataevave Secondary. Iva is a typical Samoan village having both a mayor and women’s committee. The mayor’s committee includes all village mатаи (chiefs) and таулелела (untitled men) to deal with village plantation affairs and plantation access road development. The women’s committee handles all women’s village affairs, including health development and improvement.

Historically, women’s committees had the name of комити тумамас (cleanliness committees) and promoted environmental, maternal, and child health programs (Schoeffel, 1977). The first women’s organization started in the 1930s when the country was under the administration of the government of New Zealand. Dr. Lelu Kuresa, one of the first Samoan graduates from the Suva, Fiji Medical College, founded about 40 village women’s committees between 1933 and 1936 (Schoeffel, 1977). Women’s village committees rapidly expanded into multifunctional committees focusing on social and economic development within the village. They began to perform community projects including the supervision and maintenance of the nearby hospital, the village fresh water bathing pools, the village church, and village houses (Schoeffel, 1977). Some women’s committees are still active in this area and organize monthly check ups by district nurses for pregnant women and children under the age of five years. Other committees continue to conduct monthly visitations (асисига) to check for village
sanitation and an adequate number of household goods such as plates, knives, and cups for each family.

Iva is connected to the main water line for potable water and has access to four fresh water pools for bathing and washing clothes. However, the village experiences periodic shortages of piped water. As only 60% of rural villages in Savai’i have access to a potable water source, Iva is better off than other Savai’i villages (United Nations, 1997), twice as many people rely on rain water in Savai’i than in other rural areas of Samoa. Poor water quality and sanitation facilities in rural areas contribute to gastrointestinal infections including diarrhea and Giardias, and only 40% of families use sealed toilets in rural areas of Samoa (United Nations, 1997).

In Iva, much like other rural villages, traditional style houses or fales are commonplace. These houses have no permanent walls, allowing for strong ventilation to aid in alleviating the high heat and humidity. Samoan houses are constructed of thatched roofs supported by wooden posts. All materials for Samoan houses are available at no cost from the village plantations. Coconut leaf mats are rolled down for protection from environmental contaminants such as sunlight, heavy rain, and strong winds. European style housing with iron roofs and cement permanent walls are becoming more common; although they are expensive to build, since the materials are imported from overseas.

Iva is located approximately 4 miles (6.4 kilometers) from the island’s small urban center of Salelologa. Salelologa is home to a few shops, a vegetable and handicraft market, tourist motels, and the wharf. The closest health facility to the village is the
Tuasivi Hospital, located approximately 11.2 to 12.8 kilometers (7 to 8 miles) from the village is the most frequently accessed facility of the participants in this study.

**Tuasivi Hospital**

The village of Iva does not have a health care facility. According to the Government of Samoa (1998), there are also no midwives or traditional birth attendants in the village. Therefore, villagers travel to the Tuasivi Hospital from Iva for health care services. Ninety nine percent of the women in this study utilized health care services at the Tuasivi Hospital. The relationship of village women to this facility and its services is important in order to understand the data presented in the next chapter.

The Tuasivi Hospital remains open 24 hours a day, seven days a week. The pharmacy at the Tuasivi Hospital opens at 8 a.m. and closes at 11 p.m. After the hospital’s renovation in 1995, there was a 44% rise in admissions, as the number of services provided to the public increased (GOS, 1996). Due to its proximity to people living in Savai’i, this facility provides care to 24% of the Samoan population or 42,824 individuals. Services at the Tuasivi Hospital include maternal, child health, and family planning, inpatient and outpatient services, immunizations, surgical services, pharmaceutical supplies, radiology, and dental services. There are fewer services offered than at the National Hospital, the largest hospital in the country, located in the capital. Villagers from Iva travel to the capital to seek more advanced services at the National Hospital such as ultrasounds for pregnant women. This facility is located 31 miles (50 kilometers) from Iva on the island of Upolu and can take up to a full day to reach as villagers must take three buses and one ferry.
The available modes of transportation to the Tuasivi Hospital from Iva include buses, taxis, private cars, ambulances, and bicycles. Bus fare is WST$0.80 (US$0.30) one way and the trip averages 20 to 40 minutes. Although Samoan buses are the most commonly used form of transportation, they do not have regular schedules, stop offering service after 5 p.m., and offer extremely limited services on Sundays. Taxi and private car fare is WST$10 (US$3.71) and averages 15 minutes one way. There is only one ambulance servicing the island of Savai’i and the cost of using its services is paid for by the government. Bicycles are the least common form of transportation due to poor road conditions and the long distance required for travel to the hospital.

Data Collection

I used a cross-sectional approach to collect data. Cross-sectional research was advantageous because it was more economical in time and cost than other methods and for the participants there was only one period for data collection. During the interviews, I employed a semi-structured questionnaire (See Appendix D and E). The semi-structured questionnaires allowed for an in-depth exploration of the women’s individual health experiences and their access to services without confining their answers. I formulated the 26 questions based on determinants and barriers of access to health care services as presented in the previous studies on women in developing countries (Buor, 2004; Perry & Gesler, 2000; Haddad & Fournier, 1995; Allman, Blumhagen, & Brown; 1992; Thaddeus & Maine, 1990; Stock, 1983). I verbally verified the data collected with the participants by reviewing my hand-written notes after the conclusion of each interview.
I conducted 101 interviews in the Samoan language; each lasted from 20 to 40 minutes. Prior to the start of the interview, I provided the women an introduction to the study and I sought verbal consent to conduct the interview, as required by the Institutional Review Board at Ohio University. Every woman asked for an interview agreed to participate. Overall, the women were eager to discuss their health situation, concerns, and use of services. Actually, I found the women to be intrigued that anyone considered their health to be important and had ample information to share.

I assigned each participant a number for identification and coding purposes. I conducted the interviews at the women’s residences so participants felt at ease during their interview. If men were present at the start of the interview, they always left, as the culture does not permit women’s issues to be openly discussed in the presence of men. At the completion of the interview, many women asked questions about the study and agreed that more attention should be given to women’s health in Samoa.

Variables

The following section outlines the variables used in this study. Table 4-1 contains a summary, their classifications, and how the study conceptualized the variables. The two dependent variables correspond with their respective research question. The first dependent variable is the women’s access to health care services or the number of visits to a public health facility in the previous year. The second dependent variable is the number of illnesses or injuries endured in the previous year. I gathered all data during the interviews with the participants. The independent variables are described in detail below according to their classification.
Table 4-1: Independent and Dependent Variables

**Question 1: What factors prevent rural Samoan women's access to health care services?**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Classification</th>
<th>Conceptualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to Health Care</td>
<td>Quantitative</td>
<td>Number of visits to a facility in the previous year</td>
</tr>
</tbody>
</table>

**Independent Variables**

<table>
<thead>
<tr>
<th>Number of Sicknesses</th>
<th>Classification</th>
<th>Conceptualization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantitative</td>
<td>Number of illnesses in the previous year</td>
</tr>
</tbody>
</table>

**Availability**

| Travel time | Quantitative | Hours |
| Wait time   | Quantitative | Hours |
| Distance    | Quantitative | Kilometers |

**Knowledge of Services**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Conceptualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative &amp; Qualitative</td>
<td>Number of known services</td>
</tr>
</tbody>
</table>

**Traditional Medicine**

<table>
<thead>
<tr>
<th>Affordability</th>
<th>Classification</th>
<th>Conceptualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Fee</td>
<td>Quantitative</td>
<td>Samoan dollars</td>
</tr>
<tr>
<td>Transportation Cost</td>
<td>Quantitative</td>
<td>Samoan dollars</td>
</tr>
<tr>
<td>Prescription Drug Cost</td>
<td>Quantitative</td>
<td>Samoan dollars</td>
</tr>
</tbody>
</table>

**Perception of Quality**

| Quality of staff | Quantitative & Qualitative | Perception of quality |
| Quality of drugs | Quantitative & Qualitative | Perception of quality |
| Quality of care  | Qualitative              | Perception of quality |

**Sociocultural Factors**

| Age             | Quantitative         | Current age in years |
| Education       | Quantitative         | Year of highest level completed |
| Employment status | Quantitative         | Presence of paid employment |

**Question 2: What sociocultural factors are related to illness among rural Samoan women?**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Classification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Status</td>
<td>Quantitative</td>
<td>Number of illnesses in the previous year</td>
</tr>
</tbody>
</table>

**Independent Variables**

| Age               | Quantitative | Current age in years |
| Education         | Quantitative | Year of highest level completed |
| Marital Status    | Quantitative | Presence of husband |
| Employment status | Quantitative | Presence of personal income |
| Fertility Rate    | Quantitative | Number of children |
Availability

Several variables determine availability of health care including travel time, wait time, distance to a facility, means of transportation, knowledge of services, and use of traditional medicine. I investigated these variables to establish a relationship between these variables and the number of times a woman sought care at a facility in the previous year. Travel time, a quantitative variable, is conceptualized as the amount of time in hours a woman travels to a facility. A longer travel time should correlate with the means of transportation a woman uses to seek care. Taking the bus requires more time due to poor road conditions and frequent stops to pick up and drop off other passengers. I measured wait time by the length of time in hours a woman waited to see a doctor at a public health facility after paying the user fee during registration. Distance in kilometers to a facility is generally a constant for the participants since they all reside in the same village.

