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WOMEN'S HEALTH ACCESS AND BEHAVIORS: EFFECTS OF URBAN RESIDENCE, EDUCATION, SELF-DETERMINATION, AND SOCIAL SUPPORTS IN GHANA

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ABSTRACT

Ghanaian women's access to health care and behaviors were analyzed using the 2003 Ghana Demographic and Health Survey (GDHS) couple's dataset. The 2003 GDHS is a nationally representative survey designed to supply data to facilitate the monitoring of the population and health situation in Ghana as a follow up to the 1988, 1993, and 1998 GDHS. In this study the couple's dataset consisting of 2133 couples was analyzed and only female respondents were included. The number of women who provided answers to two of the dependent variables in this study was lower: for responsible sexual health behavior the N was 1714 and for hygiene behavior the N was 1228 women.

There was a consistent positive educational effect on physical access to health care, hygiene and prevention behaviors. Contrary to the hypothesis, there was no significant effect of women's education on psychological access to health care. Urban living provided consistent positive results for physical and psychological access, hygiene and malaria prevention but did not significantly improve responsible sexual behavior. There were mixed results for matriliny.

There was evidence that the self determination and social support variables added explanatory power in the models. For malaria prevention, these variables added explanatory power but did not mediate any effects of education, residence, or lineage. With respect to physical access and hygiene behavior the self determination and support network variables explained additional variance and mediated some of the effects of the demographic variables.

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CHAPTER ONE

BACKGROUND TO PROBLEM AND LITERATURE REVIEW

1.0 INTRODUCTION

This study will examine physical and psychological access to health care and health behaviors of women in Ghana. I will look at factors including the role of education, current residence in rural and urban contexts, self-determination, support networks and gender role norms with respect to women's rejection of domestic violence as these impact the outcomes of interest. Women's education is important in demographic discourse and policy because a number of studies have revealed that educated women are better than non educated women in accessing health care, using contraception, reducing fertility and enjoying many reproductive and child health outcomes (Benefo, 2006).

Urbanization also affects health access and behavior in diverse ways. The process of urbanization in sub-Saharan Africa has increased migration of people from rural to urban areas, and could have positive as well as negative implications for women's health. For example, urbanization could mean a loss or gain of access to health care systems (i.e. a health access argument) or urbanization could be related to social supports or community norms that promote health (i.e. a social capital argument). Urbanization could also mean that gender norms in traditional communities which may compromise women's health (such as male abusive attitudes and behaviors) are loosened or challenged in new urban settings.

As the subsequent summary of relevant literature will show, the research on urbanization in developing countries suggests that when women move to urban areas they gain in reproductive self determination and also in financial autonomy over their reproductive and family health decisions. This increased self determination may well occur through the transformation of traditional attitudes to modern ones which endorse small family size and women's rights. It also is likely to be affected by changing social support networks and the attitudes about women's self determination encouraged in those networks.

Likewise, traditional norms associated with gender and power which favor male dominance, even to the point of endorsing domestic violence as an acceptable norm, should change as women enjoy the benefits of education and more diverse networks of support available in urban areas. Many traditional assumptions about male and female roles and rights ultimately put women at risk of contracting sexually transmitted diseases because they are not free to insist that their partners use protection. What is not clear from literature is whether differences between urban and rural women and educated and less educated women in access and health behavior may actually be due to differences in their self determination or in their support networks. Women's autonomy is known to be positively related to education and is frequently assumed to increase if she lives in an urban area. Also in an urban area she is likely to be exposed to a broader range of information and support networks which should benefit her decision making about her health.

This study will address such issues. I will look at the impact of women's education, age, parity, current residence in an urban area, and lineage type on physical

and psychological access to health care and health behaviors. In addition, I will assess the roles of self-determination factors and social support networks as they impact health access and behavior.

Much is known and written about the proximate determinants underlying fertility decline in Ghana. However little is known about the socio-cultural factors that may be related to changes in women's attitudes and roles in household decision making which in turn impact their health access and health behaviors. It is possible that differences in self-determination factors and social support networks associated with living in urban areas mediate the effects of urbanization and education on health access and behaviors. Alternatively, women's self determination and social support networks may have additive effects over and above the effects of various demographic factors on health access and health behavior. This study will test these alternative explanations.

First, I will look at the relationships between demographic factors (in particular, education level, rural/urban residence, age, number of children under six years (parity), lineage type, and self-determination factors and networks that support women's reproductive decisions. Second, I will examine the impact of several demographic indicators (education level, age, current residence, lineage (patrilineal & matrilineal) and parity on health care access and health behavior outcomes. Following that, I will test models predicting health access and health behavior that include demographic, self-determination, and social support network indicators. If the effects of demographic variables on the outcomes are reduced when the self-determination and social support variables are in the model, we can conclude that these factors mediate the effects of specific demographic variables on health access and behaviors. Alternatively, if the self-

determination and social support factors add explanatory power but the effects of the demographic variables on outcomes are not reduced, we can conclude that the models are additive rather than mediating.

The study will examine urban and rural contexts in Ghana using the 2003 Ghana Demographic and Health Surveys (GDHS) Couples' recode dataset.

1.2 LITERATURE REVIEW

1.2.1 The Ghanaian Context

The country, Ghana, is located in West Africa, and borders the Gulf of Guinea, between Cote d'Ivoire and Togo in the southern end (Fig. 1.1). The geographic coordinates are: 8 00N, 2 00 W. It has an area of approximately 92,000 sq. miles or 230,020 sq. km. The country is divided into 10 administrative regions namely Greater Accra, Ashanti, Eastern, Central, Western, Volta, Brong-Ahafo, Northern, Upper West and Upper East. The climate is tropical, warm and comparatively dry along the coast, hot and humid in the southwest, hot and dry in the north. The capital city at Accra is situated on the Atlantic coast. A former British colony, Ghana had achieved independence in 1957 with Dr. Kwame Nkrumah as the first President. Ghana produces cocoa and timber, gold, diamonds and bauxite for export. Other characteristics of the country are summarized in Table 1.1.

Fig. 1.1 Map of Ghana

Upper Volta is now Burkina Faso

Table 1.1 Characteristics of Ghana

Characteristic	Description
Climate	tropical; warm and comparatively dry along southeast coast; hot and humid in southwest; hot and dry in north
Terrain	mostly low plains with dissected plateau in south-central area
Elevation extremes	*lowest point:* Atlantic Ocean 0 m *highest point:* Mount Afadjato 880 m
Natural resources	gold, timber, industrial diamonds, bauxite, manganese, fish, rubber, hydropower
Natural hazards	dry, dusty, northeastern harmattan winds occur from January to March; droughts
Environment current issues	recurrent drought in north severely affects agricultural activities; deforestation; overgrazing; soil erosion; poaching and habitat destruction threatens wildlife populations; water pollution; inadequate supplies of potable water
Geography	Lake Volta is the world's largest artificial lake
Population	22,409,572 *note:* estimates for this country explicitly take into account the effects of excess mortality due to AIDS; this can result in lower life expectancy, higher infant mortality and death rates, lower population and growth rates, and changes in the distribution of population by age and sex than would otherwise be expected (July 2006 est.)
Age structure	*0-14 years:* 38.8% (male 4,395,744/female 4,288,720) *15-64 years:* 57.7% (male 6,450,828/female 6,483,781) *65 years and over:* 3.5% (male 371,428/female 419,071)
Median age	19.9 years
Growth rate	2.07%
Infant mortality	55.02 deaths/1,000 live births
Fertility rate	3.99 children born/woman
Life expectancy at birth	*total population:* 58.87 years *male:* 58.07 years *female:* 59.69 years
Ethnic groups	black African 98.5% (major tribes - Akan 44%, Moshi-Dagomba 16%, Ewe 13%, Ga 8%, Gruma 3%, Yoruba 1%), European and other 1.5%
Religions	Christian 63%, Muslim 16%, indigenous beliefs 21%
Languages	English (official), African languages (including Akan, Moshi-Dagomba, Ewe, and Ga
Literacy	*definition:* age 15 and over can read and write *total population:* 74.8% *male:* 82.7% *female:* 67.1%

SOURCES: The CIA World Factbook, U.S. Department of State, Area Handbook of the US Library of Congress

1.2.2 Women in Contemporary Ghana

Women in Ghana are similar as well as diverse. For example, there are over one hundred different ethnic groups and languages spoken in Ghana. Some of the major ethnic groups are Akan with several different dialects, i.e., Ga/Adangbe, Ewe, Dagbani, Frafra, Dagati and so forth.

As a group, however, Ghanaian women lag behind men in educational attainment. The Ghana Living Standards survey shows that 44.1% of women compared to 21.1% of men had no formal education. Similarly, the Ghana Demographic and Health Survey of 2003 shows that nearly 50% of women have no schooling, 30 % have secondary (both junior and senior secondary) and only 2% have higher education. Factors such as poverty, early marriage, and teenage pregnancy prevent females from continuing their education to the tertiary level. The consequence is that the majority of women who have neither higher education nor marketable skills are unable to obtain jobs in the formal sectors. Therefore women, as well as men, migrate to find greener pastures in the urban areas.

The trend of urbanization began in Ghana after independence in 1957. In those days women who migrated were mostly those who were highly educated, got married later and therefore had fewer children compared to those who did not migrate (Goldstein & Goldstein, 1981; Hervitz, 1985). In recent times all classes of women, even uneducated girls and young women, migrate to cities in search of whatever kind of job they might find. A look at the streets of Kumasi and Accra, Ghana's two major cities, shows the extent and impact of rural to urban migration. Girls and young women stand at

the stalls and bus stations or move among the crowds with empty bowls. They work as transporters of burden and earn small incomes for carrying heavy loads. Most of these girls work long hours to support their families back in the villages of Northern Ghana.

Although there are differences in ethnicity, in rural-urban living, etc., most Ghanaian women face common health problems. Chronic health problems, malaria, pregnancy, disability and even cancer are some examples of the health concerns that can afflict women. Fertility decline has not changed much for most women in Ghana. Maternal mortality rates (MMR) in Ghana are estimated at 214 per 100,000 live births compared with 10 per 100,000 live births in developed countries. The situation varies from place to place in Ghana, from ethnic group to ethnic group as well as from lineage to lineage. For some ethnic groups in the northern part of the country the material mortality rates are as high as 500 – 800 per 100,000 live births.

In Ghana more than 90% of all the AIDS cases are found in people between the ages of 15-49 and two-thirds of the cases are females. Moreover, socio-economic factors (such as gender in equalities in education, share in formal employment and poor access to economic opportunities, resources, knowledge and less access to sexual and reproductive health information) and traditional gender norms are major factors that disadvantage most women in Ghana.

1.2.2.1 Access to health care

Ghanaian women also share certain health care concerns common for women in developing countries. Reproductive health, access to health care, and information about family planning are high on those lists. For example, maternal mortality is estimated to

be around 540 deaths per 100,000 births in Nepal and a major factor contributing to this is low use of maternal health care (Furuta & Salway, 2006). At least 35% of women in developing countries still receive no antenatal care, almost 50% give birth without a skilled attendant, and 70% receive no postpartum care. In contrast, maternal health care is nearly universal in developed countries. In developing countries, a range of barriers limits women's access to care, including: distance, cost, multiple demands on women's time, poverty and lack of decision-making power. Ensuring that women have access to maternal health care, particularly at delivery and in case of complications, is essential to saving their lives.

In sub-Saharan Africa half of all postpartum deaths take place within one day of delivery and 70% within the first week. Poor, rural women in sub-Saharan Africa and South Asia are the least likely to receive antenatal, delivery, or postpartum care (AbouZahr, 1997).

Access is an issue for women throughout the developing world. In Guatemala, Lindstrom & Munoz-Franco (2006) find that financial cost and geographic access are the most important barriers to formal birth delivery assistance. Geographical accessibility of health services has a direct bearing on the utilization of these services (Arcury et al., 2006, Gething et al, 2004, Bour 2003, Tsoka & Le Sueur, 2004, Benzler & Solarsh, 2001, Baume, Helitzer & Kachur, 2000). In one South African study, using GIS, Tanser, Gijsbertsen & Herbst (2006) predicted the median travel to the nearest clinic in Kwazulu-Natal Province to be 81 minutes with 65% of the homesteads traveling one hour or more to attend the nearest clinic. They found a significant decline in usage with increasing

travel time, although they also found that urban dwellers were more likely than rural or peri-urban to have the means to pay for private health care.

Proximity to care has also been shown to be an important factor affecting a large array of health outcomes. Distance to facility has been associated with high incidence of maternal and infant mortality. In Malawi, Lule and Ssembataya (1997) found that 90% of women wanted to deliver in a health care facility but only 25% of them did. The most important reason given by 53% of the women was that by the time they realized they were in labor, they did not have enough time to get to a health facility. Proximity, i.e., how far away an individual lives, has also been cited as the reason for decreased vaccination coverage (Acharya & Cleland, 2000), increased adverse pregnancy outcomes and decreased contraceptive use (Seiber & Bertrand, 2002; Debpuur et al., 2002).

Health education, prevention, and immunization programs also are more or less effective depending on distance. Wilkinson & Tanser (1999) disclosed that proximity to a health facility may be a factor in contributing to the success of tuberculosis eradication programs. Geographical accessibility is also a crucial determinant of the success of anti-retro viral drug programs for HIV amelioration now ongoing in many countries in sub-Saharan Africa.

Lack of transport to reach health care facilities is a major factor contributing to maternal deaths in Ghana and in most developing countries. It is also an important factor to consider in terms of a woman's ability to access maternal and child health care and family planning services. In most rural areas of Ghana, one in three women lives more than five kilometers from the nearest health facility, and 80% of rural women live more than five kilometers from the nearest hospital (Perry &Gesler, 2000). But distance is not

the only factor affecting access. Bad terrain, rugged topography, harsh climates, limited access and feeder road networks as well as socioeconomic barriers (Perry & Gesler, 2000) also are important. In developing countries, the scarcity of vehicles, especially in remote areas, and poor road conditions can make it extremely difficult for women to reach even relatively nearby facilities. Walking is the primary mode of transportation, even for women in labor. In rural Tanzania, 84% of women who gave birth at home intended to deliver at a health facility, but did not due to distance and the lack of transportation (Biego, 1995).

Geographic inaccessibility remains a major barrier in most parts of Ghana despite recent improvements in the country's road network systems. Still a significant portion of the population is at risk for various health concerns because they are resident in areas where there is little or no access to health services.

Buor (2004) revealed from his study at Kumasi that females in Ghana have a greater need for health services than males, yet they do not utilize health services as much. In addition, whereas quality of service, health status, service cost and education have greater effects on male utilization than on females' utilization, distance and income have higher impacts on female utilization. As a result, Buor recommended that women should be empowered through increased access to formal education and sustainable income opportunities. The introduction of a national health insurance scheme was also recommended.

For women in Ghana, disparities persist in access to care also due to economic factors. Uninsured poor rural women are mostly subsistence farmers or wives of resource poor farmers. These women do not have any form of insurance coverage (Arhin-

Tenkorang, 2001). They must pay for care and medicines and, being poor as they are, there is less use of preventive services. The situation is particularly bad for women who head households. They have many mouths to feed but few resources to provide for their children's (and often their grandchildren's) needs.

In rural areas in Ghana, there are not enough public health posts or clinics/hospitals to meet the health needs of the people. Some private practitioners are beginning to come in to provide services. But they are poorly equipped and understaffed and provide only very basic care. Typically they are not adequately trained to handle gynecological cases. So women who have such problems must raise enough money to travel to the capital in order to see a specialist. Also there is a communication barrier between health providers and people who seek health care. Often, in rural or urban areas, there are not easy means of communicating with women about the services that are available and how they can access them. Most public and private health facilities do not advertise about their services.

The main way that people find out about services is by word of mouth and that takes a long time for new information to diffuse throughout an area. Thus, support networks that provide information can promote women's health. Schools are one source where health information can be disseminated. However, in Ghana the national school curriculum does not contain sufficient information on reproduction, safe sex, HIV and AIDS, and other sexually transmitted diseases.

1.2.2.2 Psychological Access to Health Care

Physical access is only one access issue. Even when health care is geographically close and transportation available, there may be psychological barriers such as women's knowledge and sense of her right to access care, and her subordinate position in family decision making.

In fact, in some cases health facilities are located in close proximity to women but because of the lack of privacy and confidentiality in reproductive health choices and services, some women may travel outside their communities (D'ambruoso, 2006).

