Social capital and behavior change in rural Nicaragua

By

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A report submitted to the
Department of Behavioral Sciences and Health Education
Rollins School of Public Health
in partial fulfillment of the requirements of the degree of
Master of Public Health

Behavioral Sciences and Health Education
2010
Social capital and behavior change in rural Nicaragua

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Acknowledgements

I would like to acknowledge the support of several people whose insight, time and collaboration enabled me to conduct this research for my Master’s thesis requirement. First, I would like to express my gratitude to my committee members Susan Butler, Lenette Golding and Dawn Comeau for all of their critical assistance and support throughout this process. Thank you to Jennifer Pearson for her help throughout data collection and analysis. I would also like to thank CARE USA and CARE Nicaragua for arranging everything for my data collection. Both CARE USA and the Emory University Global Health Institute deserve a thank you as well for the generous funding they provided to me for my data collection last summer. I would like to thank my peers for listening to my thoughts and providing feedback to make my experience and write-up the best it could be. Finally, I would like to extend a big thanks to all the participants throughout the data collection process.
Abstract

Background: Maternal and child malnutrition continue to affect the health and well-being of the poor in Nicaragua. CARE’s Window of Opportunity Program is a global initiative to promote, protect and support optimal infant and young child feeding (IYCF) and related maternal nutrition (rMN) practices. This study sought to identify how social capital can be used to inform a behavior change communication (BCC) strategy related to maternal and child health (MCH).

Methods: Seventeen in-depth interviews (IDIs) and two focus group discussions (FGDs) were conducted in the rural northern departments of Matagalpa and Jinotega with pregnant and lactating women and community health workers (CHWs). Interview data were coded by the primary investigator and a team member for inter-coder reliability. First coding was conducted to determine the initial themes in the data and second coding confirmed patterns.

Results: Findings revealed interplay between machismo and women’s participation in and attitudes toward community activities related to health. Although women perceive community participation as beneficial for knowledge about health, they are largely inhibited by machismo, thus creating lessened autonomy over health decisions. CHWs provide a source of structural social capital for women, but they are inhibited by the voluntary nature of their work and interpersonal issues related to the majority percentage of male CHWs. Since there are high levels of cognitive social capital within the target communities, women feel they are able to trust their neighbors and talk about health topics.

Conclusions: This study provides implications of social capital for more sustainable MCH programs in Nicaragua. Collaboration with existing structural social capital institutions may provide MCH behavior change by strengthening the health communication network. CHWs can act as change agents to build social capital in these hard-to-reach communities. Public health professionals should work toward increasing social capital in the communities in which they work as a means to a low-resource tool for behavior change.
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<td>behavior change communication</td>
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<td>CARE</td>
<td>Cooperative Agreement for Relief Everywhere</td>
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<td>CHW</td>
<td>community health worker</td>
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<td>DHS</td>
<td>Demographic and Health Survey</td>
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<td>DOI</td>
<td>diffusion of innovations</td>
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<td>FGD</td>
<td>focus group discussion</td>
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<td>FHI</td>
<td>Family Health International</td>
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<td>HDI</td>
<td>human development index</td>
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<td>IDI</td>
<td>in-depth interview</td>
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<tr>
<td>INIDE</td>
<td><em>Instituto Nacional de Información de Desarrollo</em></td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
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<tr>
<td>IYCF</td>
<td>infant and young child feeding</td>
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<td>MCH</td>
<td>maternal and child health</td>
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<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>MINSA</td>
<td>Nicaraguan <em>Ministerio de Salud</em></td>
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<td>MtMSG</td>
<td>mother-to-mother support group</td>
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<td>MWH</td>
<td>maternity waiting home</td>
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<tr>
<td>NGO</td>
<td>non-governmental organization</td>
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<td>ODA</td>
<td>official development assistance</td>
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<td>PAHO</td>
<td>Pan American Health Organization</td>
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<td>rMN</td>
<td>related maternal nutrition</td>
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<td>SCT</td>
<td>social cognitive theory</td>
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SILAIS administrative units of Nicaraguan health care system