I also measured the participants’ knowledge of the services available to them. I asked the women to list all the services they are aware of at the Tuasivi Hospital. Although this variable is qualitative in nature, I also quantified it for data analysis by adding up the number of services stated by each woman. I quantified the data in order to determine a relationship between their knowledge and the number of visits to a facility. I additionally measured the use of traditional medicine by asking the women if they used it in the previous year, how many times they used it, if they used these services for their children, how many times they sought the services for their children, and the various techniques they utilized. I also asked why the women used traditional medicine instead
of accessing health care services at a facility. Finally, I inquired into the women’s use of traditional village midwives during childbirth. I asked about complications, if any, while using traditional midwives, doctors, and public health facilities during childbirth.

**Affordability**

Affordability refers to the financial costs associated with accessing health care services. It includes the user fee, the cost of transportation, and the cost of prescription drugs. I investigated these variables to establish a relationship between affordability and women’s access to health care services in the previous year. I began by asking each woman to identify her user fee at public facilities. The user fee is conceptualized as the amount of money in Samoan dollars each woman pays to seek health care services to consult with a doctor. Women over the age of 60 do not pay a user fee since they receive a monthly government pension, which allows them free access to health care services.

Secondly, I asked about the women’s cost of transportation to a facility in order to determine the type of transportation a woman uses. I also inquired about the women’s course of action to treat an illness or injury when public transportation such as buses and taxis were not available to them when they were sick in the previous year. This information allowed me to ascertain whether women typically used traditional medicine or sought another route to treat their illnesses when they could not reach a facility. Next, I asked about the women’s cost of prescription drugs. This study conceptualized the cost as the amount of Samoan dollars it costs to purchase the drugs. This variable offers insight into the frequency and use of prescription drugs.
Finally, I inquired about the participants’ employment status annual personal income to determine if they have access to a personal source of money to pay for costs associated with seeking health care services. I seek to establish a relationship between the women’s employment and their access to health care services.

Quality

Quality represents a measure of the perception of overall satisfaction with services and includes the quality of prescription drugs, the quality of the care provided from the staff, and the quality of staff, including their knowledge and attitude. I investigated these variables to find a relationship between the perception of quality and the number of times a woman sought care in the previous year. I made inquiries of the women’s perception of the quality of staff to see if they generally like or dislike the staff and the reasons for any negative or positive feelings. Next, an inquiry into the length of interaction time in minutes with the doctor gave insight into how rushed women felt during their appointments. To follow up this question, I asked if they felt that there was adequate interaction time with the doctors during their examinations.

Thirdly, I inquired whether the women thought the doctors answered the questions they asked in reference to their health condition. By doing so, this demonstrated whether or not the doctors had enough time to visit and respond to questions. I also probed into the women’s perception of the quality of care provided by the staff. Finally, I asked the women about their experiences with prescription drugs, including their perception of its quality level and its ability to cure their illnesses.
To conclude each interview, I asked all participants about their demographics including their age, employment status, marital status, highest level of education, fertility rate, annual personal income, and annual family income. All demographic questions were open-ended. I asked these questions at the conclusion of the interviews, in order to allow women to become comfortable with the interview process before divulging personal information.

I conceptualized age as the women’s current age at the time of the interview. I measured employment status as the presence of paid employment. I divided marital status into categories of married, single, divorced, or widowed for analysis. I calculated the highest level of education as the number of years of education completed. I calculated the fertility rate as the number of children each woman raised or currently raises minus the number of children she adopted. Finally, I determined annual personal and family income by multiplying a monthly income by 12 to determine the year’s total income. I selected some of these sociocultural variables to use in the multiple regression equation analysis to find statistically significant relationships between the independent variables and the dependent variables in each of the two research questions.

**Data Analysis**

I began the data analysis by investigating the quantitative data. I used the Statistical Package for the Social Sciences (SPSS, version 13.0) to find the bivariate correlations between each qualitative independent variable and their corresponding dependent variable from each respective research question. Later, to find the multivariate
statistically significant relationship between selected quantitative independent variables and the dependent variable in each research question, I again utilized SPSS using multiple regression analysis. I utilized a $p$ value of .05 or less to determine statistical significance. The null hypothesis for both research questions states that the regression coefficient ($p$) from the analysis is equal to zero and there is no effect from any of the independent variables on the dependent variable. I also calculated descriptive statistics such as frequency distributions, means, ranges, standard deviations, and contingency tables.

The analysis of the qualitative variables involved the systematic reading, organizing, labeling, and coding of the variables into themes using content analysis. This analysis involved reading and rereading interview transcripts several times. Through this process, I discovered themes, ideas, and explanations relating to the women’s access of health care services and the number of illnesses they experienced in the previous year. At the completion of data coding, relationships and patterns that may lead to an understanding of the factors that influence women’s use of health care services and their health status can be identified and analyzed thoroughly.
CHAPTER 5
DATA ANALYSIS

Data presented in this chapter answer the two central research questions concerning the participants' relationship of access to health care services and their overall general health status. What factors prevent rural Samoan women's access to health care services? What sociocultural factors are associated with a greater number of illnesses among rural Samoan women?

Prior to the data presentation, I present a general description of the study participants through the exploration of their demographic information. I present data in two sections, corresponding to their respective research question. In the first section, I divide data according to the independent variable classifications of number of illnesses, traditional medicine, knowledge of services, affordability, quality, and sociocultural factors. The quantitative and the qualitative analysis appear together. While there is some discussion of results, an in-depth analysis of the results is reserved for the last chapter.

Demographics

The sample includes 101 women ages 20 and above. All 101 participants agreed to be interviewed, generating a response rate of 100%. However, I excluded 21 women from the study because they did not respond to all of the questions, generating a usable response rate of 79%. The demographics of the participants are detailed in Table 5-1. The youngest participant was 20; the oldest participant was 86. The largest age group represented is women between the ages of 20 and 29 years who comprise 19 participants.
The women reside in either a Samoan style open-walled house (fale) (57.5%) or a European style house with permanent walls (42.5%).

| Table 5-1: Sociocultural Demographics of Participants |
|-----------------------------------------|----------------|----------------|
| Age          | Frequency | Percentage |
| 20-29        | 19        | 24           |
| 30-39        | 15        | 19           |
| 40-49        | 15        | 19           |
| 50-59        | 10        | 12           |
| 60-69        | 13        | 16           |
| 70-79        | 7         | 9            |
| 80-89        | 1         | 1            |
| **Range = 20 to 86** | **Mean = 45.5** | **SD = 17** |
| Education    | Frequency | Percentage |
| Primary      | 19        | 24           |
| Secondary    | 47        | 58           |
| Tertiary     | 14        | 18           |
| **Range = 0 to 15** | **Mean = 10.2** | **SD = 3.5** |
| Marital Status | Frequency | Percentage |
| Single/Divorced/Widowed | 28 | 35 |
| Married       | 52        | 65           |
| Employment   | Frequency | Percentage |
| Yes          | 12        | 15           |
| No           | 68        | 85           |
| Housing      | Frequency | Percentage |
| Samoan style | 46        | 58           |
| European style | 34   | 42           |
| Fertility Rate | Frequency | Percentage |
| 0-5          | 43        | 54           |
| 6-10         | 29        | 36           |
| 11+          | 8         | 10           |
| **Range = 0 to 15** | **Mean = 5.2** | **SD = 3.6** |

There is a significant negative correlation between housing style and age of the women (r = -0.229, p = 0.041) meaning older women are more likely to reside in Samoan
style houses. As European style houses are expensive to build due to the cost of buying imported goods such as cement, lumber, and window panes, the large percentage of women living in Samoan style houses offers insight into the economic status of the village women. The women residing in Samoan style houses, where the materials are from the rainforest and thus free, have fewer employment activities.

The participants’ daily routine generally begins when the sun rises. All household tasks, besides preparing the evening meal, are often completed prior to sunset. Participants’ main household duties include preparing meals, cleaning the house, washing clothes, and looking after children or older family members. The average fertility rate of 5.21 children ($\pm 3.6$) among the participants is higher than the 4.1 children per woman, reported by the UNDP (2004). Of the 80 participants, 52 (65%) are married and 28 (35%) are unmarried. Women between the ages of 30 and 39 years ($N=15$) and 40 and 49 years ($N=15$) reported the highest marital status rate (93%). Women older than the life expectancy of Samoan men at 66.8 years (UNDP, 2004) only have a marriage rate of 14% since most are widows. The unemployment rate is very high at 85% as the sample includes a large percentage of homemakers. The homemakers are financially supported by their families.

The average education level is relatively high for women in a developing country at 10 ($\pm 3.5$) years with over 68.7% of the sample receiving some or all of a secondary education. Only 7.5% of the women received at least part of a tertiary education (Year 13 and greater). Younger women under the age of 40 ($N=34$) have an average education level of 12 years compared to the women over the age of 40 ($N=46$) with an average
education level of 6 years. Of the 23.8% (N=19) of women with only a primary level education, their average age is 64 years.

To understand how the women conceptualize health and how it relates to their lives, I asked the participants to elaborate on their definitions of being healthy and the factors that ensure their health and well-being. The 80 women provided only eight different definitions for a total of 106 times. Table 5-2 presents their responses, the frequencies, and corresponding percentages.