Besides privacy issues, women also face constraints in obtaining health care because of their subordinate position. For instance, if gender norms require a woman to have a husband's permission before she can access health care, she lacks psychological access. Similarly, if she must be accompanied by an escort against her will in order to access health care, this also means that the woman lacks psychological access to care. In certain cases women may refuse to access available health care because they do not think they can be seen by female practitioners. In addition, as others have found, women may not use health care facilities because the health care systems do not adequately address women's needs (Chao, 1999). Either there is insufficient focus on gynecological services or contraception or some providers do not make an effort to inform households about women's specific health needs.

Some traditional practices also reinforce women's subordinate position and thus can act as psychological inhibitions that keep women from getting health information that

they need. According to Abotchie (1997), puberty rituals among the Ewes of Southern Ghana provides occasions for the indoctrination of girls/women about the power of supernatural forces to affect women's judgments. The belief is that supernatural forces can discern men's thoughts and are ready to reward good deeds and punish bad deeds (i.e., acts that do not conform to what prescribed traditions demand). When such indoctrination is internalized early in life, they become what Abotchie describes as "psychic barriers" from which women cannot easily escape. This psychic barrier could have positive or negative consequences. It can serve as an informal social control mechanism, keeping people from antisocial or criminal acts. However, if psychic controls reinforce gender asymmetries in power, they can diminish women's freedom to exercise their self-determination and act as a psychological barrier to health care. This issue also will be taken up in the section on matrilineal and patrilineal lineage.

1.2.2.3 Urban and rural residence

For most women living in Ghana, their current residence (whether rural or urban) should have an impact on both their physical and psychological access to health care, the former because of the issues of distance and transportation, the latter because of community norms about women and health. In most rural areas in Ghana, there are no public transports and women must pay for private transportation in order to access health care services from nearby towns and urban areas where these health services and facilities are located. This situation is similar to that reported in other studies such as those in Kenya and in Mexico where transportation costs and distance plays a significant role in screening participation and loss to follow up (PATH 2002, 1998). Those studies

found that women who were initially approached by mobile health teams for free routine check-ups for cervical cancer could not find the needed resources to follow up for subsequent screening tests. The PATH study also shows that physical and psychological accesses to health care are intertwined. The study reports that, in Kenya, some male partners do not permit their wives to seek screening because they do not want them to travel long distances, which requires women to travel at night. Therefore in most resource-poor settings, women would visit health facilities only when they can finance their trip, negotiate their household responsibilities, and obtain permission from their husbands or family members.

The conditions of one's current residence also can expose women to health risks. For example, the availability and accessibility to potable water may reduce the prevalence of water-borne diseases among household members. The source of drinking water is important because potentially fatal health risks, such as diarrhea diseases, guinea worm, bilhazia, typhoid, cholera, and dysentery, common in Ghana are water-borne. Rural households in Ghana have less access to clean drinking water than urban households according to the 2004 GSS. That report also emphasizes that the lack of toilet facilities is more common in rural areas (31%) than in urban areas (7%). In rural areas people also are more likely to use firewood as their main source of cooking fuel. One in four urban households uses firewood while 87% of rural households depend on firewood with increased risk of respiratory diseases.

In sub-Saharan Africa, a number of quantitative and qualitative studies show how urbanization and residence in urban or rural areas can impact women's health, health access, and behaviors (Coast, 2006; Dodoo, Sloan & Zulu, 2003; Zulu, Dodoo & Ezeh,

2002; Adomako-Ampofo, Alhassan, Atobrah, Dortey & Ankrah 2004; Dodoo, Zulu & Ezeh, forthcoming,). Living in an urban area is associated with better infrastructure and transportation access to health care. Hoffman et al (1997) show in a peri-urban area in South Africa that 45.1 % of women used taxi while 35.4% walked to reach health services for acute illness.

Coast, studying male rural-urban migration in Tanzania and how it impacts sexual behavior, explains that migrating from rural to urban areas is an important process of change for rural populations in developing countries. She notes that by their very act of migrating, migrants are different from those who do not migrate. Based on Coast's work, we might conclude that people living in urban areas are inherently different from those in rural areas by virtue of the fact that they were prepared to migrate. In other words, they may already have had more modern ideas. Alternatively, a person's attitudes could change as a result of the kinds of information and support network exposure in the urban vs. the rural area.

Findings from the community epidemiologic studies of social integration and mortality point to rural-urban differences in the nature of social integration and support. Research on health and social integration across many different contexts indicates that social integration, measured by marital status, organizational involvements and contacts with friends and relatives is inversely associated with mortality (House, 1987). Lewis and Maund (1976) note that greater mobility potential in urban areas allows wider migration and kinship distances. Thus traditional supports from kin may be loosened with migration to urban areas. This could have both positive and negative consequences for health. It could be positive if the controls by kin are lifted and women can make

decisions for themselves. It can be negative, however, if women do not find other support systems to replace their kin networks.

Compared to rural areas where family and work are more integrated, in urban areas work and residence become separated. Friendship ties also become more diffuse. House (1987) explains that the social contacts and integration in small towns and rural areas may occur more as part of the events of daily life such as seeing friends and relatives and even neighbors at work, church services, or caring for children, and less in the context of planned or organized activities. In general, one would expect more autonomy associated with urbanization, more decisions made by the woman including her own choice of support networks as opposed to the built in ones of kin typical in rural areas.

One way that women in urban areas may be asserting their autonomy is in their fertility. There is a large body of literature showing differences in family size between urban and rural areas. More of this will be taken up in the section on family size. Urban living does expose women to more sources and more diversity of information. For example, in one South African study, women's knowledge and utilization of health services improved with increasing education, urbanization and being a member of an alliance household (this is a mixture of family, friends and lodgers) (Hoffman, Pick, & Myers, 1997). The very concept of an alliance household – a mixture of family members, friends, and others – points to the more diverse nature of social interaction in an urban area.

1.2.2.4 Education

Education can lead to changes in a woman's values, beliefs, power, knowledge and self-determination which in turn lead to improved nutrition, reduced fertility, responsible health behaviors and lower mortality. At the end of colonization in Ghana, Pellow (1978) observed that education became an important criterion of status in the emergent social system of the urban area because it was an avenue to European-type occupations. The civil service bureaucracy expanded so that western training became a practical necessity for those interested in white collar jobs.

Education provided esteem for the new African elite, whose affiliations and aspirations presented a challenge to traditional values. The new African elite constituted a closely knit group. Members of the groups ranking highest on the prestige continuum created new patterns of values that filtered down through the society. They became the pacesetters and within such groups new values had a faster acceptance rate which ultimately was accepted by the population at large. Therefore the indigenous, western-educated few became mediators between European and African traditional values and were responsible for directing social change.

A major reason that education is related to health in the developing world is that, the better educated a woman is, the better are the job prospects and income earned. Gisselmann (2006) shows that maternal childhood and adulthood social class are both independently associated with inequalities in health-related birth outcomes and that social differences have a greater impact on health outcomes closer to the birth. Fatusi (2004)

shows that, in Nigeria, women with more education are more likely to seek health care during pregnancy and delivery, a fact likely related to the reduced mortality associated with higher education. Onah, Ikeako and Iloabachie (2006) make a similar observation that, in Nigeria, the percentage delivery in health facilities increased with the number of years of both the respondents' and husband's education.

Education also has a positive relationship with health in the developed world and similar associations are very likely in the developing world as well. Ross and Wu (1995) explain the positive association between education and health as falling into three categories: Work and economic conditions; 2. Social and psychological wellbeing; 3. Healthy lifestyle

Their analyses of national probability samples of U.S. households showed that, compared to the poorly educated, well educated respondents are less likely to be unemployed, are more likely to work fulltime, to have fulfilling, subjectively rewarding jobs, high incomes, and low economic hardship. In all their analyses, full time work, fulfilling work, high income and low economic hardship significantly improved health.

Further, Ross and Wu showed that well educated persons reported greater control over their lives and their health and had higher levels of social support. They also found that education affects health behaviors, i.e., the well educated are less likely to smoke, more likely to exercise, get health check-ups and to drink moderately, all of which are associated with good health. In summary, high educational attainment improves health directly and it improves health indirectly through work and economic conditions, social-psychological resources, and a healthy lifestyle. Although these studies were done in the

United States, the arguments for a connection between education and health should be similar in developing countries such as Ghana.

Educational attainment is not only related to income and to health but also to fertility. Akin (2005) shows in a study covering 14 Middle Eastern countries that the education of females, female labor force participation, and urbanization are negatively associated with fertility. Larson (2003) attributes a significant drop in fertility in Tanzania compared to neighbor Uganda to effective enrollment patterns for girls in education.

Tawiah (1984) reveals that increasing the level of schooling of Ghanaian women is associated with a steady fall in fertility. He shows that illiterate women have 1.3 more children than their counterparts with post middle education and that women with primary education have virtually the same as illiterate women. When age at first marriage, religion, husband's residence and form of marriage are held constant, the differential remains the same. He shows that for both young urban and rural women, the level of education was the best predictor of women's fertility and health.

The effects of education on fertility are, in part, due to delay in the age of marriage. Improvement in woman's schooling raises the age at marriage, which also tends to reduce fertility. In addition, education improves the woman's human capital and economic productivity which gives her more status and bargaining power in the household. A woman with more bargaining power in the household has more power to determine her psychological access to health care and wellbeing as well as her reproductive behavior.

Increasing women's schooling has more benefits for children than does increasing men's schooling (Schultz, 1993; Haveman &Wolfe, 1995; Duncan et al, 1996). Studies from several developing countries have shown that mothers' literacy and schooling are closely related to child health and survival (Sandiford et al., 1995). Mosley (1985) argues that women's gaining formal education has contributed more to mortality reduction than the provision of health services. School attendance and women's literacy in most developing countries depend on a host of economic, social and even psychological factors which could independently account for the education-child health link (Hobcraft, 1993). But part of the effect of female education on children's health is likely due to the changes in nutrition and preventive health behaviors that more educated women would initiate in the household.

However, in Ghana, approximately half of the adult female population has no formal schooling. Some studies indicate that the gap in male to female education is even worse with 60% of men receiving formal western education vs. only 30% of women (Coker-Appiah & Foster 2002). Drop out due to pregnancy has been cited as an important reason for the attrition rate of girls. Although Ghana Education Service policies do not discriminate against girls who become pregnant, covert forms of discrimination persist both from school authorities as well as from school mates.

Education has a positive impact on women's contraceptive use. Saleem and Bobak (2005) found this relationship among women in Pakistan. They also found a positive association between women's decision making autonomy and both lifetime and current contraceptive use, after controlling for background factors. As already noted, education has an impact on the behavior of individual women but women who receive

education do become roles models in their communities. Besides the connection between education and parity at the individual level, average levels of education in a community or country also can impact fertility in the region.

There is some evidence that rising levels of female education in a community affect the health behaviour norms and outcomes even for uneducated women. For example, Benefo (2006) finds that women's level of education within a community has the advantage of lowering the fertility levels of other women in those communities. Likewise, Jejeebhoy (1995) concluded that, in countries where women's literacy is high, primary education is more likely to push fertility down. Kravdal (2000) explains this phenomenon by noting that a general rise in women's education in a country may change norms and undermine old ideas about women's rights and obligations. Thus, even for a woman with little education, fertility may decline if there is an improvement in the general education and status of women in her community.

1.2.2.5 Age

In Ghana women live longer on average than do men. Yet they experience greater morbidity and tend to have less access to health care (GSS, 2004). Older women in Ghana tend to experience more weakness and morbidity than younger ones. Therefore for women who are older, health services play a key role in the quality of life they lead. This may not include just the ability to afford and access health services but also the way in which an older woman will be treated by health professionals. Generally older people, especially women, are respected in Ghana, but they can also be neglected or ill-treated by some health professionals (D'Ambruoso, 2006).

With respect to a woman's sexual health behavior, it would seem plausible that, as women grow old, they would become wiser and be more responsible. At the same time, modern health education campaigns aimed at youth may be leaving older women out in the campaign against sexually transmitted diseases. It may be more likely for young people to be aware of health services and to take precautionary measures. For example, there may be many reasons why young women would be more likely than older women to engage in condom use. Besides lower levels of education, elderly women are usually very traditional and they and their spouses are likely to strictly observe traditional norms that tend to forbid use of condoms.

1.2.2.6 Number of children

Ghana is at the initial stages of a fertility decline (Benefo, 2006). Between 1988 and 1998, total fertility rates (TFR) declined from 6.4 to 4.6. Some of this decline is due to urbanization. The urban rates declined from 5.3 in 1988 to 3.0 in 1998 while the rates in rural areas declined from 7.0 to 5.3. Changes in sexual behavior and in the use of contraception have been the reasons for declining fertility. In urban areas, the contraceptive prevalence rates for married women aged between 15 and 49 increased from 9.5% in 1979 to 20.3% in 1998 while in rural areas, they increased from 9.9 to 18.1% (Lloyd, Kaufman & Hewet, 2000; Ghana Statistical Service, 1989; Onuoha & Timaeus, 1995). In rural Ghana, like elsewhere in sub-Saharan Africa, there are bigger families (higher parity or fertility rate) than there are in urban areas.

The decline in family size associated with urbanization is also found in other areas of sub-Saharan Africa. Chattopadhyay & White (2000) find that the length of stay

in a rural area has a positive and significant association with fertility. Studies in the 1970's show that family size in urban areas of sub-Saharan Africa was smaller than in rural areas. Kuznets (1974) shows that, the average urban ratios of children under 5 to total population are lower than in the rural areas in sub-Saharan Africa. This he interpreted as evidence of lower fertility (as opposed to higher mortality rates) among urban than among rural populations in Sub-Saharan Africa. In South Africa, fertility varies by the duration of time a woman has lived in an urban area. According to Pick and Obermeyer (1996), women who had been in the urban areas for more than ten years had a total fertility rate (TFR) of 2.5 while those who had been in the urban areas for less than 10 years had a TFR of 5.8.

Similar to the results for South Africa, fertility rates are lower for women who live in urban areas in Ghana. All four rounds of the four Ghana Demographic and Health Survey confirm that fertility indicators are lower for urban than rural women and also that the higher the educational level of the woman the lower the fertility indicator (GSS, 2004; Agyei-Mensah, 2005). Urban-rural differentials in fertility provide further insights into the nature of the decline of fertility in Ghana. In the early stages of the Ghana fertility transition Agyei-Mensa (2005) observes that urban fertility declined substantially from 5.1 in 1988 to 4.0 in 1993. However, rural fertility did not experience any marked decline in this same period staying at TFR of 6.6 in 1988 and 6.4 in 1993. Urban fertility, however, continued to decline to 3.0 in 1998, with rural fertility also showing a substantial decline but far behind the urban rate from 6.4 in 1993 to 5.4 in 1998 (Agyei-Mensah, 2005).

As far back as 1970 Pool revealed that urban women in Ghana prefer smaller ideal family sizes than do rural women. The number of children a woman has can itself be a barrier to health care access because the woman may have no one to provide child care. In cases where the woman does not have familial ties to provide free childcare, having more children would limit a woman's physical access to health care (PATH, 2002).

Women's fertility, health, education and economic well-being are closely related. A typical Ghanaian woman spends 16 years of her productive life pregnant or breastfeeding. Early childbearing is a major health problem in Ghana, where more than 60 percent of women are either pregnant or mothers by age 20 (Chao, 1999). Women in Ghana average six children apiece, more in some regions. And many births are high-risk. So Ghana's maternal mortality rate is high. Early childbearing often terminates a young woman's schooling, and having a large family severely restricts her job choices, work productivity, and mobility.

1.2.2.7 Self-determination/decision making control/Financial autonomy

Hackett (1995) defines self determination as women's right and ability to make real choices about their lives: their fertility, sexuality, childcare, the means to be independent and all the areas in which they are denied autonomy and dignity in their various identities as women. There is convergent evidence from many studies showing a positive relationship between a woman's level of attainment in education and her self determination (Lesthaeghe, Vanderhoeft, Gaisie, &Delaine 1989; Caldwell, 1982; Dyson &Moore 1983; Dodoo, 1993; Behrman 1997). Oppong (1970), analyzing survey

responses from male senior civil servants observed that money, occupational level, and education enhanced a wife's power position in the urban family in Ghana. Wives who brought to marriage comparatively large amounts of scarce and valuable resources were reported to be more influential in decision making. Thus the balance of power was more equal in those marriages.

Oppong's (1970) study was conducted in Accra, Ghana. He found that couples were more likely to report syncratic decision-making when the wife's education level most closely approximated that of the husband. Twice as many husbands married to unemployed wives compared with those married to employed wives reported that they were dominant in the home. This suggests that when women are employed they have more power to influence decision making. Factors that may explain this relationship include the power they obtain from contributing to the household income, control of the purse strings, resource pool, having a life outside of their role as wife or mother, and sense of their own autonomy.