UN United Nations

USAID United States Agency for International Development

WHO World Health Organization
Chapter 1: Introduction

Introduction and Rationale

Increasing attention has been given to maternal and child health (MCH) and nutrition in the past decade, specifically in developing countries. Globally, women and children are the most vulnerable to bear the burden of poverty in developing countries. Over a quarter of children in developing countries are underweight (United Nations [UN], 2009). Additionally, every year, 536,000 women and girls die during pregnancy, giving birth or 6 weeks after delivery due to complications that are largely preventable (UN, 2009). Over 99% of these deaths occur in developing countries, demonstrating the large gap between the rich and poor related to maternal mortality (UN, 2009). The Millennium Development Goals (MDGs) set forth by the United Nations (UN) in 2000 have identified women and children as the most vulnerable and in need of interventions addressing such areas as poverty reduction, malnutrition and morbidity and mortality, all of which are health effects that are largely preventable (UN, 2009). MDG Goal 4 is to “reduce by two thirds, between 1990 and 2015, the under-five mortality rate” (UN, 2009). MDG Goal 5 has two targets. The first is to “reduce by three quarters the maternal mortality ratio” (UN, 2009). The second is to “achieve universal access to reproductive health” (UN, 2009). Global under-five child mortality rates have steadily declined over the past two decades, dropping from 93 deaths per 1,000 live births in 1990 to 67 in 2007. However, there is still progress to be made, as the rate for developing countries as a whole is still higher than the global rate at 74 deaths per 1,000 live births (UN, 2009).

Located in Central America, Nicaragua is a developing country that faces these challenges. For instance, based on statistics provided by the 2006 Demographic and
Health Survey (DHS) conducted in Nicaragua, maternal mortality is 170 deaths per 100,000 live births, and infant mortality is 29 deaths per 1,000 live births (Measure DHS, 2006). Additionally, over 16 percent of Nicaraguan children are stunted (Measure DHS, 2006) and over 13 percent of Nicaraguan women do not receive prenatal care during their pregnancy (Measure DHS, 2001). In Nicaragua, statistics provided by the MDG monitoring system state that it is “possible to achieve [MDG Goal 4] if some changes are made,” but MDG Goal 5 is “off track,” meaning that it may not be possible to reach the MDG target for improving maternal health by 2015 (MDG Monitor, 2007). Maternal and infant mortality rates remain high in this country, and the quality of health services is limited (Pan American Health Organization [PAHO], 1998). The Human Development Index (HDI) ranking of Nicaragua is 124 out of 177 countries. The HDI measures development by “combining indicators of life expectancy, educational attainment and income,” and it serves “as a frame of reference for both social and economic development” (Human Development Report, 2009). Among all Central American countries, Nicaragua ranks the lowest on the HDI – Guatemala (122), Honduras (112), El Salvador (106), Costa Rica (54) and Panama (60). Therefore, in Nicaragua, health programs targeted at women and children are critical to reach MDGs by 2015.

The Cooperative Agreement for Relief Everywhere (CARE) has developed the Window of Opportunity Program (Window) to address maternal and child nutrition in some of the poorest communities in six developing countries, including Nicaragua. The departments of Matagalpa and Jinotega have been identified by the Nicaraguan Ministerio de Salud (MINSA) as most in need of an intervention by CARE. Access to healthcare in these communities is very limited, especially for women and children. One
strategy being implemented by CARE is behavior change communication (BCC), which uses an integrated approach to disseminating health information to community members. CARE has decided to focus on interpersonal, community-based communication as its method to promote behavior change in its target communities.

To better inform its current BCC strategy, CARE would like to explore social capital as a means to behavior change related to MCH. Social capital is created when groups of people work together for a common interest. On an individual basis, social capital may be described as having structural components – what one does with others – cognitive components – what one feels about their relationship with others. Since social capital has been shown as a significant predictor of certain health outcomes, including child nutritional status and mental health, it is possible that it could provide the same results for infant and young child feeding (IYCF) and related maternal nutrition (rMN) practices. A lack of access to health care in rural Nicaragua provides further support for the need of innovative, community-based strategies to create behavior change, especially for women and children.