Table 5-2: Participants’ Definitions of Health

<table>
<thead>
<tr>
<th>Definition</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellness</td>
<td>37</td>
<td>34.9</td>
</tr>
<tr>
<td>Strength</td>
<td>32</td>
<td>30.2</td>
</tr>
<tr>
<td>Happiness</td>
<td>16</td>
<td>15.1</td>
</tr>
<tr>
<td>Clean Surroundings</td>
<td>9</td>
<td>8.5</td>
</tr>
<tr>
<td>Well Family</td>
<td>4</td>
<td>3.8</td>
</tr>
<tr>
<td>Good Spirit</td>
<td>4</td>
<td>3.8</td>
</tr>
<tr>
<td>Enough Food</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Love from God</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The largest response (34.9%) associated health with freedom from illness. The second largest response (30.2%) correlated health with strength: “The meaning of health to me is being strong enough to be able to perform chores around the house without assistance.” Some women stated that health means living in a clean environment: “Health means having everything clean: the clothes, the food, and the house.” “To ensure the food, land, and drinking water are clean means to be healthy.” However,
according to the women, performing too many household tasks, especially in the sun, contributes to a greater number of illnesses. Some women viewed health as the ability to provide care for oneself and other family members, primarily the main undertaking of Samoan women. “Health means everyone is healthy, especially the children.” Two women associated health with the health of their fathers. Also, a few women related good health with love from God: “God is the authority over how many times I am sick each year. He decided to give me diabetes. I had no control over that.” As an overwhelming majority (99.7%) of Samoans are devout Christians who attend church regularly and hold evening prayer sessions with their families (U.S. CIA, 2004), connecting God’s power and authority to a positive livelihood is consistent with the culture.

**Question 1: What factors prevent rural women’s access to health care services?**

The percentage of women (68%) who reported being sick yet did not seek public health care services confirms the need for an investigation into women’s levels of access to health care and the factors that may prevent this access. Since the majority of the women reported seeking care at the Tuasivi Hospital, this study focuses primarily on the relationship of their access to health care services at this facility (See Table 5-3).

### Table 5-3: Health Care Facility Use

<table>
<thead>
<tr>
<th>Location</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuasivi Hospital</td>
<td>65</td>
<td>81</td>
</tr>
<tr>
<td>Tuasivi Hospital &amp; National Hospital</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Tuasivi Hospital &amp; Private Doctor</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
I measured the women’s access to health care services by asking the participants the number of times they visited a health care facility in the previous year. On average, older women accessed services more often than younger women in the previous year as shown in Table 5-4. Women between the ages of 60 and 69 years accessed services an average of 10.5 times each with an average of 10.2 sicknesses each. Women between the ages of 20 and 29 years only accessed services an average of 2.5 times each, with an average number of three sicknesses each. These statistics show that younger women have less access to public health care services than older women. Reasons for this finding are discussed later in the chapter.

Table 5-4: Access to Health Care Services by Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Number of Visits</th>
<th>Average Number of Visits</th>
<th>Average Number of Illnesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>48</td>
<td>2.5</td>
<td>3</td>
</tr>
<tr>
<td>30-39</td>
<td>60</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>40-49</td>
<td>40</td>
<td>2.7</td>
<td>4.6</td>
</tr>
<tr>
<td>50-59</td>
<td>100</td>
<td>10</td>
<td>10.2</td>
</tr>
<tr>
<td>60-69</td>
<td>136</td>
<td>10.5</td>
<td>13.6</td>
</tr>
</tbody>
</table>

To start data analysis, I used the Statistical Package for the Social Sciences (SPSS, version 13.0) to find bivariate correlations between all independent variables and the dependent variable, access to health care services. Second, I ran a multiple regression analysis using SPSS to find a multivariate relationship among the dependent and independent variables. This analysis measured the strength of the dependent variable of
access on the eight selected independent variables of number of sicknesses, travel time and wait time (availability variables), quality of staff and drugs (quality variables), and age, education, and employment (sociocultural variables). The results of the multiple regression equation will be discussed in detail later in the chapter. I begin with a discussion of the results of the bivariate analysis.

*Number of Illnesses*

I compared the number of illnesses suffered by the women in the previous year with their access to health care services. The average number of illnesses in the previous year was 5.95 (±2). The number of illnesses and access have a significantly positive correlation ($r = 0.905$, $p = 0.000$), meaning that as the women endure greater numbers of illnesses, they access health care services more. Analysis of this relationship demonstrates that the presence of an illness or injury generally determines women’s access to health care services more than other factors. If access is not a major problem, the question of why Samoan women suffer from poor health conditions remains. The following discussion of the remaining independent variables offers insight into the secondary level barriers preventing access to services.

*Availability*

The analysis of five availability variables including travel time, wait time, distance, means of transportation, and knowledge of services was essential to find their relationship with access to services. The average round trip travel time per visit was 2 (±1.5) hours. A one-way travel time of 1 hour (35%) was most common. Eleven (13.8%) women reported a travel time of five or more hours. More than half of these 11 women
accessed services at the National Hospital in Apia, Upolu, located on the other island, highlighting the length of the journey to seek more advanced services. The means of transportation dictated travel time as the bus generally takes longer than taxis or personal vehicles to arrive at a facility. Travel time and access do not have a significant correlation with one another, signifying that travel time does not prevent access to health care services.

The average wait time per visit was 1.5 (±1.2) hours. Only one woman reported a wait time of five hours. One woman stated, “I did not utilize services on one visit to the Tuasivi Hospital because the wait was too long. I returned home to rest.” Two other women did not take their children to the facility in the previous year due to the long wait. Although there is not a significant correlation between access and wait time, the qualitative analysis found an average of 1.5 hours a relatively long time to wait for preventive services. Increasing the numbers of doctors at the Tuasivi Hospital might aid in both decreasing the wait time and encouraging women to access services more often.

Distance to the Tuasivi Hospital is a constant in the analysis since all the participants reside in the village of Iva, 7 to 8 miles (11.2 to 12.8 kilometers) from the facility. There is not a strong correlation between the type of transportation and access to health care services. When the public bus system was not in use on Sundays or after 5 p.m., the women often turned to private vehicles or taxis. Means of transportation does not influence access because bus service is regular and consistent in the village of Iva.

The analysis of women's knowledge of services determined if knowledge affected access to services. For analysis, I allotted each woman one point for correctly identifying
a service available at the Tuasivi Hospital. The available services are maternal, child health, and family planning services, immunizations, x-rays, pharmaceutical supplies, disease control (including STDs), surgical procedures, and dental services. Many women had difficulty identifying even one service, suggesting that the lack of awareness of the types of services available to them prevents their access to services. Therefore, I also gave the women one point for stating that the health facilities provide help or advice and I gave them one point for saying cure, which are services provided during outpatient care. A maximum score of eight was possible.

Women identified an average of 1.73 (±2.00) services. Ninety six percent (N = 77) of the women knew two or fewer services. Only one woman could name five services. Given the low level of knowledge of services, the participants clearly are not aware of the types of care available to them at the Tuasivi Hospital. There is a significant positive correlation between knowledge of services and age as seen in Graph 5-1 (r = 0.322, p = 0.004), showing that as age increases, women tend to know more of the services offered at the Tuasivi Hospital.

The graph shows that although average knowledge is low, women between 70 and 79 years of age have the highest average knowledge of services at 2.3 services, followed by women between 50 and 59 years of age. Young women ages 20 to 39 years had an average knowledge of only 1.3 services. This relationship suggests that older women’s increased access to services allows them the opportunity to learn about the available services. Although knowledge of services and access are not significantly correlated in the quantitative analysis, the qualitative analysis found a substantial relationship.
Knowledge of services and education level have a statistically significant negative correlation \( r = -0.229, p = 0.041 \), signifying that women with less education access services more. This correlation relates to the previous finding that older women have a greater knowledge of services than younger women because older women also have lower education levels. In order to enhance younger women’s knowledge of available services, education programs in primary and secondary schools should include a public health awareness curriculum. This type of education will offer young women more knowledge and as this study shows, increased access to services.

*Traditional Medicine*

An analysis of traditional medicine use was undertaken to establish a relationship between its utilization and access. Fifty nine percent \( (N = 47) \) of the women used traditional medicine at least once during the previous year. One woman explained, "I use
Samoan traditional medicine only when I am sick with Samoan sicknesses,” corresponding with the belief that there are certain illnesses unique only to Samoans. Of the women who used traditional medicine, 60% (N = 28) said they also sought care at a public health care facility for the same illness. Forty one percent (N = 33) did not use traditional medicine at all. Accesses to health care and traditional medicine use are negatively correlated, meaning that as more women utilized traditional healers, they accessed health care services at public facilities less often.

Traditional medicine use among 20 to 29 year olds was most prevalent, followed by 30 to 39 year olds. This is likely since using traditional medicine does not require a user fee and younger women without personal income of their own, can easily utilize traditional medical services. Supporting this idea is the negative relationship between traditional medicine use and personal income, meaning that women with paid employment use traditional medicine less. This implies that women with personal income can afford to access public health care services more often than women without income.

The 47 women who reported using traditional medicine stated eight different ailments and the reasons they sought these services. Women with illnesses categorized as neurological problems most often used these services followed by women with gastrointestinal problems (See Table 5-5). Of the 45 women with younger children at home, 25 (56%) said they sought traditional medicine for their children in the previous year. This is nearly equivalent to the percentage of women (57%) who used traditional
medicine themselves. The women stated that a child’s cough was the most popular reason they sought traditional medical services for their children.