Not surprisingly, Larsen and Hollos (2003) show that lower fertility in women is commonly associated with women's reproductive autonomy. In their study of the Pare women of Northern Tanzania, Larsen and Hollos examined spousal communication and women's empowerment as separate factors on the adoption of contraception. Their results indicate that the empowerment of women as measured by their level of education and religion enhances joint decision making with their spouse and thus has an indirect effect on the adoption of contraception. In addition the empowerment of women as measured by the woman's occupation outside of farming also is associated with

contraceptive use. This suggests that when women have purchasing power, they have fewer children because they are making choices about family size and condom use.

In most developing countries, the wealthier a household is, the longer would children from such a household remain in school. Higher levels of income and wealth also enable children to have good nutrition and enjoy better access to health care. Caldwell (1979) explains the mechanisms whereby this may happen. According to Caldwell (1979), education leads to changes in a woman's values, beliefs, power, knowledge and her empowerment which in turn leads to improved nutrition, reduced fertility, and lower mortality either through better domestic child care or more effective use of health services.

In Ghana, women's autonomy is dependent not only on their access to income but also on the amount of control they exercise over their earnings. The GSS (2004) asked women about how their income is used. About 75% of women who earned income reported sole responsibility for decisions about the use of their earnings, while 18% reported that the decision was jointly decided with their husbands. According to the GSS (2004), women's autonomy increases with age, marriage, and child-bearing. Twenty percent of never married women report having no say in how their earnings are used (decisions rest with parents), while a similar percentage of currently married women report that they make joint decisions with their partners. The report also reveals that joint decision making increases with the number of children a woman has. Fifty percent of women who have no children have no say in how their earnings are used compared with 25% of those with one or more children.

Autonomy over cash earnings is higher among urban than rural women, and differs for women who belong to different ethnic/lineage groups. According to the GSS (2004), education and wealth exert only a little influence on control over a woman's earnings. Seventy-eight percent (78%) of women with at least secondary education or in the highest wealth quintile compared with 70% of women with no education or in the lowest wealth quintile have the sole say in how their earnings are spent.

In addition to women's education and employment status, women's self-determination is realized through their empowerment. Women's role in household decision making, their rejection or acceptance of domestic violence, and their inclination to refuse sexual relations that could pose a risk to their health all reflect women's control over their environment. These are all important factors in women's ability to make independent decisions about their own health care access and needs.

1.2.2.8 Rejection of domestic violence/gender and power

In Ghana, there is a long history of gender asymmetries in power and prestige. These are maintained by cultural practices in everyday life. For example, in the economic and social spheres, males are more frequently allotted tasks that involve leaving home. The emphasis in their training is on public accomplishments while women and girls' tasks are home directed (Barry et al.; 1973; Nabila, 2001, Adomako-Ampofo & Boateng, 2005). Accordingly, girls carry the greater burden of domestic work while boys are geared towards more productive work and are permitted more time for play and to be away from home. Whereas men are not required to ask permission from their wives

before they embark on major decisions such as buying or selling land, in most instances women are required to consult with their husbands before making decisions.

Likewise, in most traditional settings in Ghana, wife beating or disciplinary actions against women are permitted as the norm. At the same time women do not have authority to fight back or challenge their situation. Attitudes towards gender asymmetries in power are found at an early age. In a study of adolescent boys in two towns in the Eastern Region of Ghana, Adomako-Ampofo and Boateng (2005) found that boys believed that the "husband's" role gave him the rights to make major decisions affecting the family without consulting his wife. They also believed that his role gave him power over what the wife should or should not do. In some cases, boys believed that a wife's "disobedience" justified a beating. They also felt that men were justified in divorcing a recalcitrant wife, or returning her to her parents, presumably a scenario no woman wants. If boys are conditioned to see marriage as a major step in the trajectory towards manhood, with its attendant privileges relative to women's, boys can be expected to seek marriage, and to enforce these gender divisions once they do get married (Adomako-Ampofo & Boateng, 2005).

Ultimately, gender inequalities have a negative impact on women's health. For example, Faruta and Salway (2006) find that gender inequality constrains women's access to skilled health care in Nepal. Education does improve the situation. The good news for interventions is that, over and above the effects of education, interventions that improved communication between spouses and strengthened women's influence in the family altered their perceptions of the value of skilled maternal health care and thus improved women's health.

In Ghana one way in which women's health vulnerability is manifested is through gender inequalities where some women lack or are denied the ability to protect themselves from infections, negotiate safe sex, and say no to unprotected sex. This is especially the case in situations where they rely on their partners socially and financially for sustenance. Some women without skills and resources resort to prostitution and this makes them even more vulnerable to STDs including HIV/AIDS.

There is a popular practice in Ghana for men to have multiple sexual partners. It is also common for men to demand unprotected sex from their spouses. For these reasons, men are vectors in the spread of HIV/AIDS. One result is the high mother-to-child transmission of HIV/AIDS, which accounts for about 15% of all modes of transmission (EiLDAF/FeDDAF, 2000).

1.2.2.9 Matriliny and patriliny

The household is made up of the father, mother, their children and the extended family. The head of the household which usually consist of several households of the clan members is called (*abusuapanin),* meaning family head. The head of the family is usually a deserving elder. No important decision ever gets implemented without being endorsed by the family head. To belong to a family or lineage network means a great deal to each member of the household. No member of the family ever needs to stand alone. Whether right or wrong his family would always be on his side.

Matrilineal lineage may play a role in women's health care access and behaviours. Kinship, defined as the network of people with relationships and ties around common parenthood, has been cited as a conduit for resource pooling and wealth exchange and as

a mechanism through which people deal with problems they encounter (Douglas, 1990; Agree et al., 2000).

The traditional ethnic or familial moral codes that are prescribed by groups in Ghana become the dominant frame of reference which gives legitimacy to the individual's action (Abotchie, 1997). As the political authority at the lineage level, the lineage head interprets a moral code including sanctions to lineage members. The lineage head frequently consults the elders within the group for their opinions. The traditional sanctions are both sacred and secular. With respect to the Ewe of Southern Ghana, Abotchie notes that both the religious and secular sanctions constitute a persuasive and a coercive influence on the behavior of the individual.

In the traditional southern Ewe society, the group that effectively controls the conduct of its members is the lineage group called *fome* (corporate group or collection of families recruited by patrilineal descent). Generally traditional Ewes use the term *afedo* to distinguish the patrilineage. Presiding over a patrilineage is *ametsitsia* (the elder) who is usually the most senior surviving responsible male. He is assisted by a female counterpart who is concerned with the affairs of the female members of the lineage.

Lineage groups are organized along ethnic lines in Ghana. Major ethnic groups in Ghana include Akans, Ewes Ga/Adangbe and Dabganis. Among the Akans, there is the belief that ancestors feel closest to the kin of his/her mother. It is believed that a child inherits his/her father's spirit (*ntoro*), but his/her flesh and blood (mogya) comes from his/her mother's clan (*abusua*) (Sarpong, 1991; Bleeker, 1966).

The spirits of a person's ancestors are believed to be always on his side protecting him. She/he in turn respects them and does their bidding. For an Akan person, his family

and his mother's clan are most important. His loyalty belongs to them first, to his village chief second, and third to the King (who is the head of the State, i.e., The King of Asante or Akyem, etc). When traveling, an Akan would typically look for members of his mother's clan in the new village, town, or city.

There are similar arrangements for all ethnic groups in Ghana. But the extent to which the familial ties have existed and survived the test of time and modernization varies from group to group. As much as other ethnic groups continue to be held together by various means, it appears that the Akans (matrilineal groups) retain much stronger links than are observed with other ethnic groups.

Fortes (1969) document the role of the Akan lineage in providing assistance to its members in times of trouble, debt, or extreme distress in Ghana. The lineage as a group cannot be held responsible for the private actions of one of its members but it is incumbent on the head of the lineage to take action to save a member from being driven to desperation by debt, misfortune, or psychological problems. This is so also for other lineage or clans across the country. Therefore people belonging to particular lineage or groups have some assurance of strong support behind them in times of trouble. This boosts their self-esteem and keeps them remain psychologically stable and healthy.

Matrilineal and patrilineal kinship systems (lineage) have implications for wealth exchange processes among the kin. Each system has its own context within which kinsmen manage their affairs and respond to problems and patterns in the distribution of resources (Douglas, 1990; Agree et al, 2000). Under matriliny, a family descends along the wife's lineage rather than along the husband's. The authority for the distribution of resources (land, farms, and properties) from the wife's lineage rests with the woman and

her maternal brothers and uncles. The woman's brothers (*Wofa*) are obliged to look after the sister's children and to ensure that the sister and her children have access to resources, education, and health care.

The value of the girl-child is almost inestimable in a matrilineal group because it is in them that the lineage puts the hope for its future existence (Sarpong, 1991). In matrilineal groups, it falls to the women to provide suitable persons to take up offices and to strengthen the lineage. Sarpong explains further that, whereas the boy is incapable of providing successors for the matrilineage, in the girl, the lineage has potential males as well as additional potential females. A man without sisters is a lost man because in the absence of his sister's sons he has no heirs to whom he would leave his inheritance.

In Ghana, women in matrilineal lineage exert a fair amount of reproductive autonomy (DeRose, 2003). Traditionally, even prior to the rapid fertility decline in Ghana, child-bearing in matrilineal groups had been more of a woman's own affair than it is in patrilineal groups. This is because children belonged to the mother (DeRose, 2003). Dodoo (1995) shows that in Ghanaian matrilineal groups in 1988, women's intention to stop childbearing was a significant predictor of contraceptive use while men's intentions were not. With respect to women belonging to patrilineal groups DeRose (2003) observes that wives became more likely to use contraception if either partner wanted to stop childbearing or contraception was at its highest when both wanted to stop. In cases of conflict, it was the man's influence that mattered. However, DeRose (2003) revealed that, over the past decade, there has been a decrease among matrilineal groups in women's relative power in cases of reproductive conflict between spouses.

It is not clear whether matriliny is related to smaller family size. DeRose (2003) revealed that contraceptive use rates increased more among matrilineal groups in Southern Ghana than among other groups. At the same time, matrilineal tradition recognizes and rewards a woman when she contributes to the lineage size. When a couple has their tenth child, the woman's family awards them with the *Badutwan.* The husband is rewarded because he has increased the woman's lineage size by a ten fold. So traditionally Akan women who are matrilineal, even the educated ones, are not inclined to limit family size.

It could be expected that the autonomy and wealth flows that women enjoy under matriliny would enable them to have better access to health care (especially psychological access to health care). Their traditions give preference to women's decisions and the kin system would support and reinforce them by pooling resources. Women in matrilineal lineage might therefore be expected to enjoy better health than those who do not have the privileges that these women have. However, Mtika and Doctor (2002) found little evidence to support similar propositions in Malawi. This needs to be investigated further, especially in the case of Ghana where the matrilineal ethnic groups constitute a significant number representing 45% of the population.

Both matrilineal and patrilineal kin groups exert social pressures on their members to act in specific ways. Among some patrilineal groups in Ghana, there are prescriptions for acceptable male and female roles which are used to maintain social control over women and girls (Nukunya 1992, Abu 1991). Thus, in spite of the constitutional and legal guarantees in Ghana, the reality on the ground does not quite measure up to the equal rights for all provided under the laws. Indeed, since 1997 there

has been a drive within the Ministry of Education to focus on the “girl child”. Yet, many more men still receive formal education than women.

1.2.2.10 Social support networks

In Ghana as in other African countries, the boundaries of household, firm and market are mobile and permeable (Udry & Conley, 2005). Procedures resembling market transactions occur within households and family-like interactions take place across households and communities, villages, and towns. Individuals participate in numerous social relationships of varying qualities and intensities with a variety of different people. Aspects of these social relationships that have been documented include learning about a set of new technologies, alternations in established patterns of land resource management, a dramatic shift to more capital-intensive production, and important new risks. On each of these dimensions, patterns of change are fundamentally conditioned by the structure and composition of social networks (Udry & Conley, 2005). Their work in Ghana shows that changing attitudes – in farming, for example – is influenced by social networks. Udry and Conley observe improvement in adoption of fertilizer use technology by farmers participating in some form of social networks. Duda et al. also show that pineapple growers who had social networks were able to increase the production and profits far beyond those who did not participate in social networks.

Network size and diversity increases as one move from small to medium to large cities in Ghana. Diverse networks also can positively affect health. In Guatemala, Lindstrom & Munoz-Franco (2006) find that urban migration experience and having

relatives abroad are associated with a greater likelihood of formal prenatal care utilization. In rural areas in Guatemala awareness and the lack of acceptance of the available health services are important barriers to the use of formal prenatal care. This suggests that the social networks with which one interacts are likely to play an important role in normative influence about and support for health care.

Network characteristics for women vary with location and size of the networks. Comparing rural with urban women, the former tend to have smaller and less diverse networks. In particular, rural women tend to have fewer linkages with people who are not members of their lineage or extended family system (Bleeker, 1966).

Women in big cities such as Accra or Kumasi tend to be more cosmopolitan than those in rural areas. They should be more likely to have access to connections that link them up to modern, sophisticated yet affordable health care procedures. They also should have more knowledge of and access to health insurance schemes than those in rural areas. Even if network size is the same in Accra and Kumasi, network diversity should be greater in Accra than in Kumasi because of the former's cosmopolitan nature with more people from different ethnic groups and from other countries living there. This is important because diverse networks can introduce women to new, non traditional ideas including information about contraception and family planning. Exposure to diverse networks also can change women's attitudes about their rights to self determination and their attitudes about whether norms about domestic violence and gender inequalities should be tolerated.

Social support networks are provided in Ghana through four major streams: family, community, faith, and work based support systems. These different types of

support systems provide weaker members of the society with essential support in terms of equipment and logistical needs, as well as responding to the financial, informational, appraisal and emotional demands of people. Research in Ghana has shown that women with some social support networks are more likely than those without to pursue healthy lifestyle behaviors (DeRose, 2003, Udry & Conley 2002, Duda et al., 2006, Fortes, 1969, Wolf et al., 2003). DeRose shows that support networks improve contraceptive use among women.

1.2.3 Health Behavior Pathways

Social support networks impact health through many diverse ways (Berkman, Glass, Brissette & Seeman, 2000). Social influence is one such pathway. People judge their actions and adapt to changes by comparing their own attitudes with those of a reference group they consider better placed or more informed. So it is likely that educated women with access to western media in urban Ghana will be the first to modify their contraceptive behavior before rural or uneducated women without any access to such media.

Shared norms around health behaviors remain potential sources of social influence (Berkman et al., 2000; Marsden & Friedkin, 1994). Those influences can be positive or negative. Berkman et al. (2000) show that social networks working through social influence or supportive functions influence both health-promoting as well as health-damaging behaviors (Fig. 1.2).

I will summarize the positive effects of social networks followed by a discussion of the negative effects. One example of positive social influence from Ghana's context is

that Ghanaian women begin to use contraceptives after their neighbor with whom they share links in information network uses contraception (DeRose, 2003). Similarly, as already noted, among pineapple farmers, Udry and Conley (2002) find that farmers' use of fertilizer increased after their information network partners increased their own usage of fertilizer to increase their output.

In a study of the Inuit (a traditional hunting society in Greenland) Bjerregaard and Curtis (2002) observe that their mental health (i.e. the prevalence of potential psychiatric cases and psychiatric thoughts) was influenced in numerous ways by the duration of exposure to a modern industrial society. They found that female respondents who grew up in towns or in Denmark, and hence had the best opportunity to become integrated, as well as those who were bilingual had a lower prevalence of mental health problems than those who grew up in villages and those who spoke little or no Danish.

There are many examples of female social networks in Ghana including: *susu* (traditional credit union), *nnoboa* (traditional cooperative), community self help groups, and associations of women belonging or sharing some common backgrounds. The latter include groups of women married to teachers or drivers of taxi cabs who come together to provide meaningful engagement to their communities. These roles provide individuals with a sense of identity which reinforces their feelings of attachment to particular communities or groups of people. Getting the chance to participate in the network activity further provides the individual with the opportunity to socialize and champion a cause which brings self fulfillment and a feeling of connectedness.

Supports provided by networks comprising extended kin and lineage members can promote good health through offering members social, moral, financial and

emotional supports (Kanaiapuni, Thompson-Colon, Donato, 2000). In Ghana, there are other examples where extended kin members provide greater support to mothers with children and to those who are bereaved. Such supports, which always come at the time they are most needed, sustain healthier emotional, physical and mental health for women.

It should be stressed that the same extended kinship and lineage arrangements can act as catalysts to speed up women's participation in programs and adoption of technologies that target improvement in women's health. If family members are in favor of family planning approaches or procedures, women could get approval, support and motivation to do family planning. In most cultural and familial contexts, carrying out individual preference is a decision that a woman takes with the support and consent of others in the family.