*Theoretical Framework*

Theories of social capital are drawn upon to explain why some communities are more or less healthy than others (Birdsall & Kelly, 2005). Early research on social capital was primarily conducted by sociologists to describe the ability of individuals to access resources through networks or groups to which they belong (Bourdieu, 1985; Coleman, 1988; Coleman, 1990; Loury, 1977). Although social capital has been linked to classical theorists such as Durkheim, Simmel, Marx and Weber, who each had different theories of the relationship between society and the individual, modern development of the term
came from three key authors: Pierre Bourdieu, James Coleman and Robert Putnam (Watson & Papamarcos, 2002). Bourdieu identified social capital on an individual level. He defined social capital as the aggregate of a person’s resources that come more or less from institutionalized relationships that provide a person with “credit” within the community (Bourdieu, 1986). In contrast to Bourdieu’s focus on individual outcomes, Coleman’s work shifted to outcomes for groups or organizations, and he thought that social capital could actually provide a means to an end (Coleman, 1988). His research explored how social capital might offset deficiencies in other forms of capital like physical and human capital (Teachman, Paasch, & Carver, 2007). Putnam, a political scientist, largely focused his research about social capital on civic engagement (Putnam, Leonardi, & Nanetti, 1993; Putnam, 1995). Of these three contemporary authors of social capital, Bourdieu’s work provides the least amount of empirical analysis (Adam & Roncevic, 2003).

More recently, research has focused on lack of social capital and poor health status in certain regions of developing countries (DeSilva & Harpham, 2007; Kawachi, Kennedy, & Glass, 1999; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997; Kennedy, Kawachi, Prothrow-Stith, Lochner, & Gupta, 1998; Mitchell & Bossert, 2007; Subramanian, Kawachi, & Kennedy, 2001). For example, Kawachi and colleagues (1997) conducted a cross-sectional ecologic study based on data from 39 states and found that “income inequality was strongly associated with both per capita group membership (r=-.46) and lack of social trust (r=.76). In turn, both social trust and group membership were associated with total mortality, as well as rates of deaths from coronary heart disease, malignant neoplasm and infant mortality” (p. 1491). A theory of social capital may be
particular adept at exploring how it can be used to inform a BCC strategy and ultimately improve optimal IYCF and rMN practices in rural Nicaragua. One reason may be that a theory of social capital focuses on utilizing a community’s existing resources to create better health. Therefore, natural, trusted communication networks created by social capital can be used as one component of a BCC strategy to help spread key health messages to a target population.

The concept of social capital in the current literature is very complex and it remains in its formative stages with no concrete model of constructs. Nevertheless, several definitions of social capital have been developed. Bourdieu (1985) defines social capital as the resources gained from institutional networks. Coleman (1990) cites the source of social capital as the mutual benefits gained from relations between and among people. Furthermore, Putnam (1996) identifies social capital as using networks, norms and trust to pursue a common interest. Portes (1995) posits that the presence of social capital comes from networks with others that allow them to “command scarce resources” (DiClemente, Crosby, & Kegler, p. 232). Finally, Fukuyama (1999) focuses on trust among group members as an aspect of social capital that creates cooperation. Common themes that emerge among these various definitions include the cooperation of people and the creation of networks, but also the manifestation of social capital by individuals. A compendium of these definitions has been provided in Appendix A.

For the current research study, a framework of social capital and its effects on health has been created set in the context of Nicaragua and based on the literature related to social capital and health. A visual representation of this framework can be found in Figure 1.
Figure 1. Social capital conceptual framework

Figure 1 describes how two constructs from the literature, structural social capital and cognitive social capital, might be used to influence health outcomes. Hitt, Lee, and Yucel’s (2002) contemporary definition of structural social capital states that it “facilitates mutually beneficial social capital through established roles and social networks supplemented by rules, procedures and precedents.” Krishna and Uphoff’s (2002) contemporary definition of cognitive social capital states that it “includes shared norms, values, attitudes and beliefs, predisposes people towards mutually beneficial collective action.” Much of the existing research related to social capital has identified structural and cognitive social capital as the main types of social capital, and they are commonly connected and mutually reinforcing (Uphoff & Wijayaratna, 2000). Structural
social capital is affected by horizontal organizational structure, collective decision-making and community groups/institutions. For example, structural social capital often exists in communities as the formal groups in which people participate, such as a religious organization or political group participation. Within these groups, decision-making comes from all members and levels of organization. Cognitive social on the other hand capital is affected by values, social norms and behavior/attitudes. For example, cognitive social capital is higher when community members feel comfortable seeking advice or help from their neighbors. Values of a community include trust among community members, reciprocity or the notion of giving and receiving for mutual benefit and culture. Because both structural social capital and cognitive social capital are connected, together they determine the level of social capital within a given community.