### Table 5-5: Ailments reported for Traditional Medicine Use

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological (headache)</td>
<td>40.4%</td>
</tr>
<tr>
<td>Gastrointestinal (stomach pain)</td>
<td>27.6%</td>
</tr>
<tr>
<td>Musculoskeletal (back ache, body ache, leg ache)</td>
<td>21.3%</td>
</tr>
<tr>
<td>Constitutional (flu)</td>
<td>4.3%</td>
</tr>
<tr>
<td>Ear, Nose, Throat (throat pain)</td>
<td>4.3%</td>
</tr>
<tr>
<td>Respiratory (cough)</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

Of the 70 participants (88%) who had given birth, 55 women (69%) gave birth at home at least once. This number contradicts the estimate of home births by the Government of Samoa (1996) of 35%. Of these 55 women, traditional village midwives assisted 78% of them and family members, usually mothers, helped the remaining women. Only 23 women (29%) birthed at the hospital for every birth. There is a significant positive correlation between age and home births with traditional midwives ($r = 0.738, p = 0.000$), illustrating that younger women gave birth more often at a facility and older women gave birth at home more often. The seven older women, ages 70 to 79, with a total of 78 births, gave birth at home for all 78 births, resulting in a 100% home birth rate (See Graph 5-2).
There is a significant negative correlation between education level of the women and the use of traditional midwives ($r = -0.422, p = 0.000$). As education levels increase, women used the assistance of traditional village midwives less. For women ages 20 to 29, with a total of 28 births, only 9 of these births took place at home, producing a 35% home birth rate. This finding suggests that there are now more maternal health care services available at public facilities for women during childbirth and possibly more advanced modes of transportation to allow for more efficient and quicker travel to a facility.

Of the 124 babies delivered at a health facility, 10 complications occurred, leaving an 8% complication rate. Three babies died as a result. One woman, age 50, suffered serious complications during her eighth and only childbirth at a public facility.
As reported by one of her older daughters, since she is unable to speak, “The complications at the hospital when she gave birth are the reason she is unable to speak or walk today.” The family blames the hospital for their mother’s health difficulties since she did not encounter any issues at home for her previous seven births.

Of the 293 babies delivered at home, seven complications arose and no babies died as a result, leaving a 2.4% complication rate. Since there were fewer difficulties during home births than hospital births, I interviewed the village midwife and discovered that she is a former nurse at the hospital with adequate medical training. In this respect, it suggests the possibility that some of the staff at public health facilities lack sufficient training for assisting in childbirths or that village midwives have more medical experience and knowledge than originally documented.

Overall, the use of traditional medicine, especially village midwives, appears to prevent access. This holds true primarily for the older women in the study since they birthed at home more often than at a public facility. For the younger participants, the trend appears to be moving towards giving birth at a health facility, as only 35% of births occurred at home, for 20 to 29 year olds. This study shows that the use of traditional midwives has diminished in recent years and access to obstetric services may not be affected by the use of midwives during childbirth in the future.

**Affordability**

An investigation of the affordability factors was necessary in order to determine its relationship with access to care. During qualitative analysis, 45 women (56%) said cost was a major obstacle in accessing health care when they as women were asked why
they did not access services at a facility when sick. This is supported by the quantitative data analysis as user fee and access are negatively related meaning as the user fee increases, women sought care at a public health facility less. The average user fee was WST$0.36 (US$0.10). The user fee is mostly a fixed effect since 74% (N = 59) of the women are under the age of 60 and pay a user fee of WST$0.50 (US$0.18). The remaining women over 60 do not pay a user fee since they receive a government pension, described in detail in Chapter Three.

The cost of transportation to and from a facility is the second affordability factor. The mean cost of transportation was WST$2.19 (±US$0.78). Ninety percent of the women used the public bus as their main means of transportation to a facility. Cost of transportation and access are negatively related, supporting the women’s claim that cost decreased their access to services. Education and cost of transportation are significantly negatively correlated (r = -0.251, p = 0.024), showing that older women, who have lower education levels, use taxis or private vehicles to travel to a facility because it was more convenient to travel.

Although the user fee and transportation cost appear to be nominal, paying the user fee is a burden on the participants as only 12 women (15%) are employed. The remaining 68 women rely on seven sources of income for a total of 122 sources, including their husbands, children living in and outside of Samoa, other family members residing in and outside of Samoa, government pensions, or borrowing money (See Table 5-6). The majority of the participants relied on their husbands (25.4%) or other family members living in Samoa (32%) for a source of income.
The final factor measured when assessing affordability of health care is the cost of prescription drugs. The cost of drugs vary by type and price and range from WST$5.00 (US$1.80) to WST$20.00 (US$7.20). Women will purchase the drugs prescribed to them only if they have adequate monetary resources. Some participants stated that they sought care and advice from the doctors but did not purchase the prescription drugs. “The medicine is very expensive.”

Table 5-6: Sources of Income

<table>
<thead>
<tr>
<th>Source</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband</td>
<td>31</td>
<td>25.4</td>
</tr>
<tr>
<td>Family in Samoa</td>
<td>27</td>
<td>22.2</td>
</tr>
<tr>
<td>Pension</td>
<td>26</td>
<td>21.3</td>
</tr>
<tr>
<td>Children in Samoa</td>
<td>12</td>
<td>9.8</td>
</tr>
<tr>
<td>Self</td>
<td>12</td>
<td>9.8</td>
</tr>
<tr>
<td>Family outside of Samoa</td>
<td>7</td>
<td>5.7</td>
</tr>
<tr>
<td>Children outside of Samoa</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>Borrow</td>
<td>3</td>
<td>2.5</td>
</tr>
</tbody>
</table>

As an alternative, three women purchased Panadol®, the only over the counter medicine available in villages to treat their pain associated with illness for WST$5 (US$1.80). Without taking the drugs prescribed to them, the participants cannot cure their illnesses and improve their health status. Since the cost of prescription drugs is the

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4 Panadol® is an analgesic used for the relief of pain and discomfort associated with headache, period pain, colds and flu, tension headache, backache, and muscular aches
largest affordability burden on the women, there needs to be a reduction in cost if women’s overall health status is to improve.

The burden of not having money to pay for transportation, the user fee, and drugs results in women not accessing services. An 86 year old woman, who does not pay the user fee explained, “If I do not have the money, I do not go,” because she cannot afford the transportation and prescription drug cost without money. Women thus may remain at home and not receive the necessary treatment they need. This often translated into the women seeking the use of traditional medicine.

Quality

Women’s perception of the quality of staff, prescription drugs, and care are the three quality variables. A vast majority of the women (84%) said they like the doctors and nurses at the Tuasivi Hospital. In contrast, two stated (3%) that they adamantly dislike the staff because they do not trust them. A forty year old woman said, “The doctor lied one time about the illness I had. He also did not do a good check-up,” referring to the incomplete check-up he offered her. The perception of staff quality and access are negatively related, revealing that as the women’s perception of poor staff quality increases, women access services less.

Eleven women (13%) said that they only like the staff on certain occasions. These 11 women shared a common dislike for one particular nurse who “is not happy all of the time.” Being a happy individual is a valued personality trait that Samoans appreciate and encourage. If an individual is viewed as unhappy, they are looked upon
negatively and deemed as unpleasant. There is no relationship between women’s perception of staff quality and age, education level, or employment status.

The time allotted to patients during their check-ups and the ability of the doctors to answer all of the patients’ questions are also perceptions of staff quality considerations. The shortest interaction time between staff and patient was reported at two minutes; the longest was one hour. This discrepancy in interaction times is likely due to the time of day a woman sought care as the facility is busiest in the morning. Most women (76%) said the doctors and nurses provide them with adequate time for their check-ups.

Twenty one percent complained that there was not enough time for their check-ups. Their complaint often corresponded with the facility being understaffed, particularly during holidays, as one 40 year old woman with 12 years of education mentioned, “There is only one doctor at the Tuasivi Hospital. That is not enough.” A 67 year old woman with a similar answer said, “Sometimes there is not even one doctor at all at the hospital and I must travel to Apia [to The National Hospital] for help.” Possibly participants did not have access to a watch to accurately track interaction times since time in Samoa is not as culturally important as in western countries. The phrase “island time” describes people moving at a slow pace and not having time constraints on their daily activities. Thus, participants may not be fully aware of their exact interaction times with the doctor.

Seventy three women (91%) claimed the doctor answered all of their questions when they asked. The remaining seven women (9%) said the doctors do not answer all their questions because the only person asking questions during a check-up is the doctor. A 55 year old woman stated, “The doctor asks what your sickness is and immediately
writes a prescription. He never tells you the name of the sickness.” Another woman explained, “Women do not ask questions. They only speak when asked a question.”

These statements explain women’s unawareness of their illnesses as many women do not know the names of their illnesses. Of the 17 ailments plaguing the women in the previous year, the participants knew only the names of three: diabetes, pneumonia, and asthma. Otherwise, women reported the body part that was injured or sick. Perhaps the doctors, lack sufficient medical knowledge or they are unable to effectively communicate this information. Either way, these dilemmas signify a concern with the public health care infrastructure system, particularly the quality of staff members.