However, if family members do not provide social support for women's decisions, alternative support networks outside the family or kin system may do so. As Berkman et al. (2000) point out there also can be negative consequences to health of social network ties and influences. For example, in Ghana and the rest of the developing world, a woman's membership in a particular family may limit her freedom and prevent her from exercising her self-determination. Decisions made at the household level may sometimes deny women access to health services. Family networks and support systems have been cited as reasons why some rural women in Ghana and other sub-Saharan African countries have been reluctant to adopt family planning even when convenient services are made freely available (Adongo et al, 1997).

In contexts where women do not have a diverse set of networks and depend instead on traditional ties to kin, those networks would be more likely to maintain

traditional gender relations and women's subordinate position in family planning and decision making. They might also reinforce normative beliefs that domestic violence is an acceptable practice. Women in such patriarchal families who decide to adopt family planning may do so at a considerable risk of being ostracized by the rest of the family group.

Another example of how networks may compromise a woman's health is provided in work by Adongo et al. (1997). They found that decisions made at the household level may deny women access to maternal and contraceptive services. Most women in the Kassena-Nankana district of northern Ghana have been reluctant to adopt family planning even when convenient services were made freely available.

Thus, psychological access in terms of women's freedom to make such decisions has to be considered along with physical access to health care. A third example is provided by Abotchie (1997) who studied the ways that traditional Ewe women in southern Ghana dealt with members of their lineage and the rest of their community. Abotchie reports that both religious and secular sanctions which are part and parcel of the traditional norms constitute a persuasive and coercive influence on the behavior of women. Such group norms can promote some aspects of community health, for example, deterring crime. At the same time, they may also act in ways that suppress women and deny them their autonomy and rights as individuals.

Ultimately, it remains the responsibility of program developers and planners to understand the intricacies (health promoting and health damaging components) of the social contexts (social relationships) within which their programs are implemented. When programs are implemented with an understanding of community norms and

contexts, they can be tailored to respond to local community contexts and thus be more successful. When considering women's health in Ghana it is especially important to understand the specific gender dynamics of an ethnic or lineage group and the ways that traditions and social influence operate either to facilitate or suppress information and access to health care and women's self-determination in deciding about her own health.

1.2.4 Summary

In summary, there is reason to expect that Ghanaian women's access (both physical and psychological) to health care and their health behaviors are influenced by a combination of factors at the macro and micro levels. In this study four dependent variables will be examined: physical access to health care, psychological access to health care, hygiene and prevention behavior, and responsible sexual health behavior.

The demographic variables believed to influence these criterion variables are: education level, age, number of children under six years, matriliny, current residence in rural or urban area. Also included in the analysis are variables tapping a woman's self-determination characteristics. These are autonomy over family decisions, autonomy over household purchase decisions, and her attitudes toward domestic violence/abuse. The final set of variables included in the analyses are the indicators of a woman's familial and social support network ties, specifically networks that provide information and support for a woman's family planning decisions.

CHAPTER TWO

MATERIALS AND METHODS

2.1 DATA SOURCES AND BACKGROUND

The data source for this study was the 2003 Ghana Demographic and Health Survey, GDHS (GSS, 2004). The 2003 GDHS is a nationally representative survey of 5, 691 women ages 15 – 49 and 5,015 men ages 15 – 59 from 6, 251 households covering 412 sample points (clusters) throughout Ghana. In this study the couple's dataset which consisted of 2132 couples was analyzed and only female respondents were included. The number of women who provided answers to two of the dependent variables in this study was lower: for responsible sexual health behavior the N was 1714 and for hygiene and behavior the N was 1228 women.

The GDHS is carried out approximately every five years. The 2003 GDHS is a series of country level population and health surveys carried out as part of the global Demographic and Health Survey (DHS) program. It was designed to supply data to facilitate the monitoring of the population and health situation in Ghana as a follow up to the 1988, 1993, and 1998 GDHS. The survey used a two-stage sample based on the Ghana 2000 Population and Housing Census and was designed to produce separate estimates for key indicators for each of the ten regions in Ghana. Data collection took place over a three-month period, from late July to late October, 2003 (GSS, 2004). The

purpose for the survey was to gather detailed information on fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practices, nutritional status of women and young children, childhood mortality, maternal and child health as well as awareness and behavior regarding HIV/AIDS and other sexually transmitted infections (STIs).

Collection of the 2003 GDHS data was achieved through the collaborative efforts of the Ghana Statistical Service (GSS) and the Noguchi Memorial Institute for Medical Research and the Ghana Health Service. Technical assistance was provided by ORC Macro through the MEASURE DHS program. Funding was provided by the U.S. Agency for International Development (USAID) and the Ghana Government.

2.2. GOALS AND SURVEY ORGANIZATION

The principal goal of the 2003 GDHS was to provide data to facilitate the monitoring of the population and health situation in Ghana. The primary aim was to provide current and reliable data on fertility and family planning behavior, infant and child mortality, breastfeeding, antenatal care, children's immunizations, childhood diseases, nutritional status of mothers and children, use of maternal and child health services and awareness and behavior regarding AIDS and STIs. The 2003 GDHS included some new information on female and male circumcision, information on malaria and ownership and use of insecticide-treated bed nets, as well as hemoglobin and HIV testing.

Strengthening the technical capacity of major government institutions such as the Ghana Statistical Service was one of the long term aims of the 2003 GDHS. The survey

also provided comparable data for long-term trend analysis in Ghana and contributes to the expanding international database on demographic and health-related information (GSS, 2004).

2.3 DESIGN OF THE SAMPLE

The 2003 GDHS sample was taken from the population residing in private households in the country. A representative probability sample of about 6,600 households was selected across the country. The survey used the 2000 Ghana Population and Housing Census Enumeration Areas (EAs) as a frame for the sample. The frame was stratified into the 10 administrative regions in the country first, then into rural and urban EAs. According to the 2003 GDHS report, the sample was selected in a way that allowed for separate estimates of key indicators for the country as a whole, for each of the 10 regions in Ghana, as well as for urban and rural areas separately.

The survey used a two-stage stratified sample procedure. At the first stage of sampling, 412 sample points or EAs were picked up, each with a probability proportional to size, based on the number of households. A complete household listing exercise was carried out between May and June 2004 within all the selected EAs/clusters. The second state of selection involved systematic sampling of households from the list of EAs/clusters. The sample selected per EA varied from region to region based on population size.

2.4. SAMPLE UNIT

The sample unit for this study was the woman. The sample size selected for all variables was 2132 except the sample size for Responsible Sexual Behavior which was 1954. Although men's attitudes play a role in the health of their spouses, I was particularly interested in women's perceptions and attitudes as they affect women's health behaviors and access.

2.5 STRENGTHS AND WEAKNESSES OF THE 2003 GDHS DATASET

A major strength of the 2003 GDHS dataset is that it provides a good description and facilitates the study of demographic and socioeconomic profiles of respondents. The basic information on women and men in the reproductive age group is crucial for the interpretation of the 2003 GDHS findings within the context of reproduction, health, and women's status and empowerment.

The percent distribution of respondents by the various demographic and socio-economic characteristics can also be used as an approximate indicator of the representation of the survey sample to the general population (GSS, 2004). Weighted analysis makes the DHS representative of the Ghanaian population in 2003. This allows researchers and policy makers to discern important relationships and interactions between different household and individual characteristics and behaviors consequently to make appropriate policy recommendations to address problems in health, morbidity, fertility and nutrition to mention a few. Despite the obvious strengths, the 2003 GDHS is a cross-sectional dataset and suffers from the weakness of all cross-sectional datasets. Measuring

the household or the couple's situation at one time only captures events at that particular instance and does not describe changes over time. Cross-sectional analysis may create a wrong impression. For instance, the health of a woman who migrates to an urban area and returns to the village to invest her capital might attribute some of the difficult times she faced in the urban area to urbanicity rather than to changes occurring in her life and status over time.

Estimates from the 2003 GDHS also are affected by two types of errors: Non-sampling errors and sampling errors. Non-sampling error occurs as a result of mishaps while carrying out the data collection. These are intrinsic events and not much can be done to prevent their occurrence or to evaluate them statistically. Sampling errors, however, can be evaluated statistically. These measure the variability between all possible samples. Sampling errors for the 2003 GDHS dataset have been computed for selected variables considered to be of interest for the woman's and man's survey respectively.

2.6 RESEARCH PROBLEM AND HYPOTHESES

2.6.1 Background to survey questions

The Ghana Demographic and Health Survey for 2003 included a series of questions designed to collect information about the problems women perceive as barriers to accessing quality health care. According to the 2003 GDHS report, 68% of all women cite at least one specified problem with accessing health care.

The majority of them (55%) said that difficulty in getting money for treatment was a big problem. This was followed by problems with transport and distance to a health facility (33% in each case) and 16% of women cited problems of no female health provider. Ten percent of women cited problems with knowing where to go or getting permission to access health care.

The latter issue of information and permission suggests that women's self determination and gender norms may have a significant impact on their physical and psychological access to health care. In addition to information on women's education, employment and control over earnings, the 2003 GDHS collected information from female respondents on measures women's empowerment in the household. Respondents answered questions about decision making in the household, their acceptance of domestic violence, and their opinions about whether a wife can deny sex to a husband for some specific reasons. This information reveals women's autonomy over their environments and what attitudes they have toward gender norms which should impact certain health behaviors such as condom use and family planning decisions.

The Ghana 2003 DHS also asked female respondents about their role in household decision making, including decisions about their own health care, large household purchases, daily household purchases, visits to family or relatives and what food to cook each day. This information provided insight into women's control over themselves i.e. their self-determination in the household. According to the 2003 GDHS data, decision making about health care is dominated by the husband or someone else among married (26-41%) and unmarried women (59–66%). Only about 33% of married and unmarried women make sole decisions about their own health care. The 2003 GDHS

also contained questions about good hygiene behavior around the household. Respondents answered questions as to whether they washed their hands and had a place set aside specifically for hand washing. Sixty-seven percent of households did not have any hand-washing items in the designated place for hand-washing.

The 2003 GDHS also asked respondents about how they managed the treatment of malaria in their neighborhoods. Malaria is endemic in Ghana and accounts for about 2-3 million cases in a year. It kills more people in Ghana every year than AIDS. Respondents were asked if they used mosquito nets, both treated and untreated. GSS (2004) data show that 18% of households in Ghana own mosquito nets whether treated or untreated. Mosquito net ownership is highest in the Volta region and lowest in the Central region.

The 2003 GDHS has questions about discussion of family planning with husband and other family members such as sisters, daughters and friends and neighbors. Lack of discussion reflected lack of interest or cultural norm prohibition or not having any such family networks to talk to about family planning. Another set of items tapped the networks of health facilities where women could get information about family planning and condom use.

2.6.2 Research Questions

We know something about physical access to health facilities and the problems associated with it. Mainly we know that distance, transportation, and cost matter. However, many questions about Ghanaian women's health remain unanswered. First, while we know something about physical access, we know little about psychological

access (i.e., women's knowledge about how to access care and her sense of whether she is permitted to do so). Second, with respect to both types of access, we do not know whether demographic factors other than distance or ability to pay (i.e., level of education, age, lineage, family size) each play a role.

Third, access issues are one arena affecting the quality of Ghanaian women's health. Another arena is her own behaviors concerning disease prevention, hygiene, and prevention of STDs. Like access issues, these hygiene and prevention behaviors should be associated with certain demographic factors. For example, education should certainly play a role in women's knowledge about prevention. Other demographic factors may also play a role in prevention and hygiene behaviors.

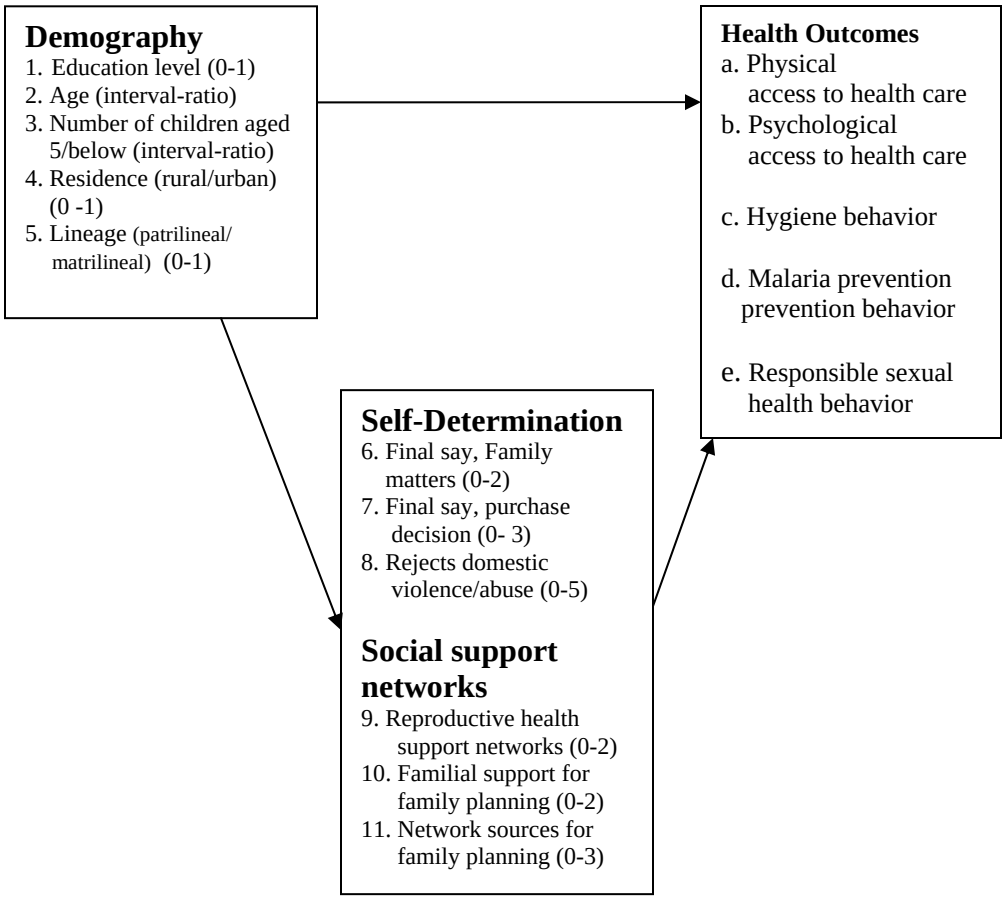
Besides demographic factors, both access issues and women's own hygiene and prevention behaviors may be associated with more micro-level processes and practices. Factors such as the level of women's self determination in household and health decision making and the kinds of support networks in which she is engaged, especially if those networks provide information, norms, and reinforcement for health behaviors.

2.6.3 The Research Hypotheses

Based on the literature reviewed, I formulated the following hypotheses:

1. Educational level and urban residence should each positively predict physical and psychological access, hygiene, and prevention behaviors. Matriliny should positively predict psychological access and responsible sexual behavior. I had no hypotheses for the relationship between matriliny and physical access or hygiene behaviors. I had no hypotheses for the relationship of age or family size to these four dependent variables.
2. Educational level, urban residence, and matriliny should each be positively related to the self determination factors and the measures of social support for family planning. I had no hypotheses for the relationship between age and family size with these variables.
3. The self determination and social support variables will mediate or explain the relationship between educational level, urban residence, and matriliny on psychological access, hygiene behaviors, and responsible sexual behavior but will not mediate the relationship with physical access.

Fig. 2.1. Conceptual framework of the relationships between education, age, family size, types of place and duration of residence, self-determination and familial/social network ties and woman's health access and behaviors.



In Ghana, as in most countries in sub-Sahara Africa, the government and policy makers attach a great deal of importance to the improvement of women's well-being through education and affordable health care. However, only limited research has

examined the factors that influence women's physical and psychological access to health care or her health behaviors. The identification of factors which influence women's physical and psychological access to health care and behaviors will inform policy decision making and health practitioners.

As noted, Ghana is making frantic efforts at reforming the health system with women's health a top priority. Changes to institutional structures to finance and improve health service delivery are being implemented. One example is organizational restructuring to achieve the following: Improved human and financial resource management, monitoring performance, defining priorities and cost effective interventions (Policy Briefings for Health Sector Reform in Ghana, 2000). At the same time, we lack specific information about family, social and community factors that may be vital for these reforms to succeed. This study will fill in some of these gaps.

2.7 DESCRIPTION OF VARIABLES AND MODELS

There are five dependent variables that are run in three different models using Logistic Regression. The dependent and independent variables are summarized in Tables 2.1a and 2.1b. The first table shows the descriptive information for the variables and the second table shows the information for the recoded (collapsed) variables.

2.7.1 Dependent and Independent Variables

From the 2003 GDHS couples dataset, items were selected based on their face validity and were recoded and summed to form scales. The following summary of constructs presents information about the items, response format, Cronbach's alpha (a measure of

the scale's internal consistency) where applicable and the numbers of respondents with valid data. Note that all scales were created such that high scores reflect access and behaviors that should promote women's health (i.e., that she has no problem with physical or psychological access to health care and that she engages in positive hygiene and prevention behaviors).

2.7.1.1 No Problem with Physical access to health care

- Getting medical help for self: Little or no problem getting money needed for transport
- Getting medical help for self: Little or no problem regarding distance to health facility
- Getting medical help for self: Little or no problem having to take transport

(No = 0, Yes =1; Cronbach's alpha = .780, N = 2132)

Three physical access to health care items were recoded from the original three response items of no problem = 0, big problem = 1 and small problem = 2 into a new variable with little or no problem = 1 and big problem = 0.

These recoded items were then summed to form a scale where 0 = big problems with all three issues and 3 = little or no problem with any of the three issues. The sample size for women who responded to these items was 2132. The mean response was 1.6 with a standard deviation of 1.22. As Table 3.1 shows, 33% of the respondents had no problem with any of the issues and 28% had a problem with all three physical access issues.

Table 2.1a Description of variables before being collapsed

Statistics	Physical access (0-3)	Psycho Access (0-2)	Malaria Prevention (0-2)	Hygiene Behavior (0-3)	Respsible Behavior (0-2)	Ed Level (0-1)	Age	No of children	Current Residence (0-1)	Matri Lineage (0-1)	Family matters (0-2)	Purchase decision (0-3)	Domestic violence (0-5)	RHSN (0-2)	FSFP (0-5)	NSFCS (0-9)
Mean	1.6	1.81	.40	1.04	1.63	.57	32.33	1.27	.34	.43	1.2	1.77	3.45	0.81	0.43	1.03
Std Dev.	1.22	.52	.74	1.05	.55	.50	7.87	.994	.47	.49	.88	1.15	1.81	0.77	0.73	1.25
skewness	-.196	-2.63	1.48	.579	-1.17	-.281	.17	.622	.67	.299	-.426	-.261	-725	.33	1.78	1.29
Kurtosis	-1.153	2.7	.44	-.925	.375	-1.92	-.828	.472	-1.55	-1.91	-1.57	-1.40	-967	-1.24	3.26	2.21
Range	3	2	2	3	2	1	34	6	1	1	2	3	5	2	5	9
Minimum	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0
Maximum	3	2	2	3	2	1	49	6	1	1	2	3	5	2	5	9
Frequency	Valid															
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	%	%
0	29	5.5	75.2	40.2	3.6	43.0	SC/R	23.9	65.9	57.4	30.1	18.2	10.6	40.7	68.4	50.4
1	13.9	8.4	9.4	28.2	29.8	57.0	SC/R	37.2	34.1	42.6	18.6	25.5	9.5	37.5	21.8	11.4
2	23.9	86.1	15.4	18.9	66.6	-	-	29.1	-	-	51.4	17.9	10.9	21.9	8.2	30.5
3	33.3	-	-	12.7	-	-	-	7.7	-	-	-	38.4	10.3		1.3	2.4
4	-	-	-	-	-	-	-	1.6	-	-	-	-	10.7	-	0.2	4.0
															0.3	
5	-	-	-	-	-	-	-	.4	-	-	-	-	48.0	-	0.0	0.4
6	-	-	-	-	-	-	-	.1	-	-	-	-	-	-	-	0.7
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.0
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.0
Missing	0	0	0	43.8	0	0	0	0	0	0	0	0	1	0.1	.0	.1
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Note: Data was weighted with the 2003 GDHS sample weight (V2005). RHSN = Reproductive health support networks; FSFP = Familial support for family planning; NSFCS = Network sources for condom supply

Table 2.1b Description of variables after being collapsed

Statistics	Physical access (0-1)	Psycho Access (0-1)	Malaria Prevention (0-1)	Hygiene Behavior (0-1)	Responble Behavior (0-1)	Education Level (0-1)	Age	No of children	Current Residence (0-1)	Matri Lineage (0-1)	Family matters (0-2)	Purchase decision (0-3)	Domestic violence (0-5)	RHSN (0-2)	FSFP (0-2)	NSFCS (0-3)
Mean	0.71	0.86	0.25	0.60	0.67	0.57	32.33	1.14	.34	.58	1.2	1.77	3.45	0.81	0.41	0.95
Std Dev.	0.45	0.34	0.43	0.49	0.47	0.50	7.87	.78	.47	.49	.88	1.15	1.81	0.77	0.66	1.06
skewness	-.928	-2.08	1.17	-.40	-.71	-.281	.17	-.267	.67	-.315	-.426	-.261	-.725	.33	1.33	0.48
Kurtosis	-1.14	2.34	-.64	-1.84	-1.5	-1.92	-.828	-1.31	-1.55	-1.90	-1.57	-1.40	-.967	-1.32	0.46	-1.29
Range	1	1	1	1	1	1	34	2	1	1	2	3	5	2	2	3
Minimum	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0
Maximum	1	1	1	1	1	1	49	2	1	1	2	3	5	2	2	3
Frequency	Valid (%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	%
0	42.8	13.9	75.2	40.2	33.4	43	-	23.9	65.9	42.2	30.1	18.2	10.6	40.7	68.4	50.4
1	57.2	86.1	24.8	59.8	66.6	57	-	37.2	34.1	57.8	18.6	25.5	9.5	37.5	21.8	11.4
2	-	-	-	-	-	-	-	38.9	-	-	51.4	17.9	10.9	21.9	9.8	30.5
3	-	-	-	-	-	-	-	-	-	-	-	38.4	10.3	-	-	7.7
4	-	-	-	-	-	-	-	-	-	-	-	-	10.7	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	48.0	-	-	-
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	0.0	100	100

Note: Data was weighted with the 2003 GDHS sample weight (V2005). RHSN = Reproductive health support networks; FSFP = Familial support for family planning; NSFCS = Network sources for condom supply.

2.7.1.2 Psychological access to health care

- Woman Knows where to go to access health
- Woman does not require permission to access health

(No =0; Yes =1, N = 2132)

The above items were recoded from the original three responses of no problem = 0, big problem = 1 and small problem = 2 into result variables where 0 = big problem and 1 = small or no problem. These recoded items were then summed to form a scale where 0 = big problems with both and 2 = little or no problem with either.

The sample size for women who responded to these items was 2132. The mean response was 1.80 with a standard deviation of 0.51. Table 2.1a shows that this variable is skewed, 86% of the women said they had no problem with psychological access. This was the basis for dichotomizing this dependent variable and running logistic regressions.

2.7.1.3 Malaria prevention behavior

- Bed net is used in household
- Woman sleeps under bed net

(No = 0, Yes = 1; N = 2133)

Two malaria prevention behavior items were used as originally coded in the 2003 GDHS. No responses were coded 0 and yes responses were coded 1. The two items were summed to form a scale with values ranging from 0 – 2. The sample size for women who responded to these items was 2132. The mean response was 0.40 with a standard deviation of 0.74. As Table 2.1a shows, 75.2% of the women did no malaria prevention, 9.4 did at least one, and 15.4% took both measures.

2.7.1.4 Hygiene behavior

- Use soap and cleansing agents in household
- There is water for cleaning in the house
- There is basin for cleaning in the house

(No = 0, Yes = 1; Cronbach's alpha = .60; N = 1228)

I should remind readers about the large loss of cases in this variable. Only a sub sample of cases answered these items. Three hygiene behavior items were used as originally coded in the 2003 GDHS. No responses were coded 0 and yes responses were coded 1. The three items were summed up to form a scale (hygiene behavior) with values ranging from 0 – 3. The sample size for women who responded to these items was 1228. The mean response was 1.04 with a standard deviation of 1.05. As Table 2.1a shows, 40.2% of women did none of these hygiene behaviors, 28.2% did at least one, and 12.7% did all three.

2.7.1.5 Responsible sexual health behavior

- Learn about ways to avoid AIDS
- Reduce AIDS by using condoms

(No = 0, Yes = 1; N = 1719)

Readers are again reminded of the large loss of cases and attribute to same reason as noted with the items measuring hygiene. Two responsible sexual behavior items were used as originally coded in the 2003 GDHS. No responses were coded 0 and yes responses were coded 1. The two items were summed to form a scale (responsible sexual health behavior) with values ranging from 0 – 2. The sample size for women who

responded to these items was 1719. The mean response was 1.63 with a standard deviation of 0.55. The percentages of women responding yes or no to the two items are shown in Table 2.1a. The table doesn't indicate this is skewed but 66.6% say they've learned both behaviors and thus this variable was dichotomized for further analyses.

2.7.2 Independent variables

2.7.2.1` Demographics

In all models employed to test the study hypothesis, a common set of women's individual characteristics such as age, education level and number of children under age six were controlled.

2.7.2.2 Educational Level

Women's education level was recoded into a binary category 0 =no education and 1 = at least primary education. This was done in consideration of the fact that 43% of the women had no schooling. In Ghana primary education incorporates 6 years of elementary school. Secondary education incorporates 3 years at junior secondary school and three years at senior secondary school. In this sample 43% of the women never went to school while 57 % had at least primary education. The breakdown down is as follows for those with at least primary education. Primary, secondary and higher were, 19.5%, 35.5% and 2% respectively. The mean educational level was 0.57 with standard deviation 0.5. The sample size was 2132.

2.7.2.3 Age

The variable age is used as presented in the 2003 GDHS. It is presented as an interval-ratio scale with values ranging from 15 – 49 years. The mean age is 32.33 with standard deviation 7.87. The sample size was 2132.

2.7.2.4 Number of children under age six

The variable number of children under 6 years is also used as presented in the 2003 GDHS. It is presented as an interval-ratio scale with values ranging from 0 – 6 children under the age of six years. The mean number of children is 1.27 with standard deviation 0.994. The sample size was 2132. Number of women with no children represented 23.9%, those with 1 child represented 37.2%, two children represented 29.1 and 3 children represented 7.7%. Women with four, five and six children under the age of six were represented by 1.6%, 0.4 % and 0.1% respectively.

2.7.2.5 Current residence

(Rural = 0; urban = 1; N = 2132)

The variable current residence was dummy coded into rural = 0, urban = 1 from the original codes, rural = 2 and urban =1 presented by the 2003 GDHS. The sample size was 2132. Sixty-six percent of the women currently live in rural areas compared with 34% living in urban areas.

2.7.2.6 Patrilineal/ matrilineal lineage

- Matrilineal lineage

(Patrilineal = 0; Matrilineal = 1; range 0-1)

This item was formed by recoding ethnic groups in Ghana that are matrilineal as 1 and those that are patrilineal as 0. The sample size is 2132. The patrilineal group was represented by 57.4% and the matrilineal represented by 42.6% of the population. I arrived at these figures by recoding all women who answered that they belong to the Akan lineage as matrilineal whereas all other tribes were recoded as patrilineal. There were a few ethnic groups for whom I could not definitely say whether they were patrilineal or matrilineal. Rather than code them as missing I made the decision to code them in the patrilineal group. If anything, this decision would underestimate the matrilineal effects I am predicting.

2.7.2.7 Final say, family matters

- Woman has final say on visits by family members
- Woman has final say on food to be cooked each day

(No = 0, Yes = 1; N = 2132)

Two final say in family matters items (final say on visits by family members and final say on food to cook each day) were recoded from the original six response items of respondent alone = 1, respondent and husband/partner = 2, respondent and other person = 3, Husband/partner alone = 4, Someone else = 5 and decision not made = 6 into a two category item. Original responses of 4 or 5 (i.e., husband/partner alone or someone else

makes the decision) were recoded as 0 and original responses of 1,2, or 3 (indicating that the woman either makes decision alone or in concert with another person) recoded as 1. The original response of "6", i.e., decision not made, was recoded as missing data in the new variable. The two items were then summed to form a scale (final say in family matters) with values ranging from 0 – 2. The mean response was 1.2 with standard deviation of 0.88. The sample size is 2132. Higher scores indicate that the woman has a say in these family matters. According to Table 2.1a, 51.4% of the respondents were included in decisions about these family matters.

2.7.2.8 No problem with final say in purchase decision

- Final say on how to spend money: Little or no problem
- Final say on making large household purchases: Little or no problem
- Final say on making small purchases for daily use: Little or no problem

(No = 0, Yes = 1; Cronbach's alpha = .67; N = 2132)

Three final say in purchase items (final say on how to spend money, final say on making large household purchases, and final say on making small purchases for daily use) were recoded from the original six items with response format of: respondent alone = 1, respondent and husband/partner = 2, respondent and other person = 3, Husband/partner alone = 4, Someone else = 5 and decision not made = 6 into a two category item No = 0 (for responses 4 – 5) and Yes =1 (for responses 1 – 3). Response 6 was treated as missing. The three items were then summed up to form a scale (final say in purchase decisions) with values ranging from 0 – 3. The mean response was 1.77 with standard

deviation of 1.15. The sample size is 2132. The percentages on this item for women scoring 0, 1, 2, and 3 are18.2%, 25.5%, 17.9% and 38.4% respectively.

2.7.2.9 Rejects domestic violence/abuse

- Wife rejects beating if she goes out without telling husband
- Wife rejects beating if she neglects children
- Wife rejects beating if she argues with husband
- Wife rejects beating if she refuses to have sex with him
- Wife rejects beating if she burns the food

(No = 0, Yes = 1; Cronbach's alpha = .854, N = 2132)

Five items indicating that respondent rejects domestic violence/abuse were used as originally coded in the 2003 GDHS. No responses were coded 0 and yes responses were coded 1 (i.e., indicating that she does reject domestic violence). Don't know responses were recoded as missing. The five items were summed to form a scale (rejects domestic violence/abuse) with values ranging from 0 – 5. The sample size for women who responded to these items was 2132. The mean response was 3.30 with a standard deviation of 1.84. According to Table 2.1a, 48% of the sample had a score of 5. Thus almost half of the respondents reject domestic violence for all of the five items. Roughly 10% of the remaining half endorse wife beating for one or more of the reasons listed.

2.7.2.10 Family planning support network

Three measures of women's family planning support networks were identified

- Reproductive health support networks
- Familial support for family planning

- Network sources for family planning

2.7.2.11 Reproductive health support networks (RHSN)

As a measure this variable was created by summing two items concerning whether respondents discussed family planning with health care workers/professionals such as private doctors, health workers and mobile health workers and whether they relied on some sources for their supply of condoms. The frequencies for the individual items before they were summed to form a continuous scale are provided below.

2.7.2.12 Discuss family planning with health workers/professionals

Answer	Frequency	Percent
No “0 “	1474	69.1
Yes “1”	658	30.9

Missing 1

Total: 2133

2.7.2.13 Relied on some networks/sources for supply of condoms

Answer	Frequency	Percent
No “0 “	1150	53.9
Yes “1”	982	46.1

Missing 1

Total: 2133

Combining the two I formed a continuous scale with a range of 0 – 2. The mean of the resultant variable reproductive health support network (RHSN) is 0.81 with a standard deviation of 0.77. The percentages for 0, 1, and 2 on this combined variable are given in table 2.1a as 40.7%, 37.5% and 21.9% respectively. Thus, 40.7% of the respondents neither discussed family planning with some health professional nor relied on some source for condoms.

2.7.2.14 Familial/social support for family planning (FSFP)

This variable was computed by adding up five items that measure whether a woman discusses family planning with different family members or close friends including:

1. Discuss family planning with partner
2. Discuss family planning with sister
3. Discuss family planning with friends and neighbors
4. Discuss family planning with mother
5. Discuss family planning with daughter

(No = 0, Yes = 1, N =2132)

As Table 2.1a shows, 68.4% of the respondents do not discuss family planning with any of these relations, another 21.8 discuss with one relative or friend, and 8.2 discuss family planning with two or more of the relatives and friends listed.

2.7.2.15 Network sources for family planning (NSFCS)

As a measure this variable was computed by adding up nine variables that measured which sources women used for family planning. The nine items were:c

1. Source: Government hospital

2. Source: Government health post

3. Source: Source: Family Planning clinic

4. Source: Pharmacy

5. Source: Private hospital

6. Source: FP/PPAG clinic

7. Source: Maternity home

8. Source: Store

9. Source: Private mobile clinic

(No = 0, Yes = 1, N =2132)

As Table 2.1a shows, 50.4% of the respondents used none of the listed sources for family planning/obtaining condoms, another 11.4% had one source and 30.5% had two sources. For analyses, this variable was collapsed into a scale ranging from 0 – 3 indicating that woman with a score of "0" did not have any network sources whereas a woman with a score of "3" had three or more sources for family planning. Tables 2.1a and table 2.1b show the percentages of the items before and after they were collapsed into new variables.