Another important determinant of quality is the women’s perception of the quality of care they receive. An overwhelming majority of women (83%) believed they received good care from the staff. This number is very similar to the 67 women (84%) who also said they liked the staff members. The most commonly reported reason for their belief that the staff generally provided adequate care is their trust of staff members: “What services does the hospital offer its patients? They offer trust.” Other explanations for staff provides good care include: “The doctors do everything I want,” “They visit me at night when I stay there,” and “They are happy people.” Again, this response exemplifies that happiness is an important trait for individuals to possess in Samoa.

The final perception of quality is the quality of prescription drugs. Eighteen women (17.8%) complained that the drugs they received only sometimes made them well. “One time the doctor gave me the wrong medicine. I grew sicker. My stomach and back began to hurt,” reported a 44-year-old mother of eight children who complained of a
suspicious illness that Samoans doctors have been unable to cure. In order to properly
treat this illness, her son who lives in the United States, flew her to his hometown to seek
treatment from an American medical doctor. Another woman similarly agreed,
“Sometimes the medicine I am given is wrong. I continue to drink the medicine day after
day, hoping for a cure, but it never happens.” One 45-year-old woman declared, “There is
not always enough medicine to cure an illness.”

In determining the quality of the staff, care, and prescription drugs provided by
their local health care facility, by and large the majority of the women rated their
perception of quality of these factors as high. However, some women showed concern
about the quality of staff’s knowledge and the quality of prescription drugs. It is possible
that these women have low expectations of the public health care system since they
mostly only have experience with one doctor.

Sociocultural

An examination into the demographic and sociocultural variables of the
participants is needed to understand their relationship with women’s access to health care
services. Several of the sociocultural demographic factors determine access to services.
First, age is significantly correlated with access to care ($r = 0.260, p = 0.020$), showing
that when age increases, access to care increases as well. Paralleling this finding is the
negative relationship between education and access to services, highlighting that older
women with less education levels access health care services than younger women with
more education. This relationship supports the cultural belief that older women have a
higher status in the family unit and society as a whole.
Marital status and access to services are negatively related, confirming that women who are not married access services more. A final sociocultural factor that determines access to health care services is fertility rate. The study found that fertility rate has a significantly positive correlation with access ($r = 0.245$, $p = 0.029$), supporting previous studies that found higher fertility rates are associated with poorer health and a need for more health care services.

*Multiple Regression Analysis*

I entered eight independent variables - the number of sicknesses, travel and wait time (availability variables), the perception of staff and prescription drug quality (quality variables), and age, education, and personal income (sociocultural variables) - into a quantitative multiple regression equation to ensure a common basis for comparison and to determine a multivariate relationship among the variables. I used SPSS to analyze and examine this relationship. The independent variables have a statistical significance of $p = 0.000$ ($R^2 = 0.843$, Sig F = 0.000) on the dependent variable. Therefore, I reject the null hypothesis stating that the regression coefficient is equal to zero and there is no effect from any of the independent variables on the dependent variable. Of the independent variables selected to use in the regression equation, two exhibit statistically significant relationships with access to health care services (See Table 5-7). The number of illnesses in the previous year and the highest level of education completed both have a $p$ value of less than or equal to 0.05. The number of illnesses has the greatest effect on access with the highest standardized beta coefficient (0.893) followed by education.
I entered two availability factors, specifically travel time and wait time into the multiple regression equation. This multivariate quantitative analysis reveals that neither factor has a significant effect on access to health care services. Travel time is negatively correlated with access which shows that access increases when the travel time decreases, supporting the bivariate analysis finding. The considerably lengthy average wait time of 1.5 hours may deter Samoan women from accessing services since there may not be anyone at home to tend to chores and children. I chose not to enter the means of transportation into the multiple regression equation because it is mostly a fixed effect. Eighty eight percent of the women reported that they utilize the public bus system.

I also did not include any affordability factors in the multiple regression equation since they are typically fixed effects as well. Seventy four percent (N = 59) of the women are under the age of 60 and pay an individual visit user fee to seek services of WST$0.50 (US$0.18). The cost of transportation is similar in that 90% (N = 72) of the

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**Table 5-7: Question 1 Multiple Regression of Dependent Variable on Independent Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of illnesses</td>
<td>0.893</td>
<td>0.000*</td>
</tr>
<tr>
<td>Travel time</td>
<td>-0.004</td>
<td>0.931</td>
</tr>
<tr>
<td>Wait time</td>
<td>0.035</td>
<td>0.455</td>
</tr>
<tr>
<td>Quality of staff</td>
<td>-0.072</td>
<td>0.131</td>
</tr>
<tr>
<td>Quality of drugs</td>
<td>0.031</td>
<td>0.511</td>
</tr>
<tr>
<td>Age</td>
<td>-0.052</td>
<td>0.401</td>
</tr>
<tr>
<td>Education</td>
<td>-0.205</td>
<td>0.001*</td>
</tr>
<tr>
<td>Employment</td>
<td>0.077</td>
<td>0.097</td>
</tr>
</tbody>
</table>

*Significant at the 0.05 level (2-tailed).
women take the bus with a WST$1.60 (US$0.58) round trip fare to a facility. Likewise, I did not enter the cost of prescription drugs into the multiple regression. This is an unpredictable variable because women will not purchase the drugs unless they have money and often they do not.

The perception of staff and prescription drugs quality are not determined to be statistically significant by the multivariate regression equation. Instead, they are negatively correlated, as suggested by the bivariate analysis, demonstrating that as the perception of staff quality decreases, women access services less often. There is an obvious need to improve the quality of staff in order to ensure women greater access to services to improve their overall health and well-being.

I entered three sociocultural variables of age, education, and employment into the multiple regression equation. The multiple regression equation determined that there is a statistically significant relationship between education and access \( (p = 0.001) \), solidifying education as a determinant of access to health care services. This result supports the bivariate analysis that finds that older women with less education levels have more access to health care services. Although employment alone is not a statistically significant determinant of access, it does have a positive relationship with access, showing that as employment opportunities increase, access does as well.

Controlling for the other independent variables, even though age is strongly correlated with access in the bivariate analysis, age no longer determines access to care. Education has a stronger influence in the regression equation and cancels out the effect of age. Age is conveyed through the greater number of sicknesses and the education level
of the participants in the multivariate analysis. Controlling for the other independent variables, age and access now have a negative relationship, contradicting the bivariate analysis results.

**Question 2: What sociocultural factors are related to illness among rural women?**

The average number of sicknesses in the previous year among the women was 5.95 (±2) times with the most commonly reported number of illnesses as only 1 (N = 21, 26.3%). A total of 17 ailments affected the women a total of 95 times. Table 5-8 shows the categories of illnesses and their corresponding frequencies. Constitutional and neurological ailments were most common with a cumulative report rate of 38.5%. Of the 11 women with endocrinological conditions, the average age was 58 years.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constitutional (flu)</td>
<td>17.9</td>
</tr>
<tr>
<td>Neurological (headache, dizziness)</td>
<td>17.9</td>
</tr>
<tr>
<td>Musculoskeletal (back ache, body ache, leg ache,</td>
<td>16.8</td>
</tr>
<tr>
<td>broken bone, tooth ache, mouth pain)</td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal (stomach pain)</td>
<td>12.6</td>
</tr>
<tr>
<td>Endocrinological (diabetes)</td>
<td>11.6</td>
</tr>
<tr>
<td>Respiratory (asthma, cough)</td>
<td>10.6</td>
</tr>
<tr>
<td>Dermatological (skin rash, cut)</td>
<td>5.3</td>
</tr>
<tr>
<td>Obstetric (miscarriage, ultrasounds, check-ups)</td>
<td>4.2</td>
</tr>
<tr>
<td>Pathological (pneumonia)</td>
<td>2.1</td>
</tr>
<tr>
<td>Ophthalmologic (eye problems)</td>
<td>1</td>
</tr>
</tbody>
</table>
Education is significantly negatively correlated with the number of illnesses in the previous year ($r = -0.286, p = 0.010$). Women with low education levels were sick more often than women with high education levels. This corresponds with the positive correlation between age and the numbers of illnesses, since older women have lower education levels. This implies that older Samoan women without employment due to low education levels are at a disadvantage because without income, they have been unable to access improved nutrition or adequate housing both of which protect and improve their health status (Buor, 2004).

The average age of the participants is 45.5 (±17) years with the youngest at 20 years and the oldest at 86 years. In the bivariate analysis, age is significantly positively correlated with the number of illnesses among the participants ($r = 0.313, p = 0.005$). On average, women ages 60 to 69 endured the greatest number of illnesses or injuries at 13.6 each. The older women in the study were sick more often than the younger women (See Graph 5-3), supporting the findings from previous literature (Buor, 2004).

Employment has a negative relationship with the number of illnesses. When there is paid employment among the women, they suffer from a greater number of illnesses. This is most likely a result of having the double burden of working outside the home and then having to perform household work when their work day is complete.

Although 68 women (85%) do not have paid employment, 18 of these women said they hold unpaid employment positions including performing household chores and caring for family members. Types of paid employment include shopkeepers ($N = 4$), selling plantation goods ($N = 3$), a teacher ($N = 1$), a seamstress ($N = 1$), a hospital
worker (N = 1), and a flea market employee (N = 1). The women who do not have employment rely primarily on their husbands for monetary support (25.4%) or other family members in the country.

A final sociocultural factor that affects the number of illnesses women reported is fertility rate. Fertility rate and the number of illnesses are positively correlated ($r = 0.314$, $p = 0.005$) meaning that women with more children sick more often. The average fertility rate of the participants is 5.2 ($\pm 3.6$) children, larger than the country wide estimate of 4.1 children per woman (UNDP, 2004). Average fertility rates by age group are shown in Graph 5-4 with women ages 70 to 79 years with the largest average fertility rate of 11.1 children. This higher fertility rate corresponds with studies that show women...
in rural villages have a higher fertility rate due to their lack of access to family planning services.

**Graph 5-4: Average Fertility Rates by Age Group**

![Average Fertility Rates by Age Group](image)

*Multiple Regression Analysis*

In order to determine if selected sociocultural variables contribute to a greater number of illnesses among the participants in multivariate analysis, I entered age, education, marital status, and employment into a multiple regression equation using SPSS to ensure a common basis for comparison. The independent variables do not have a statistically significant effect on the number of illnesses in the previous year with $p = 0.061$ ($R^2 = 0.112$, Sig F = 0.061) (See Table 5-9). Therefore, I accept the null hypothesis stating that the regression coefficient is not equal to zero and there is no effect from any of these variables on the dependent variable.
### Table 5-9: Question 2 Multiple Regression of Dependent Variable on Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.229</td>
<td>0.123</td>
</tr>
<tr>
<td>Education</td>
<td>-0.149</td>
<td>0.310</td>
</tr>
<tr>
<td>Employment</td>
<td>0.022</td>
<td>0.843</td>
</tr>
<tr>
<td>Marital Status</td>
<td>0.047</td>
<td>0.684</td>
</tr>
</tbody>
</table>

*Significant at the 0.05 level (2-tailed).

Controlling for the four independent variables, age and education no longer have a significant effect on the number of illnesses among the participants as they did in the bivariate analysis. Age remains positively related with the number of illnesses as education continues to be negatively related with the number of illnesses. Again controlling for the independent variables, employment now has a positive relationship with the number of illnesses, suggesting that women with unpaid employment will have a greater number of illnesses. There are many forms of unpaid employment that the women are responsible for including housework, caring for the children, and plantation work. Due to their more strenuous nature, unpaid tasks apparently contribute to a greater number of illnesses among the Samoan women who perform them.
CHAPTER 6
DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

Access to health care services allows women in developing countries the chance to preserve and improve their overall health status. However, this access is often limited. In order to improve access to health care, an understanding of significant barriers should be a priority. This study investigated the barriers preventing adequate access to health care services for women in the rural village of Iva, Samoa, and established a relationship between various sociocultural factors and illness. This chapter provides a discussion of data analysis from the previous chapter, presents the conclusions and limitations of this study, and offers recommendations for future practice and research. Since the female population of Samoa is relatively small and extremely homogenous, the results and conclusions of this study from the village of Iva are fairly representative of rural Samoan women. However, variations may exist for Samoan women in other villages.

Discussion: Question 1: What factors prevent rural Samoan women’s access to health care services?

It is evident from this study that Samoan women’s access to health care services is fairly attainable since the number of illnesses in the previous year is a significant determinant in accessing health care services. Generally, the women accessed health care services nearly as often as they endured an illness or injury in the previous year. However, if access is not the problem, the question of what is truly causing poor health for Samoan women still remains. This study’s conclusions argue that barriers still exist which prevent women from improved access to health care services including the lack of
knowledge of available public health care services, the use of traditional medicine, the high cost of prescription drugs, and the younger age of many Samoan women. Access to health care services can be improved in rural Samoa. Other factors such as travel time, distance, staff quality, drug quality, employment status, and marital status do not prevent women from accessing health services. The original hypothesis that guided this study that stated traditional medicine use and cost prevent access to health care services has been validated. The hypothesis contending that wait time is a barrier in accessing services remains supported.

Number of Illnesses

Most notably, the number of illnesses in the previous year significantly determined women’s access to health care services. This finding reveals that Samoan women are generally able to access health care services when needed. Women appear willing and able to overcome less significant barriers such as lack of knowledge of services and high cost of prescription drugs in order to access health care services.

Availability

Of the five availability variables included in analysis, the qualitative analysis found that only the lack of knowledge of services blocked women’s access to health care services. This discovery supports similar studies which found that women’s simple lack of awareness and inadequate knowledge of the types of health care services provided prevents access (Penchansky & Thomas, 1981). This lack of awareness prevented younger women’s access, especially women ages 20 to 39, who only identified an
average of 1.3 services. Older women had knowledge of a greater number of services, especially women ages 70 to 79, who knew an average of 2.3 services.

The opportunity for older Samoan women to learn about available services through greater access is inherently related to the Samoan culture which values older individuals. Samoans esteem and honor older relatives for their wisdom and life experiences. Consequently, older women are allowed greater access and use of services. Through this increased utilization, older women have more opportunities to learn about the services offered at public facilities. In order to compensate for younger women’s lack of knowledge, education programs in primary schools, where there is a large percentage of female enrollment rates (71% of females), should offer information on public health care services.

Although quantitative analysis did not find wait time to be a significant barrier preventing access, the qualitative data discovered that an average wait time of 1.5 hours is too long to wait for preventive services. The women who did not feel the wait time was lengthy may have low expectations due to their limited experiences with other facilities. This finding supports previous studies which found that wait time deters women from accessing health care services (Taylor & Dower, 1997; Allman, Blumhagen, & Brown, 1992).

The three other availability factors of distance, travel time, and means of transportation do not prevent access to health care services. Although other researchers (Thaddeus & Maine, 1994; Stock, 1983) found higher access rates for people residing within five kilometers (3.1 miles) of health care facilities, this is not an issue for the
women of Iva, who reside between 9.6 to 12.8 kilometers (6 to 8 miles) from the nearest facility. Travel time to the Tuasivi Hospital is also not a barrier in the women’s decision to access services since Iva is located relatively close to the hospital. Public transportation is fairly accessible. Women’s access to health care services in more rural villages, where travel times are greater than two hours to an adequate public health care facility and bus service is not as frequent, may be limited. Further studies are needed to determine if these barriers exist for Samoan women in other villages.

Traditional Medicine

In this study, qualitative analysis revealed that the use of traditional medicine prevented access to public health care services. This is partially due to the belief that Samoans endure certain illnesses that can only be treated by Samoan traditional healers. This finding that younger women used traditional medicine more often in the previous year because these services are free suggests that they are unable to afford services at public health care facilities due to their lack of employment.

In particular, this study found the use of traditional village midwives to be a significant barrier to seeking obstetric services provided at public health care facilities. Older women, on average, gave birth at home more often than younger women. This finding implies that younger women are now recently giving birth more often at public health facilities instead of relying on traditional midwives. Although access to public health care services was prevented by traditional medicine use, this is not necessarily a negative finding. Samoan women are more familiar with traditional medicine, allowing for women’s trust to grow, an important quality in the culture. Also, traditional medicine
use does not have long wait times, high cost, or long travel times to acquire. This study found a much lower home birth rate complication of 2.4% of births than the facility birth rate complication of 8% of births, suggesting that it is safer to birth at home. The major concern with traditional medicine preventing access to public health care services is when advanced medical services become needed yet are not available from traditional healers.

**Affordability**

The total cost of accessing services, especially the cost of prescription drugs is a significant barrier to accessing public health care services. The qualitative analysis revealed that Samoan women continually stated that they did not access services when needed because they did not have enough money. This implies that poorer women in Samoa (most likely rural women) cannot access health care services, yet they also suffer from poorer health because they dwell in impoverished conditions, as found in similar studies (Hjortsberg & Mwikisa, 2002; Yoder, 1989).

A lack of paid employment significantly contributes to the inability of women to afford the cost of prescription drugs as only 12 women in the study are employed. Since 25% of the women rely on income from their husbands, this suggests that these women seek permission from their husbands in order to access health care. Samoan women with paid employment do not depend on others for income or access to health care. Also, women contributing to their family’s income are greatly valued, much like older Samoans. Without enough money, women will be unable to access services and purchase the drugs prescribed to them. This leads to a greater number of untreated or undertreated
illnesses, which may in turn encourage Samoan women to rely on traditional medical services.

Quality

Samoan women’s perceptions of quality of care, staff, and drugs are not barriers in the decision to access health care services. The perception of quality is often hard to determine and measure empirically or even conceptually. One problem with measuring the perception of quality of care, staff, and prescription drugs in this study is that the women do not have a basis for comparison. Women generally utilize services at the Tuasivi Hospital, where there is only one doctor, and they rarely question his abilities or knowledge. This is tied into the Samoan culture in which individuals of high social status, such as doctors, are esteemed and honored for their authority. This study proposes that Samoan women need more opportunities to interact with other doctors in order to further develop their perception of quality. At that point, further investigation of their perception of quality is needed. With those results, the Department of Health can work to improve the quality of their staff, if needed.