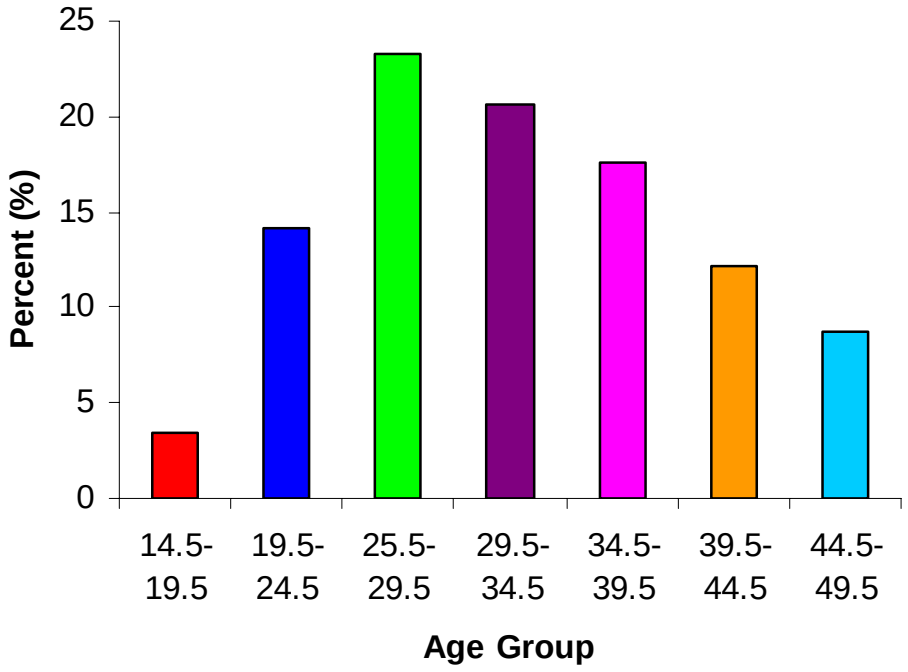
CHAPTER 3

RESULTS, DISCUSSION AND CONCLUSIONS

3.1 THE DEMOGRAPHICS OF GHANAIAN WOMEN

Descriptive information about the sample and the independent variables are summarized in Tables 2.1a and 2.1b. Based on the analysis of the 2003 GDHS couples dataset, 66% of women aged between 15-49, lived in rural areas. The mean age of women in the sample was 32.33 with the youngest aged 15 and the oldest 49. Their age distribution is shown in Fig. 3.1. On average, women had between one and two children under six years old with six children as the largest family size reported. On average women in the sample completed some primary schooling. Forty-three percent of women have no education, 18% have primary education, 37% have secondary (junior & senior secondary) and 2% have higher education. Four percent of women aged 15-49 are in the age group 15-19 years, 37% are aged 20-29 years and 38% and 21% respectively for women aged 30-39 years and 40-49 years. Those who lived in urban areas make up 34%.

Fig. 3.1 Age distribution of women sampled for the 2003 GDHS



3.2 THE BIVARIATE RELATIONSHIPS BETWEEN CRITERION AND PREDICTOR VARIABLES

Zero order correlations are summarized in Table 3.1. The table shows an inverse relationship between education and age, the number of children aged five and below, and malaria prevention. This shows that, young women are better educated than older women and have few children under six years old. The negative relationship of education level with malaria prevention efforts is, at first, surprising but it may reflect the fact that women with higher education levels live in places where the use of mosquito nets is not necessary. Women with more education tend to live in high income neighborhoods

where homes are well protected with door and window nettings or live in mosquito free neighborhoods.

Education is positively associated with current urban residence, more autonomy for women in handling family issues, purchase decisions in the household, and with assertiveness in rejecting domestic violence and abuse. Finally, education is positively associated with matrilineal lineage and social support networks as well as physical and psychological access to health care and responsible sexual behaviors.

Regarding age, the table shows that older women report fewer children under six years old, are more likely to reside in urban areas, have less proactive family planning support networks and less likely to enforce malaria prevention efforts. The table shows that older women have more purchasing power, autonomy in family matters plus reject domestic violence as a norm and have physical and psychological access to health care. The table also shows that older women are more likely to enforce hygiene and responsible sexual behavior.

As expected, family size (number of children under six) is negatively correlated with urban residence, family planning support networks, women's autonomy in family decisions, physical and psychological health access, hygiene and responsible sexual behavior. As I noted in the introduction, the question of whether matriliny is related to larger or smaller family size is unresolved. The table provides one answer – i.e., that women in matrilineal groups have fewer children under the age of six. Family size is positively associated with malaria prevention efforts and women's purchasing power. The positive association with malaria prevention may mean that women with more young children make such efforts. The fact that family size associates positively with purchase

power may mean that women with more say in purchasing also decide to have more children. However, that interpretation runs counter to the other correlations showing that women's psychological access and autonomy in family decisions are negatively related to family size. The result runs counter to arguments that women's self determination would be reflected in greater purchasing power and smaller family size.

As expected, urban residence is positively correlated with indicators of self-determination, social support, physical and psychological health access, as well as with responsible sexual behavior. All of the self-determination indicators are moderately and positively correlated with one another. Women who have a voice in family matters also report more autonomy in purchasing power and social networks that support their decisions in family planning. Urban residence is associated with less malaria prevention suggesting that malaria may be more of a rural than an urban issue. As expected, matrilineal lineage is associated with women having more self-determination in family and purchase decisions. All of the self-determination and social support indicators are higher in matrilineal than in patrilineal groups and women in matrilineal groups are more likely to contest domestic violence as an acceptable norm. The self-determination variables are positively correlated with the criterion variables.

Table 3.1 Zero-order correlation relationships between the criterion and predictor variables.

	Education level	Age	No of children	Rural/ Urban residence	Family matters	Purchase decisions	Domestic violence	Matri Lineage	Physical access	Psycho-logical access	Malaria prevention	Hygiene	Responsible sexual behavior	RHSN	FSFP	NSFP
Education level	1															
Age	-.019**	1														
No of children	-.212**	-.178**	1													
Rural/Urban residence	.265**	.055**	-.200**	1												
Family matters	.188**	.162**	-.057**	.012**	1											
Purchase decisions	.204**	.206**	-.090**	.079**	.698**	1										
Domestic violence	.219**	.132**	-.115**	.165**	.188*	.214**	1									
Matrilineal Lineage	.368**	.088**	-.111**	.096**	.248**	.256**	.191**	1								
Physical access	.236**	..061**	-.088**	.310**	.012**	.064**	.155**	.141**	1							
Psych-lgicl access	.044**	-.042**	.027**	.128**	.006**	-.019**	.090**	.016**	.199**	1						
Malaria prevention	-.066**	-.086**	.082**	-.125**	-.126**	-.108**	-.024**	-.194**	.075**	.199**	1					
Hygiene	.078**	.024**	-.049**	.132**	-.137**	-.095**	.018**	-.036**	.094**	.040**	-.050**	1				
Responsible sexual behav	.124**	-.035**	-.024**	.074**	.104**	.144**	.039**	.118**	.023**	-.024**	-.016**	.120**	1			
RHSN	.327.**	-.037**	-.080**	.315**	.156**	.201**	.200**	.174**	.198**	.035**	-.026*	.118**	.188**	1		
FSFP	.176**	.017**	-.012**	.116**	.104**	-.137**	.079**	.097**	.085**	-.032	.032**	.048**	.126**	.718**	1	
NSFP	.412**	-.058**	-.114**	.338**	-.149**	-.193**	-.211**	-.190**	.199**	.075**	-.021**	.141**	.178**	.745**	.234**	1

Note: Data was weighted with the 2003 GDHS sample weight (V2005). RHSN = Reproductive health support networks; FSFP = Familial support for family planning; Network sources for family planning. Cases were excluded listwise.

3.3 MULTIVARIATE ANALYSIS

This section provides results of the multivariate analyses that examined first, the influence of demographic characteristics, on women's self-determination and social support outcomes and secondly the influence of these demographic characteristics, self-determination and social support outcomes on women's physical and psychological access to health care and on their health behaviors. There are five dependent variables. For each dependent variable three models were run using either logistic regression or hierarchical OLS regression (this was used only for the dependent variables, physical access to health care and hygiene behavior). The logistic analysis became necessary for censored variables. I dichotomized into yes, no categories and so running the logistic regression analysis was the only way to assure effective interpretation of results.

3.3.1 Factors that influence women's self determination and participation in social support networks

In Table 3.2a, the three multivariate OLS regressions show how demographic factors influence women's self-determination. It is clear from the first of the three models that, women's educational level, age and matrilineal lineage are important determinants of whether a woman would have a say in purchase decisions in her household. The older and more educated the woman is, and having a matrilineal lineage, the more likely she would have purchase power at home. These demographic factors explain nearly 13% of the variance in women having a say in purchase decisions.

Similarly, a women's assertive attitudes about rejecting domestic violence and abuse is very much influenced by her educational level, age, current urban residence and

matrilineal lineage. The higher her education level, the older she is, being resident in a city and having a matrilineal lineage, the more assertive she would likely be regarding rejecting domestic violence and other abusive situation that undermines women's right to self-determination and autonomy. This set of variables explains 12% of the variance in women's attitudes towards domestic violence as an acceptable norm.

With respect to women's autonomy over family matters, a woman's education level and the number of children she has who are under six years are positive predictors, although this set of variables explains just under 4% of the variance.

Table 3.2b reveals that a woman's education level and current residence in an urban area are each positive predictors of her participation in reproductive health support networks (i.e., that she has sources of condoms and health workers with whom to discuss family planning). Age is negatively related which may reflect the fact that younger women in the sample are still living with their parents. These predictors explain nearly 22% of the variance in supports for women's family planning/reproductive health. With respect to discussing family planning with members of her family or close neighbors, women who are more educated and those who live in urban areas appear to be more open to this. Again, age is negatively related which may have to do with younger women in the sample less likely to be married. Together, this set of variables explains 17.8% of the variance in discussing family planning with family and close friends. Finally, women are more likely to report a higher number of health facilities or health workers that support family planning and are a source of condoms if the woman is more educated, older, and is

Table 3.2a. Multivariate OLS Regression describing the influence of women's demographic characteristics on their self determination

Demographic variables used as predictors	**Predictor variables**											
	Say in purchase decisions				**Reject domestic abuse**				**Say in family decisions**			
Constant	t	b	Beta	Sig.	t	b	Beta	Sig.	t	b	Beta	Sig.
	4.17	.491		**.000**	10.44	1.97	-	**.000**	2.29	.157		**.022**
Demographic variables												
Education level (0-1)	6.56	.357	.154	**.000**	9.22	.802	.218	**.000**	7.14	.227	.176	**.000**
Age (I/R)	8.25	.025	.170	**.000**	4.66	.023	.097	**.000**	.917	.002	.020	.359
Number of children aged 5/below (I/R)	-.048	-.002	-.001	.961	-.896	-.046	-.019	.058	2.14	.040	.048	**.033**
Current residence (Urban)	1.67	.092	.036	.095	4.51	.399	.097	**.000**	1.08	.035	.024	.279
Matrilineal lineage	8.55	.463	.192	**.000**		.416	.108	**.000**	1.35	.043	.032	.179
R square	.127				.120				.038			
Adjusted R square	.125				.118				.036			
Model summary (p-value)	**.000**				**.000**				**.000**			
Difference in R square	-				-				-			
Df	5				5				5			
N	2132				2132				2132			

Note: p-values that are significant are bolded

Table 3.2b. Multivariate OLS Regression describing the influence of women's demographic characteristics on their participation in familial and social support networks

Demographic variables used as predictors	**Predictor variables**											
	RHSN				**FSFP**				**NSFCS**			
Constant	t	b	Beta	Sig.	t	b	Beta	Sig.	t	b	Beta	Sig.
	4.17	.740		**.000**	6.93	.525	-	**.000**	4.76	.438		**.000**
Demographic variables												
Education level (0-1)	6.56	.727	.342	**.000**	14.30	.502	.327	**.000**	3.41	.145	.082	**.001**
Age (I/R)	8.25	-.011	-.081	**.000**	-2.35	-.005	-047	.019	6.87	.016	.145	**.000**
Number of children aged 5/below (I/R)	-.048	-.013	-.010	.629	1.44	.029	.030	.151	-.344	-.009	-.008	.731
Current residence (urban)	1.67	.480	.204	**.000**	8.24	.293	.172	**.000**	-.815	-.035	-.018	.415
Matrilineal lineage	8.55	.062	.028	**.**190	1.58	.055	.034	.113	9.17	.389	.210	**.000**
R square	.218				.178				.091			
Adjusted R square	.216				.176				.088			
Model summary (p-value)	**.000**				**.000**				**.000**			
Difference in R square	-				-				-			
Df	5				5				5			
N	2132				2132				2132			

Note: p-values that are significant are bolded

a member of a matrilineal group. Interestingly, urban residence did not predict a greater number of family planning sources of support. Together, this set of variables explains 9.1% of the variance in networking for condoms supply and resources for family planning.

The beta values suggest the strength with which, matrilineal lineage, followed by age and her education level influences woman's purchase power at home. Regarding assertive attitudes about rejection of domestic violence, woman's education level is the strongest factor followed by her current urban residence, her age and matrilineal lineage. For a woman's say in issues affecting the family, matrilineal lineage is the strongest followed by her age and the number of children she has who are under six years. Education level is the strongest predictor of participation in social support networks followed by her current urban residence. Similarly, educational level was the strongest predictor of woman's participation in reproductive health support and family support networks followed by urban residence and age. In the case of networks that support condom supply, education was followed by matrilineal lineage and age

3.3.2 Factors that Influence Women's Physical Access to Health Care

In Table 3.3a, the baseline model examines the impact of women's demographic characteristics including lineage on their physical access to health care. The second model adds the impacts a woman's self-determination has on her physical access to health care. This model shows the extent to which the influence of self-determination adds explanatory power when the effects of a woman's demographic characteristics are controlled. The third model adds the impact of a woman's support networks on physical access to health care. It shows the extent to which a woman's social support networks impact her physical access to health care with demographic characteristics and self-determination variables simultaneously controlled. Model I shows that a woman's level of education, matriliny, and current urban residence are significant predictors of her physical access to health care, accounting for 20% of the variance. These results are consistent with those obtained in the bivariate (correlation) analysis. In the bivariate whereas family size showed a significant

Table 3.3a. Hierarchical OLS regression predicting physical access to health care among Ghanaian women

	Model 1			Model 2			Model 3		
Demography	(b)	Beta	t	(b)	Beta	t	(b)	Beta	t
Constant	.836		6.97	.745		6.05	.672		5.42
Education level (0-1)	.507	.205***	9.14	.475	.192***	8.34	.403	.163***	6.76
Age (I/R)	.003	.016	.824	.002	.013	.644	.004	.023	1.12
Number of children aged 5/below (I/R)	.012	.008	.375	.016	.010	.503	.016	.010	.481
Current residence (rural/urban)	.864	.315***	15.4	.843	.308***	14.89	.792	.289***	13.66
Lineage (patrilineal/matrilineal) (0-1)	.183	.071***	3.32	.169	.066***	2.99	.172	.067***	3.04
Self Determination									
Final say, family matters (0-2)				-.041	-.029	-1.07	-.053	-.038	-1.39
Final say, purchase decision(0-3)				.017	.016	.558	.012	.012	.42
Rejects domestic violence (0-5)				.045	.067***	3.23	.042	.062***	2.98
Support networks									
Reprod health support network(0-2)							.139	.087	1.58
Family support for planning (0-2)							-.071	-.037	-1.01
Network/sources for condom(0-2)							.030	.026	.665
Model Summaries									
N	2133			2133			2133		
R square	.203			.207			.213		
Adjusted R square	.201			.204			.209		
Difference in R				.04			.10		
Degrees of freedom	5			8			11		
Significance (model p-value)	.000			.000			000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables were coded

Table 3.3b. Odds Ratios and standard errors for logistic regressions predicting physical access for Ghanaian women.

	Model 1			Model 2			Model 3		
Demography	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.
Constant	-1.05	.351***	.238	-1.26	.283***	.247	-1.41	.243***	.251
Education level (0-1)	.835	2.41***	.107	.775	2.17***	.110	.643	1.903***	.115
Age (I/R)	.007	1.01	.006	.006	1.01	.006	.009	1.01	.006
Number of children aged 5/below (I/R)	.026	1.03	.065	.036	1.04	.065	.036	1.04	.065
Current residence (Rural-Urban 0-1)	1.528	4.61***	.121	1.496	4.462***	.122	1.412	4.106***	.124
Lineage (patrilineal/matrilineal) (0-1)	.285	1.33**	.110	.235	1.264*	.114	.240	1.271*	.114
Self Determination									
Final say, family matters (0-2)				.012	1.013	.060	-.010	.990	.078
Final say, purchase decision(0-3)				.004	1.01	.027	-.006	.994	.060
Rejects domestic violence (0-5)				.091	1.095***	.247	.085	1.089***	.028
Support networks									
Reprod health support network(0-2)							.219	1.244	.180
Family support for planning (0-2)							-.088	.915	.144
Network/sources for condom(0-2)							.080	1.083	.095
Model Summaries									
N	2133			2133			2133		
Improvement X^2 (-2 Log likelihood)	2564.02			2547.01			2530.26		
Degree of freedom	1			1			1		
Nagelkerke R^2	.221			.227			.235		
Significance	.000			.000			000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables were coded

inverse relationship with physical access to health care, it failed to survive the controls in the multivariate test. Including self-determination variables in Model 2 adds on additional 0.4% explanatory power and family planning support networks (Model 3) add almost 1% to the R^2. The p values associated with education level, rejects domestic violence and lineage are all significant in the final model, although the Betas associated with education decrease in Model 3, providing partial support that increased self determination and support networks mediate the effect of education on physical access. As shown in Table 3.3a, even when controlling for the effects of woman's demographics, her self determination (rejects domestic violence and her matrilineal lineage) still are significant predictors of woman's physical access to health care. The Beta values in Table 3.3a further reveal that, current urban residence appears to be more strongly related to a woman's physical access to health care than are her educational level, lineage and rejects domestic violence.

The model 3 results confirm that, education level, current urban residence, matrilineal lineage and rejects domestic violence, significantly predict a woman's physical access to health care. As noted with model 2, simultaneously controlling for the effects of the predictors in models 1 and 2, a woman's current urban residence, education level, matrilineal lineage and her assertive attitude about her self-determination in rejecting domestic violence predicted her physical access to health care. Current urban residence predicted more strongly a woman's physical access to health care than did her education level, matrilineal lineage, family planning/social support networks or her assertive attitudes about domestic violence.

In addition to the above OLS results, I run a logistic regression as well just for the purposes of verifying consistencies in the results across the analysis. Results from the OLS regression were confirmed by that of the logistic regression. In model 1, education level, urban residence and matrilineal lineage had a significant impact on physical health access. An odds ratio of 2.41 for education level means that, the odds of a woman with education (at least primary) to have physical health access is 2.42 times the odds of a woman with no education. The same interpretation holds true for women with matrilineal lineage and women with urban residence with Odds Ratios of 1.33 and 4.61 respectively. In addition to these demographic variables, in models 2 and 3 of the logistic regression a woman's assertive attitude about rejecting domestic violence is an important predictor of her ability have physical access. Models 2 and 3 show an increase of 9.5% and 8.9% in the odds of getting physical access to health care as a result of women's having assertive attitudes about rejecting domestic violence. Perhaps this suggests that a

woman who will reject domestic violence or abuse will definitely go out of her way to seek the medical help she needs. Between model 1 and model 2, the improvement chi-square decreased by 17.01, while it decreased by 33.76 between model 1 and model 3.

In summary I would say that, the predictor variables have explained a significant percentage of the variance in women's physical access to health care in Ghana.

3.3.3 Factors that Predict Psychological Access to Health Care

In table 3.4, only urban residence had a significant impact on women's psychological access to health care. Compared to women living in rural areas, women who lived in urban areas had around twice (2.01) the odds of having psychological access to health care. Model 2 confirms my expectation of a positive relationship between self-determination factors and psychological access to health care. When women had a say in final decisions about family and purchase issues, and have assertive attitudes rejecting domestic violence, these factors increase their odds of psychological health access by, 21%, 27% and 10% respectively. This result holds true when the demographic variables shown in model 1 are controlled. The reader must note that including the self-determination variables reduced the odds for model 1 variables. Including the support networks variable in model 3 further reduced the odds of urban residence on psychological access but did not change the odds of the self-determination variables, suggesting partial mediation of the urban effect on psychological access due to self-determination factors.

Table 3.4 Odds Ratios and standard errors for logistic regressions predicting psychological access

	Model 1			Model 2			Model 3		
Demography	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.
Constant	1.009	2.74***	.302	.844	2.33***	.311	0.725	2.064**	.315
Education level (0-1)	.132	1.14	.145	.109	1.12	.015	.009	1.01	.157
Age (I/R)	.013	1.02^{+}	.008	.013	1.01	.008	.016	1.02*	.008
Number of children aged 5/below (I/R)	.124	1.13	.167	.134	1.14	.085	.143	1.15^{+}	.085
Current residence (Rural- Urban)	.698	2.01***	.147	.679	1.97***	.153	.575	1.78***	.172
Lineage (patrilineal/matrilineal) (0-1)	-.032	0.97	.302	-.056	.95	.101	-.050	0.95	.154
Self Determination									
Final say, family matters (0-2)				.192	1.21*	.080	.175	1.19^{+}	.101
Final say, purchase decision(0-3)				.190	1.27**	.035	.190	1.21**	.080
Rejects domestic violence (0-5)				.094	1.10**	.311	.088	1.09**	.036
Support networks									
Reprod health support network(0-2)							.144	1.15	.240
Family support for planning (0-2)							-.290	0.75	.185
Network/sources for condom(0-2)							.151	1.16	.130
Model Summaries									
N	2133			2133			2133		
Improvement X^2 (-2 Log likelihood)	1716.72			1699.47			1687.43		
Degree of freedom	1			1			1		
Nagelkerke R^2	.022			.033			.042		
Significance	.000			.000			.000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables were coded

Final say in purchase decisions has a significant influence on woman's psychological access to health care because a woman who has control over purchase decisions would not need permission from her spouse to seek medical help.

As model 3 shows, adding family planning support networks to the model does not add much explanatory power and at the same time somewhat diminishes the importance of current urban residence on psychological access. In summary, one might expect women with greater autonomy in managing money and having assertive attitudes about rejecting domestic abuse to have better psychological health access than those who do not.

3.3.4 Factors influencing Malaria Prevention Behavior

In table 3.5 education level, age, current residence and matrilineal lineage all had significant impact on malaria prevention behavior. Having at least primary education increased the odds of enforcing malaria prevention by 1.46 times or by 46%.
Being older reduced the odds by 2% and living in urban area reduced the odds by about half (50.6%) while having a matrilineal lineage reduced it by 62.4%. Perhaps malaria prevention is more likely to be enforced by younger women likely to have more children under six years of age. Model 1 also reveals that malaria prevention behavior occurs most among women currently living in rural areas. This confirms an earlier statement that malaria may be more prevalent in rural areas than in urban ones. A one unit increase in having a final say in family matters increased a woman's odds of enforcing malaria prevention by 26% and a one unit increase in rejecting domestic violence increased the odds of malaria prevention by 6%.

Table 3.5 Odds Ratios and standard errors for logistic regressions predicting enforcement of malaria prevention among Ghanaian women

	Model 1			Model 2			Model 3		
Demography	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.
Constant	-.252	.78	.248	-.281	.76	.256	-.279	.756	.259
Education level (0-1)	.381	1.46***	.116	.376	1.44***	.015	.348	1.42**	.127
Age (I/R)	-.019	.982***	.007	-.016	.984**	.008	-.016	.984*	.007
Number of children aged 5/below (I/R)	.116	1.12 $^{+}$	.069	.115	1.12 $^{+}$	.085	.110	1.12	.069
Current residence (Rural-Urban 0-1)	-.705	.494***	.129	-.731	.481***	.153	-.727	.483***	.134
Lineage (patrilineal/matrilineal) (0-1)	-.979	.376***	.126	-.924	.397***	.101	-.932	.394***	.129
Self Determination									
Final say, family matters (0-2)				.231	1.26**	.080	.235	1.26**	.081
Final say, purchase decision(0-3)				.001	1.001	.035	.007	1.01	.064
Rejects domestic violence (0-5)				.055	1.06*	.311	.055	1.06*	.029
Support networks									
Reprod health support network(0-2)							-.142	.868	.189
Family support for planning (0-2)							.248	1.282	.151
Network/sources for condom(0-2)							.053	1.054	.099
Model Summaries									
N	2133			2133			2133		
Improvement X^2 (-2 Log likelihood)	2369.52			2350.21			2344.91		
Degree of freedom	1			1			1		
Nagelkerke R^2	.082			.092			.095		
Significance	.000			.000			000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables were coded

Results confirm that a woman's educational level and her role in family decisions and assertive attitudes, increase her odds of enforcing malaria prevention while her older age, current residence in urban area and her matrilineal lineage reduce the odds of malaria prevention efforts. The variance explained with the inclusion of the family /social support network variable was negligible.

3.3.5 Factors Influencing Hygiene Behavior

Enforcement of hygiene behavior was examined with both the hierarchical regression and the logistic regression analysis. Results are presented in tables 3.6a and 3.6b. Model 1 in the OLS shows matrilineal lineage is a significant positive predictor of hygiene behavior. This was expected. This is the OLS not the logistic regression. Also education level and current residence in urban area predict good hygiene behavior. Model 2 reveals that, with other variables in the model, only education level and current residence in urban area significantly predicts good hygiene behavior. Having a final say in family matters is positively related to hygiene behavior. A look at the R^2 shows an increase

Table 3.6a. Hierarchical OLS regressions predicting hygiene behavior among Ghanaian women

	Model 1			Model 2			Model 3		
Demography	(b)	Beta	t	(b)	Beta	t	(b)	Beta	t
Constant	.761		5.52	.829		5.91	.745		5.30
Education level (0-1)	.259	.126***	3.91	.305	.149***	4.54	.214	.104***	3.06
Age (I/R)	.002	.012	.445	.005	.041	1.46	.007	.053*	1.90
Number of children aged 5/below (I/R)	-.018	-.014	-.479	-.013	-.010	-.356	-.011	-.008	-.28
Current residence (Rural-Urban 0-1)	.618	.245***	8.40	.624	.247***	8.46	.547	.217***	7.23
Lineage (patrilineal/matrilineal) (0-1)	.169	.080**	2.64	.096	.046	1.47	.092	.044	1.42
Self Determination									
Final say, family matters (0-2)				.119	.104***	2.63	.133	.115***	2.93
Final say, purchase decision(0-3)				.045	.051	1.31	.054	.021	1.56
Rejects domestic violence (0-5)				.007	.013	.422	.011	.023	.695
Support networks									
Reprod health support network(0-2)							.031	.023	.302
Family support for planning (0-2)							.056	.034	.680
Network/sources for condom(0-2)							.030	.107*	1.94
Model Summaries									
N	1228			1228			1228		
R square	.093			.113			.128		
Adjusted R square	.089			.107			.120		
Difference in R	-			.020			.035		
Degrees of freedom	5			8			11		
Significance (model p-value)	.000			.000			000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables were coded

Table 3.6b. Odds Ratios and standard errors for logistic regressions of hygiene behavior among Ghanaian women

	Model 1			Model 2			Model 3		
Demography	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.
Constant	.199	1.22	.287	.351	1.42	.299	.190	1.21	.305
Education level (0-1)	.235	1.26^{+}	.139	.346	1.41*	.144	.163	1.18	.151
Age (I/R)	.001	1.00	.007	.010	1.01	.008	.013	1.01	.008
Number of children aged 5/below (I/R)	-.038	.963	.079	-.025	.975	.081	-.017	.983	.082
Current residence (Rural-Urban 0-1)	.549	1.73***	.159	.565	1.76***	.163	.403	1.496**	.169
Lineage (patrilineal/matrilineal) (0-1)	.226	1. 24^{+}	.134	.052	1.05	.141	.048	1.05	.142
Self Determination									
Final say, family matters (0-2)				.248	1.282**	.098	.348	1.42**	.098
Final say, purchase decision(0-3)				.110	1.12^{+}	.073	.115	1.12*	.074
Rejects domestic violence (0-5)				.004	1.01	.035	.013	1.013	.035
Support networks									
Reprod health support network(0-2)							.084	1.09	.228
Family support for planning (0-2)							.022	1.02	.182
Network/sources for condom(0-2)							.227	1.26*	.120
Model Summaries									
N	1228			1228			1228		
Improvement X^2 (-2 Log likelihood)	1651.80			1612.24			1593.20		
Degree of freedom	1			1			1		
Nagelkerke R^2	.025			.061			.080		
Significance	.000			.000			000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables are coded

from 9.3 to 11.3% between models 1 and 2 and an additional increase of 1.5 % when the support variables are entered in model 3. Model 3 confirms that education level, urban residence, final say in family decision issues and family planning support networks (networks for condom supply) are important predictors of hygiene behavior, suggesting that networks may be providing more than just condoms insofar as the hygiene measure is tapping behaviors such as hand washing.

Examining the relationship with the logistic regression reveal a similar but slightly different scenario. In model 1 only urban residence predicts hygiene behavior. For a woman living in an urban area, her odds for enforcing hygiene behavior would be 1.73 (73%) greater or more than that of a woman living in a rural area, which may be due to availability of water sources. A one unit change in having a final say in family matters was related to an increase in the odds of enforcing hygiene behavior of 28.2%.
In model 3 a one unit increase in network sources ensuring supply of condoms increased the odds for hygiene enforcement by 26%. This suggests that, apart from condoms, the networks may be providing materials and information for good hygiene practice.

3.3.6 Factors Influencing Sexual Health Behavior

Table 3.7 shows the results of the logistic regression models which examined the impact of demographic, self-determination and familial/social support networks on responsible sexual behavior. Model 1 shows that matrilineal lineage increased a woman's odds of learning about and doing something to protect against AIDS by 41% while her educational level increased it by 35%. Including the self determination

variables reduced the odds for both educational level and matrilineal lineage by 6% and 12% respectively. At the same time a one unit increase of autonomy in purchase decisions increased woman's odds for responsible sexual behavior by 23%. This is an important finding because when women control money they can dispense resources to purchase not just food but also medications and condoms for protection against STDs. In model 3 the important predictors of women's responsible sexual behavior are matrilineal lineage, autonomy in purchase decisions, belonging to or participating in a network that supplies or distributes condom and family planning information to its members. Notably, education is no longer a significant predictor in this model, suggesting that the combined effects of having a say in purchase decisions and having more sources for condoms and family planning information mediate the effects of education on responsible sexual behavior.

Table 3.7. Odds Ratios and standard errors for logistic regressions of responsible sexual behavior among Ghanaian women

	Model 1			Model 2			Model 3		
Demography	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.	(B)	Odds Ratio	S.E.
Constant	.410	1.51	.264	.366	1.44	.274	.118	1.13	.280
Education level (0-1)	.303	1.35**	.118	.253	1.29*	.122	.038	1.04	.129
Age (I/R)	-.003	.997	.007	-.007	.993	.007	-.003	.997	.007
Number of children aged 5/below (I/R)	.018	1.018	.071	.019	1.02	.071	.013	1.01	.072
Current residence (Rural-Urban0-1)	.146	1.16	.118	.151	1.16	.120	.010	1.01	.125
Lineage (patrilineal/matrilineal) (0-1)	.343	1.41***	.117	.251	1.29*	.121	.266	1.31*	.123
Self Determination									
Final say, family matters (0-2)				.046	1.047	.085	.009	1.01	.086
Final say, purchase decision(0-3)				.206	1.23***	.067	.185	1.21**	.067
Rejects domestic violence (0-5)				.039	.962	.031	.049	.953	.032
Support networks									
Reprod health support network(0-2)							.053	1.05	.198
Family support for planning (0-2)							.180	1.20	.162
Network/sources for condom(0-2)							.281	1.32***	.103
Model Summaries									
N	1714			1714			1714		
Improvement X^2 (-2 Log likelihood)	2157.95			2128.90			2082.12		
Degree of freedom	1			1			1		
Nagelkerke R^2	.024			.043			.076		
Significance	.000			.000			000		

Significance levels: *** p< 0.001; ** p < 0.01; * p < 0.05; $^{+}$ p < 0.1

Note: Values in brackets indicate how respective independent variables are coded

One should note the relatively strong predictive power of networks that support a woman's family planning decisions compared to other predictors (self-determination and demographic variables) in the model 3. Not surprisingly, when women have networks that provide information and support their family planning decisions, they also are more likely to engage in condom use with sexual partners. This significant relationship of support networks is extremely important in light of the crisis of HIV/AIDS in sub-Saharan Africa.