Sociocultural

Of the sociocultural variables analyzed, younger age most significantly prevents Samoan women’s access to health care services. The data found that older women have more access than younger women. This finding correlates with the cultural belief that older individuals are more important than younger individuals. Samoans are more likely to use their income to care for older individuals, even though older Samoans no longer contribute to a family’s productivity. Younger women are at a disadvantage because
their access to health care services is limited until they become older women. If younger women are allowed to access services more often, they may be able to prevent certain illnesses associated with old age. Future research needs to focus more carefully on age, its cultural association, and how it affects access to various types of health care services.

**Discussion: Question 2: What sociocultural factors are related to illness among rural Samoan women?**

This study’s findings identify the main factors related to a greater number of illnesses among the participants to be older age, lower education levels, and high fertility rates. Other factors such as employment and marital status do not contribute to a greater number of illnesses. The original hypothesis that guided this study stating that age and high fertility rates are related to illness has been validated. The hypothesis contending that marital status contributes to illness remains unsupported.

The participants with lower levels of education endured a greater number of illnesses than the women with higher education levels. This finding backs previous studies which found that women in developing countries without a primary education lack prospects for employment, which would in turn enable women to afford nutritious foods that improve their health (Buor, 2004; Hoffman, Pick, Cooper, & Myers, 1997; Zaidi, 1996). Since the women with lower education levels are also the older women, in this respect, is no surprise that age predicts a greater number of illnesses. Generally, women’s overall health status deteriorates as they age. Samoan women are obviously no exception to this rule.
High fertility rates also predict a greater number of illnesses among the participants. In general, a high fertility rate contributes to women’s overall poor health by increasing the likelihood of maternal mortality. This finding suggests that there should be more emphasis on the education and distribution of family planning methods in Samoa in order to decrease fertility rates and help contribute to the improvement of women’s overall health.

Marital status does not contribute to a greater number of illnesses among the participants, contradicting previous studies which found that married women spend more time caring for their husband, neglecting their own health and well-being (Feijoo & Jelin, 1989). Samoan women are not as heavily burdened with household work compared to women in other developing countries because the culture dictates that young girls and other women assist in household chores. This eases the burden on Samoan mothers from caring for their husbands and does not contribute to poor health conditions.

**Conclusion**

This study has several implications for Samoa, women’s health, and its public health care system. First, this study has shown that an increase in the awareness and knowledge of health care services allows for an increase in access to those services. This indicates that culturally appropriate educational programs through schools, radio, and television should provide this information. Second, this study has shown that despite the lower infant mortality and birth complication rate associated with village midwives, the use of traditional medicine prevents access to public health care services. This suggests that traditional medicine use should not be prevented, but encouraged, especially during
childbirth. Traditional healers should be encouraged to seek training in western medicine, to acknowledge their medical limitations, and to persuade women to seek advanced health services when appropriate. Finally, this study has shown that the high cost of prescription drugs significantly prevents women from accessing public health care services. The Government of Samoa along with the Department of Health should solicit monetary assistance from international aid organizations in order to help lower the cost of prescription drugs.

**Recommendations for Future Practice**

The conclusions and results from this study hold implications, both practical and theoretical, for Samoa. In order to improve Samoan women’s access to health care services and improve women’s overall health status, there should be a focus on increasing education, especially for young women, encouraging communication between traditional healers and the public health care system, and conducting future research aimed at improving the public health care system’s infrastructure and women’s health.

*Increase in Education*

Since the qualitative data found that younger women with less knowledge of public health care services have limited access to services, a focus on increasing their knowledge of available services is essential. Culturally appropriate primary and secondary school courses should include courses in health education, promotion, and awareness. With this knowledge, younger women will have the opportunity to learn about available public health care services, including maternal health and family planning services. An increase in the awareness of available contraceptive methods in Samoa will
also assist in lowering the country’s high fertility and STD rate. These programs can also focus on HIV/AIDS prevention before it becomes a major problem in the country.

Also, increased educational opportunities for women contribute to the acquisition of job skills, which in turn generally lead to greater employment prospects. With higher levels of education and employment, younger Samoan women can positively contribute to family income and earn a higher sociocultural status in their families. With this higher status, women will be valued much like older Samoans. This increased cultural importance will allow women an increase in access to public health care services.

**Communication between Traditional Healers and Medical Doctors**

The Department of Health must work to facilitate and encourage communication between traditional Samoan healers and medical doctors at public health facilities. Currently, these two health care systems exist side by side and do not work together to improve women’s poor health status. This interaction will help to remove problems of competition and lack of coordination between the two systems. Traditional healers should be offered opportunities for medical training, taught to realize the limitations of their treatments, and encourage women to seek sophisticated medical services when needed. Traditional medicine should be encouraged for individuals who do not have conditions that require public health care services. In this respect, the demands on the public health care system will be reduced and health care services will be distributed more efficiently at public facilities.
Improvement of Public Health Care System Infrastructure

Since women’s access to health care services is fairly achievable, the question of what is the root cause of Samoan women’s poor health remains. Although issues with the public health care system did not show up in the quantitative analysis, the qualitative analysis did an extraordinary job of highlighting the deficiencies in the system. First, the high cost of prescription drugs prevents women from purchasing the drugs or saving a portion for later when they are sick with the same symptoms. By decreasing the price, public health care facilities can increase the effectiveness of their interventions. There is a need to create policies that can address the purchasing and financing of less expensive drugs. Policies developed without an understanding of the high cost of drugs are unlikely to succeed in improving access to health care services.

Second, the high birth complication rate of 8% found in this study at public health care facilities in comparison to the 2.4% birth complication rate is troubling. The Department of Health insists that their facilities have adequate services and staff trained in maternal health. However, this statistic points out a possible deficiency in the system. Finally, the lengthy waiting times at public health care facilities highlight another problematic issue with the system. This study argues that an average wait time of 1.5 hours is too long, especially for preventive services. This long wait time deters women from seeking health care services. It is likely that this lengthy wait time is due to an understaffed facility as the Tuasivi Hospital has only one medical doctor. All of these issues need to be further researched to determine if these factors are contributing to Samoan women’s poor health. Improvements are possible in the system. One success
story comes from the Department of Health community level immunization campaign for infants and children in the early 1980s. This project has achieved great success and can boast a nearly 100% immunization rate in Samoa.

**Limitations**

While many interesting findings materialized from this study, there are three obvious limitations that must be considered. First, the size of the sample population is relatively small and may have hindered the results of the study as a larger sample size results in smaller sampling errors. Although the sample size began with 101 women, data analysis included only 80 women because of the incomplete responses provided by 21 women. Future research should include a 95% confidence level, whereas this study achieved only a 59% confidence level.

Second, the study included a large number of independent variables in comparison to the size of the sample. Generally, there should be at least 10 to 15 participants for each independent variable included in the multiple regression analysis. The inclusion of too many independent variables may have hampered the findings of the study and limited the generalizability of the results to the entire population. There is also a concern with measurement of the variables. In particular, there is a problem with the annual personal and family income measurement since it does not actually measure the amount of money the women have available to them.

Third, inconsistencies may be present due to the nature of data collection and procedures. Self report data may involve errors due to the underreporting or over reporting of behaviors or the simple inability to recall specific activities. Furthermore,
the participants’ answers may have been influenced by the presence of other women during interviews. Because Samoan culture is very communal and individuals rarely participate in activities alone, trying to isolate participants on an individual basis for private interviews proved to be a challenge.

**Recommendations for Future Study**

There are a few recommendations that would help to improve future studies on women’s health in Samoa. First and foremost, future study should focus on the infrastructure and adequacy of the public health care system. Investigation into the system will allow for an understanding of the quality and delivery of services provided and the qualifications of staff. These findings may help the Department of Health to understand the cause of women’s overall poor health conditions in Samoa.

Second, future study should further examine the pressure of the affordability constraints of transportation, user fee, and prescription drugs in a larger sample size. The qualitative date found that these cost factors prevent women’s access to health care services. Solutions to lowering the financial burden of health care need to be scrutinized more closely. Investigation of the relationship between cost and access to health care services should prove beneficial to the overall health status of Samoan women.

Another recommendation for future study would be to compare the level of access to health care services between Samoan women living in a rural and urban village. Since there was no room in this study to take into account the differences that may exist between two geographic locations, this is a relationship that could serve as an indication of unequal access to health care due to location. This knowledge could provide an
opportunity to improve access where it is prevented, allowing for a healthier female population throughout the country. Also related to this study is the need to compare the level of access between Samoan men and women and the factors that contribute to illnesses among men. It is unclear at this stage whether differences exist between access to health care services for Samoan men and women. Future research must focus on men as well to ensure equal and improved access to health care services for all Samoans.
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Ishida, D., Toomata-Mayer, T., & Braginzky, N. (2000, February). Beliefs and attitudes of Samoan women toward early detection of breast cancer and mammography utilization. Symposium conducted at the 7th Biennial Symposium on minorities, the medically underserved, and cancer of the American Cancer Society, Washington, DC.