3.4 DISCUSSION

3.4.1 Education, urban and matriliny effects on access and health behaviors

As hypothesized, there was a consistent educational effect on physical access to health care, as well as on hygiene and prevention behaviors. Contrary to the hypothesis, there was no significant effect of women's education on psychological access to health care. This is surprising insofar as education should enhance women's sense that they have a right to health care. With the exception of psychological access, the results are consistent with a large body of scholarship showing the positive effects of women's education on her and her family's health (Gisselman, 2006; Akin, 2005, Onah et al., 2006). There may be different reasons underlying the effects of education on different outcomes. In the case of physical access, education may simply reflect the fact that educated women have better incomes which allows them to afford access to health care or transportation. With respect to hygiene behavior an educated woman may be more aware of the importance of hygiene to safeguard the health of her family. In much similar ways women who have education should have more access to family planning information, more income to purchase condoms, as well as the confidence to use contraception and thus exercise responsible sexual behavior.

Like education, urban living provided consistent positive results for physical and psychological access, hygiene and malaria prevention. It did not significantly improve responsible sexual behavior which is surprising because urban women should have more information about and access to condoms and contraception as well as have support networks that would encourage responsible sexual behavior. The positive effects on

women's health of urban living are consistent with other work. (Coast, 2006; Hoffman et al., 1997, Maund, 1976; House, 1987).

Unlike education and urban living, there were mixed results for matriliny. It showed consistent positive effects on physical access and responsible sexual behavior. The reader must be reminded that in matriliny women have autonomy over resources and assets. Women in this lineage control their own money and no husband has any right to dictate how a woman should spend her earnings. It could be that women's control of wealth this way is making it possible for them to access health care and implement their sexual health intentions. This observation is confirmed in previous research (Dodoo, 1995; DeRose, 2003) which talks more about how the autonomy of women in this lineage translates into their preference for children.

At the same time, matriliny reduced the odds for enforcement of malaria prevention. It is not clear why this is so but it could be that women with matrilineal lineage, because of their autonomy to control and manage resources, are able to manage well and tend to live under conditions that make enforcement of malaria prevention unnecessary. The lack of association between matriliny and malaria prevention also may simply reflect the geographical location of the matrilineal groups, which though is located in the forest areas are not in close proximity to very large water bodies as is found in the Volta region which is predominantly patrilineal. In Ghana, mosquitoes are very highly endemic in the Volta Region because of the location of a large body of water, the Volta Lake, in this region. Since the anopheles mosquito does not travel more than 2 kilometers, most of the malaria related cases are located around that region. This region,

which has been identified as the number one region where mosquito nets are used (GSS, 2004), also is a patrilineal region.

3.4.2 Education, urban and matriliny effects on self-determination factors and measures of social support

The study consistently shows the importance of education in strengthening women's say in purchase decisions, rejection of domestic abuse, and say in family decisions. Educated women were more likely to participate in reproductive health support networks, were more likely to discuss family planning with networks of family and friends, and were more likely to participate in networks that provided condoms and resources for family planning. This observation is in line with findings from previous studies that have said that education enables women to be empowered and enhances their opportunities to reduce fertility and sexually transmitted diseases (Goldstein & Goldstein, 1981; Hervitz, 1985;Tawiah, 1984; Schultz, 1993; Haveman & Wolfe 1995; Duncan et al., 1996; Sandiford et al., 1995).

Unlike education, urban residence provided more mixed results. Whereas urban women were more likely to reject domestic violence, they were no more likely to report that they had a say in family or purchase decisions. This was quite unexpected as one would think that living in an urban area would open up more opportunities for the women to enable her to make appropriate contributions in her household which could give her the leverage she needs in purchase decisions and in other family matters and moreover when the bivariate zero order correlations have indicated that urban living was positively associated with higher education levels for women. Since the items tapping family decisions concern visits by family and what food is cooked, the lack of urban effects may

be less surprising. However, it is surprising that urban women do not report more autonomy in purchase power. As expected urban residence was positively associated with more open attitudes towards discussing family planning – urban women were more likely to report that they discussed family planning with family members and close friends. However, it is not clear to me at this time why urban living did not enhance women's access to health care facilities or workers that supplied condoms.

As expected, matriliny significantly predicted more autonomy in purchase decisions and in rejection of domestic violence. If a woman controls money and has absolute authority over decisions about how to spend her earnings, she most definitely will be in a position to assert her will and reject abuse from a partner who may be depending on her in some respects.

3.4.3 Mediation verses additive effects of self-determination and social support variables

The study has provided partial support for mediation –in some cases for the education and in other cases for the urban effects on the outcomes. The effects of education on physical health were reduced with the introduction of self determination and social supports. The effects of education on responsible sexual behavior were reduced when having a say in purchase decisions and network supports for condoms were introduced. With respect to responsible sexual behavior, it is also noteworthy that the positive effects of matriliny are reduced when autonomy in purchase decisions and network supports for condoms are entered in the model. Similarly, the effects of urban living on psychological access were reduced when self determination and social supports were introduced. The effects of both education and urban residence on hygiene were

reduced when having a say in family matters and network supports were added. However, additional statistical tests are required to determine whether, with the introduction of the self determination and support variables, any of these changes in the coefficients for education, urban residence, or matriliny are significant.

There was also evidence that the self determination and social support variables added explanatory power in the models (increasing pseudo R^2 values). For malaria prevention, these variables added explanatory power but did not mediate any effects of education, residence, or lineage. With respect to physical access and hygiene behavior the self determination and support network variables also explained more of the variance in the outcomes than did the demographic variables alone.

3.5 CONCLUSIONS AND RECOMMENDATIONS FOR POLICY

In view of the reviewed policy climate in Ghana and our study findings, I will suggest the following implications for effective policy formulation in Ghana. This study has implications for improvements in the public transportation systems in rural areas, introducing community health insurance schemes, strengthening the community health care system, promoting communal and family support systems that are falling apart in most of rural Ghana, providing informal education and counseling to husbands to sensitize them about the need to support their wives who seek health care.

The study finds that access to health care is a problem for women who live in rural areas or who belong to ethnic lineages that do not provide them adequate safety nets. This is consistent with facts on the ground which points to concentration of health facilities in urban areas and their uneven distribution across the country (Tsey, 1997).

Among very poor women, lack of physical and psychological access to care contributes to excess risk in emergency situations. Women who lack access resort to cheaper herbal medicines or conventional medicines and sources that are less effective to control cases like malaria. Such actions do not only endanger women's health but could contribute to the build up of resistance in the disease causing pathogens to medications.

Lack of physical access is often increased for the most poor of women by the need to obtain permission from their husbands or household mother-in-law, absence from work, and loss of income and the need to raise money for both treatment and costs associated with traveling, food and tips. Intensification of functional literacy programs and education campaigns for husbands to understand the need to for their wife to seek care are recommended for policy formulation. Also introduction of income generating activities for women in these local settings will assure that women have access to income with which they can pay to access health care. Also policies facilitating child care and nursery programs for children will free time for women with more children to seek medical help for themselves.

The strong association between proactive social and familial support networks and physical health access may mean that proactive social and familial networks that promote car pooling, financial assistance and help with child care would enable women to improve upon their physical and psychological access to health care. Similarly the strong association of proactive social and familial support networks with responsible hygiene and sexual behavior means that networks that facilitate discussion of condoms and provide education about ways to avoid health risks associated with poor sanitary conditions and unprotected sex may be helpful to encourage women to talk about their

situations and take the necessary steps to address them. Policies that increase access, affordability, and transportation are clearly called for.

As noted in the literature review, complications from delivery represent a major cause of maternal mortality and morbidity. As a result, policies that intensify and strengthen training of midwives and traditional birth attendants in pre and post natal emergency life-saving care are recommended. This care should include preventative measures, detection of abnormal conditions in mother and child, procurement of medical assistance and execution of emergency measures in the absence of medical help. The World Health Organization has recommended that midwives receive accredited training in the following areas: repair of vaginal and cervical lacerations, performance and repair of episiotomy, vacuum extraction, administration of intravenous fluids and blood replacement therapies, emergency evacuation of the uterus, manual removal of the placenta, emergency treatment of preeclampsia and eclampsia, administration of intramuscular and intravenous antibiotics and family planning services.

The study also points to the importance of psychological issues – women's attitudes about their rights to care, their exposure to information, and networks that inform and support family planning and condom use. Similar to prior reports, this study shows that women who exhibit indicators of self-determination (i.e. having purchase power or having assertive attitudes against domestic violence) show significant relationships with psychological access to health care (Chao, 1999). The study confirms that purchase power and the rejection of domestic violence have a significant influence on woman's psychological access to health care because a woman who has control over purchase decisions would not need permission from her spouse to seek medical help.

The results suggest that if women control money in the household, they have more power over health care decisions. When women control the family budget, they don't need permission to access health care. Policies that empower women's groups and engage them appropriately with profitable ventures and income generating activities will not only enable women to gain access to funds but also will create the right platform and atmosphere to encourage healthy networking and diffusion of important health access and behavior information. Micro credit programs would provide financing, social programs, supports, flexibility at the work place for working mothers, childcare programs and assistance with long care needs.

These opportunities will not only help women meet their financial needs but will serve as avenues for women to lead and exercise autonomy, network, discuss, exchange and diffuse important family planning and reproductive health information which are essential ingredients for positive health behaviors.

The strong association of women's education, and self –determination indicators with increased health care use highlights the need for efforts to increase girls' schooling and actively promote functional literacy campaigns and alter perceptions about unfair gender norms and attitudes that continue to deny women their entitlement to empowerment. An important aspect of this empowerment is for policy formulation to actively encourage (or make it an enforced policy/activity) the existing mechanisms such as the Ministry of Health (MOH) outreach workers and village health workers, community health nurses, public health nurses, midwives and village health committees to undertake massive community education activities at points and places where women congregate. These should include markets women at the market, women workers at

processing plants, women's groups, and church gatherings. Since the queens/queen mothers traditionally have the mandate to organize women in villages and rural communities, efforts to reach rural women should utilize the authority and reach and connections of these figureheads to get to women. Policy formulation should use these as platforms to disseminate family planning counseling and services and use the opportunity to provide linkages to other appropriate reproductive health services.

There should be a systematic policy framework to encourage and promote active build up of social networks among women at their work places such as the market and at places where they congregate for recreational purposes or for worship such as the funeral grounds and the church. Such networks can be used to expand family planning counseling, education about the threat of the HIV/AIDs epidemic, provide information about safe sex and safe uses of condoms and their distribution.

Given the impact potential of the travel and visit extension method in sub-Saharan Africa (Bindlish & Evenson, 1997), there is a good reason for policy formulation to strengthen efforts to make travel and visit extension services more effective especially among women farmers. This calls for: commitment of persons and resources to extension, coordination with other related agencies including input suppliers and commitment to the basic principles upon which the management system of travel and visit is based. Integration of family health issues into the regular agricultural extension services and paying adequate attention to leadership training and skill development in communication including enhanced ability and capacity of agents to listen, observe, evoke participation and involvement of target populations in discussions. Travel and

visit strategies should employ innovation in focusing on small-group discussions and management learning groups and field trips.

Travel and visit activities should increase attention paid to female farmers by retraining female extension staff in areas other home economics and nutrition such as family health, crop/animal husbandry, horticulture, fisheries and field extension methodologies. In communities with barriers to effective interaction between male extension workers and women farmers, there is the need to recruit and train women field functionaries. The national policy should promote recruitment of women into government agencies and increase enrollment and retention of in educational institutions. Extension workers need to be sensitized to recognize and appreciate the role of women in the farming system. There is also the need to strengthen capacity building for effective diagnosis of the problems and recognition of opportunities for increasing the productivity of female farmers. There is the need to involve women and men in setting the agenda for agenda for research and in agricultural and health interventions and in monitoring and evaluation of extension efforts.

Policy formulation should incorporate flexibility in the travel and visit method to reach women farmers at times that are convenient, meeting them in groups and at areas where they congregate and actively bringing women into contact with farmer and health service groups.

Another policy aspect of the results of this study concerns the fight against malaria. Since 1999, Ghana has been collaborating in an international effort to reverse the trends of malaria in the country under the Roll Back Malaria (RBM) initiative (GSS, 2004). This initiative hoped to achieve by the year 2005 that at least 60% of people at

most risk of getting malaria are adequately protected by a combination of personal and community protective measures. The results of this study suggest that the percentage of women who are currently enforcing malaria prevention as in 2003 was way below the target of 60%.

Donnelly et al, (2005) noted that malaria has been considered to be predominantly a rural disease in Africa because suitable vector breeding sites are scarce in highly populated areas. In recent years, there have been frequent outbreaks of cholera in several town and cities in Ghana. This is so because of the worsening sanitation problem in Ghana and also the lack of hygienic practices related to food preparation and hand washing. For good health of women and children, it is essential that each household have a specific area designated for hand washing where water, soap, ash or other cleansing agent as well as a basin containing clean water are present. This could enhance regular hand washing. Intensification of health education in communities and providing women access to income generating ventures will provide them the needed income to purchase products that can facilitate their efforts to fight malaria or to implement better hygiene standards.

The findings concerning hygiene behavior points to a relationship between social class (education level) and participation in proactive social networks. This is in agreement with findings by Boadu (2002) who observed that the highest proportions of non-observers of personal hygiene in the rural areas in Ghana are of lower class (52.8%), while the upper class has the lowest proportion. He observed a similar trend for residents in urban areas which agrees with the results of this study about the importance of education in predicting good hygiene practice and behavior.

The results also reveal strong associations between responsible sexual behavior and having proactive social and familial support networks. This finding is consistent with a prior study that found that network structure and function are associated with perceived condom use norms and condom communication norms (Latkin et al., 2003). Results support other studies which have provided evidence in Ghana that women with social support networks are more likely than those without to pursue healthy lifestyle behaviors (DeRose, 2003; Udry & Conley 2002; Duda et al, 2006; Fortes, 1969; Wolf et al., 2003). Our findings indicate that when women have proactive social and familial networks they get the opportunity to learn about ways to avoid sexually transmitted diseases (such as learn about the use of condoms) and actually use condoms to prevent sexually transmitted diseases. This confirms Berkman et al.'s (2000) argument about social influence.

Our results show that networks in which women can access and get information that are needed for family planning are strong predictors of women's access to and use of condoms. This is extremely important with implications for the issue of sexually transmitted diseases. In summary, the results of this study confirm other work which supports policy efforts to enhance women's education, self-determination, and income. Taken together, the results and discussions suggest several implications for policy formulation.

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PROFESSIONAL EXPERIENCE

2005– 2006	Graduate Teaching Assistant in Youth Civic Development.
2003-2005	Graduate Teaching Assistant in Agricultural and Extension Education.
2005-2006	Graduate Research Assistant in Agricultural Extension and International Programs.
2001-2002	Graduate Research Assistant in Horticulture (Lynch & Brown's Lab)
1994-2001	Research /Scientific Officer at the Council for Scientific and Industrial Research (CSIR, Ghana).
Jan – July 1997	Agricultural Soil and Water Management Consultant at the International Center for Development Oriented Research in Agriculture (ICRA). The Netherlands.
1989 – 1991	Teaching Assistant at the Department of Crop Science, University of Ghana at Legon.
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PUBLICATIONS

Mayuki T., Snyder R., **Boateng J.K**., Lamont, W.J., Orzolek DM., Brown K.M. and Lynch J.P. 2006. Utility of Alumina Buffered Phosphorus Fertilizer for Vegetable Production. *HortScience* 41 (3): 775-779.

MANUSCRIPTS IN PROGRESS

- Jackson D. G., **Boateng J.K.** (2006). "Ten suggestions for a positive International Extension Experience." *In progress.*
- Jackson D.G., McPheron B.A. **Boateng, J.K**. (2006). "Leadership in the Academy: The Scholarship of Administration." *In progress*
- Stout, M., **Boateng, J.K**., Gallay, L., & Flanagan, C.A. (2006). "Neighborhood social capital, social responsibility and adolescent intervention of peer substance use." *In progress*
- **Boateng J.K**. 2005, Adomako-Ampofo A (2005). "Traditions, Sexuality, Gender and HIV/AIDS as Civic Issues Challenging Adolescent Health and Wellbeing in Ghana. Manuscript under review for publication in a journal." *In progress*
- Govere E. **Boateng J.K**. (2006). "Evaluating Positive Agroforestry Knowledge, Attitude, Skill, Aspiration, Inspiration and Intention (PAKASAII) Changes in Agroforestry Syllabus for Agricultural and Forestry Colleges." *In progress.*

AWARDS

- Competitive Grant Award for Graduate Thesis Research, 2006,
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- Nominee, for the W. LaMarr Kopp International Student Achievement Award, 2006
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