APPENDIX A:

THE SOUTH PACIFIC OCEAN REGION

*Source: Ohio University Library, Government Documents Department, 2005*
APPENDIX B

GLOSSARY OF SAMOAN TERMS

‘Āiga    Extended family
A’a       Roots
‘Āpulupulu Sap
Asiasiga  Visitation
‘Ene      Pinching of the skin through massage
Fa’asāmoa Samoan way of life; Traditional culture
Fa’atosaga Traditional village midwife
Fale      Traditional house without permanent walls
Fatu      Seeds
Fono      Legislative Assembly
Fofō      Massage or traditional healer
Fōma’i    Doctor
Ila       Samoan skin rash
Koko      Cocoa
Komiti tumāmā Cleanliness Committee
Lomi      Massage kneading muscle groups with fingertips
Ma’i Aitu  Spirit possession
Ma’i Palagi White people sickness
Ma’i Sāmoa Samoan sickness
Malāla    Charcoal
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mālōlōina Soifua</td>
<td>Health</td>
</tr>
<tr>
<td>Matai</td>
<td>Village chief and leader of extended family</td>
</tr>
<tr>
<td>Meaalofa</td>
<td>Gift; Thing of love</td>
</tr>
<tr>
<td>Mili</td>
<td>Gentle massaging with the palms: Rubbing</td>
</tr>
<tr>
<td>Nifoloa</td>
<td>Tooth disease caused by the spirit, Nifoloa</td>
</tr>
<tr>
<td>Niu</td>
<td>Young coconut</td>
</tr>
<tr>
<td>O fuā la’au</td>
<td>Flower</td>
</tr>
<tr>
<td>Ota</td>
<td>Raw fish</td>
</tr>
<tr>
<td>Palagi</td>
<td>Person from European descent; Burst of light</td>
</tr>
<tr>
<td>Pe’epe’e</td>
<td>Coconut cream</td>
</tr>
<tr>
<td>Popo</td>
<td>Mature coconut</td>
</tr>
<tr>
<td>Suāsami</td>
<td>Salt water</td>
</tr>
<tr>
<td>Suāsusu</td>
<td>Breast milk</td>
</tr>
<tr>
<td>Suāu’u</td>
<td>Coconut oil</td>
</tr>
<tr>
<td>Suāvai</td>
<td>Fresh water</td>
</tr>
<tr>
<td>Talā</td>
<td>Dollar</td>
</tr>
<tr>
<td>Talo</td>
<td>Taro</td>
</tr>
<tr>
<td>Taulāsea</td>
<td>Polite word for a traditional healer</td>
</tr>
<tr>
<td>Taulealea</td>
<td>Untitled man</td>
</tr>
<tr>
<td>Tu’itu’i</td>
<td>Pummeling of the body through massage</td>
</tr>
<tr>
<td>Ufi</td>
<td>Yam</td>
</tr>
<tr>
<td>‘Ulu</td>
<td>Breadfruit</td>
</tr>
</tbody>
</table>
A determination has been made that the following research study is exempt from IRB review because it involves:

Category 2. research involving the use of educational tests, survey procedures, interview procedures or observation of public behavior

Project Title: Accessibility of Health Care Services and the Effects on the Health of Women in Rural Samoa

Project Director: Paige L. Miller

Department: Center for International Studies

Advisor: Elizabeth Collins

[Signature]
Rebecca Cale, Associate Director, Research Compliance
Institutional Review Board

2/2/04
Date
APPENDIX D

ENGLISH LANGUAGE RESEARCH QUESTIONNAIRE

1. What does being healthy mean to you?

2. How often do you go to the hospital each year? Why do you go to the hospital?

3. Do you ever become sick and not go to the hospital? What makes you choose to go to the hospital? What makes you choose not to go to the hospital?

4. Where do you go for medical care for yourself? Where do you go for medical care for your children?

5. How many children do you have? How many children did you give birth to? How many of your children that you gave birth to are still living? How many children did you give birth to at the hospital? If you gave birth at home, who assisted you during childbirth? Did you have any problems during childbirth at the hospital? Explain. Did you have any problems during childbirth at home? Explain.

6. How long does it take you to arrive at the hospital?

7. How do you get to the hospital?

8. How much money do you spend on transportation going to the hospital?

9. If public transportation is unavailable when you are sick, what do you do to treat your illness?

10. How long do you wait to see a doctor or nurse at the hospital?

11. How much do you pay to see a doctor at the hospital?

12. Where does the money to pay for the hospital fees come from?

13. Do you like the doctors and nurses at the hospital? Do you think they give you good care? Why or why not? Do the doctors and nurses ask all your questions? Do the doctors and nurses spend enough time with you? Do they give you medicine that makes you well?
14. How many times have you been sick in the past year? Explain. 
   How many times did you go to the hospital when you were sick?

15. How many times did you use traditional medicine instead of going to the hospital? 
   What treatment did you use?

16. Why did you not go to the hospital when you were sick?

17. How many times have your children been sick in the past year? Explain. 
   How many times did you take your children to the hospital when they were sick?

18. How many times did you use traditional medicine for your children instead of taking them to the hospital? 
   What treatment did you use for your children?

19. Why did you not take your children to the hospital when they were sick?

20. Why do you go to the hospital when you are sick? 
   Why do you take your children to the hospital when they are sick?

21. Do you know what services the hospital gives its patients? Explain.

22. What is your age?

23. What is your marital status?

24. What is your employment status?

25. What is your income level? 
   How does your family make money?

26. What is the highest level of education you completed?
APPENDIX E

SAMOAN LANGUAGE RESEARCH QUESTIONNAIRE

1. ‘O le ā le uiga o le soifuamālōlōina ia te ‘oe?

2. ‘E fa’afia ona ‘e malaga atu i le falema’i i tausaga ta’itasi?
   ‘Aiseā ‘e te alu ai i le falema’i?

3. ‘E masani ona ‘e ma’i, ‘ae ‘e te lē alu i le falema’i?
   ‘O le ā se mafuaga ‘e tatau ona ‘e alu i le falema’i?
   ‘O le ā se mafuaga ‘e le tatau ona ‘e le alu i le falema’i?

4. ‘O fea ‘e tatau ona ‘e alu ai mo se fesoasoani?
   ‘O fea ‘e te ave i ai lau fanau mo se fesoasoani?

5. ‘E to’a fia ou alo?
   ‘E to’a fia ou alo sa tupuga mai ia te ‘oe?
   ‘E to’a fia ou alo o lo’o soifu pea?
   ‘E to’a fia ou alo sa e fanauina i le maotagasegase?
   ‘Āfai sa e fa’atiga i lou maota, o ai sa fesoasoani ia te ‘oe i le taimi na e fanau ai?
   Sa iai ni faalavelave i le taimi sa e fa’atiga ai i le falema’i? Fa’amatala.
   Sa iai ni faalavelave i le taimi sa e fa’atiga i lou fale. Fa’amatala.

6. ‘O le ā le umi ‘e te malaga atu ai i le falema’i?

7. ‘E fa’aapea ona ‘e malaga atu i le falema’i?

8. ‘E fia se seleni ‘e te fa’aogāina mo femalaga’aiga i le falema’i?

9. ‘Āfai e lē maua se auala o femalaga’aiga i le taimi ‘e te ma’i ai, ‘o lea se fofo mo lou gasegase?

10. ‘O le ā le umi ‘e te fa’atali ai mo va’ai le fōma’i po’o le tausima’i i le falema’i?

11. ‘E fia se seleni ‘e te totogiina atu ai le fōma’i e vaaia lou soifua i le falema’i?

12. ‘E fa’aapefa ona ‘e maua mai se seleni ‘e te totogiina atu ai le pili o le falema’i?

13. ‘E te fiafia i le fōma’i ma le tausima’i i le falema’i?
   ‘O le ā sou iloa, e lelei le tausi’ina o ‘oe? ‘Aiseā?
   ‘E tali uma e le fōma’i au fesili pe’ā e fesili?
   ‘E lava ma ato’ato se taimi e avatu e le fōma’i ma le tausima’i mo ‘oe?
   ‘O latou avatui na ni fuala’au po’o ni vai’e te manuia ai?
14. ‘E fa’aafia ona ‘e maua i ni ma’i i le tausaga ‘ua te’a? Fa’amatalaga. ‘E faafia ona ‘e alu ai i le falema’i i taimi na ‘e ma’i ai?

15. ‘E fia taimi e te fa’aogāina ai fofō Sāmoa ‘e sui ai le malaga atu i le falema’i? ‘O ā ni fofo sa ‘e fa’aogāina?

16. ‘Aisēa ‘e te lē alu ai i le falema’i pe’ā ‘e ma’i?

17. ‘E fa’aafia ona mama’i au fanau i le tausaga ‘ua te’a? F’aamatala. ‘E faafia ona na ‘e avatu lau fanau i le falema’i i le taimi sa latou mama’i ai?

18. ‘E fa’aafia ona na ‘e fa’aogāina fofō Sāmoa ‘e sui ai le tu’uina’atu ō i latou i le falema’i? ‘O ā ni fofo sa ‘e fa’aogāina i lau fanau?

19. ‘Aisēa ‘e te le’i tu’uina’atu ai lau fanau i le falema’i, i le taimi sa latou mama’i ai?

20. ‘Aisēa ‘e te tu’uina’atu ai lau fanau i le falemai pe’ā mama’i?

21. ‘O le ā se itu’a tautua a le falema’i o lo’o ‘e iloa o tu’uina’atu i tagata mama’i? Fa’amatala.

22. ‘O le ā lou matua?

23. ‘E ia sou to’alua?

24. ‘O le ā lau galuega?

25. ‘E fia se seleni maua mai i lau galuega? ‘E fa’apefea ona maua ‘e lou a’iga ni tupe?

26. ‘O le ā le maualuga o au a’oa’oga?