In the context of Nicaragua, *machismo* and women’s autonomy should also be incorporated in a conceptual framework of social capital because of the effect they can have on levels of social capital. *Machismo* has a long history in Nicaragua and can be defined as “a cult of the male; a heady mixture of paternalism, aggression, systematic subordination of women, fetishism of women’s bodies, and idolization of their reproductive and nurturing capacities, coupled with a rejection of homosexuality” (Sternberg, 2000, p. 91). Closely related to *machismo*, low levels of women’s autonomy is often a result of sex discrimination that limits their decision-making power related to reproductive health (Shen & Williamson, 1999). Thus, if women are less autonomous to make their own decisions and *machismo* is imbedded in the Nicaraguan cultural system, then it can be hypothesized that women have less levels of structural and cognitive social
capital. The current research posits that both *machismo* and women’s autonomy, acting simultaneously, will affect a woman’s level of social capital.

Finally, social capital has been shown to be positively associated with health outcomes such as child nutritional status, mental health, food security and general health and well-being. Thus, high or low levels of social capital can have positive or negative effects on a woman’s health outcomes. Health outcomes targeted in this research include IYCF and rMN practices to improve overall nutrition status of children who are under two years of age. Based on this theoretical framework, the combination of both structural and cognitive social capital within a community will create a certain level of social capital available to a woman. However, specific to Nicaragua, both *machismo* and women’s autonomy will affect a woman’s level of social capital, which consequently affects IYCF and rMN health outcomes for women and children.

A qualitative exploration of social capital in rural Nicaragua was utilized to help gain a better understanding regarding how mothers send and receive health information using their social capital as well as their general perceptions of maternal social capital. From the conceptual framework described above, the current research study used both structural and cognitive social capital constructs to both inform the development of data collection instruments and the reporting of findings and conclusions. This study was designed to explore women’s perceptions of community participation (structural social capital) as well as interpersonal relationships (cognitive social capital) in order to provide recommendations for CARE’s Window BCC strategy and future health programming regarding maternal and child nutrition. This research is particularly important because it is an area that has not yet been explored. The utilization of structural and cognitive social
capital within rural communities in developing countries like Nicaragua can provide solutions to sustainability of behavior change related to MCH. Sources of social capital are formed from within a community, thus creating low-resource sustainable networks that can be utilized for health programming.

**Formal Statement of the Problem**

Previous research has identified social capital as a significant predictor of health outcomes. Literature has also identified the importance of communication in the facilitation and growth of social capital within communities. A prominent source of literature on social capital, DeSilva and colleagues have highlighted the importance of continued research in specific countries, settings and contexts, as levels and forms of social capital can vary. BCC as a health communication strategy also supports a localized focus because of its use of tailored messages to specific contexts within which a program exists. Behavior is not static across cultures and countries, and therefore an integrated, tailored communication strategy is necessary to achieve effective and sustained behavior change (The LINKAGES Project, 2003). In order to reach targets set by the MDGs related to MCH, health programming must continue, particularly in developing countries. Therefore, because the aim of Window is to increase optimal IYCF and rMN practices and care to improve the nutritional status of children who are under two years, this study provides qualitative information not previously researched related to maternal social capital focusing primarily on pregnant and lactating women. Maternal social capital was explored to see how it can be used to improve optimal IYCF and rMN practices and care. Research questions related to both structural and cognitive maternal social capital and
health communications were asked to explore how social capital can be used in Window’s BCC strategy. The study addresses the following research questions:

**RQ1: What factors predict maternal community participation in rural Nicaragua?**

Objective: To identify mothers’ feelings, attitudes and beliefs toward community participation

- What factors act as facilitators to participation?
- What factors act as barriers to participation?
- Why is social capital important in this setting?
- Are there ways that CARE could better support and encourage community activity regarding health?

**RQ2: How can community groups be used as infant and maternal health communication channels?**

Objective: To identify local level institutions (formal and informal) that address IYCF (structural social capital)

- Through which mediums, pathways, or people do mothers receive health information?
- Which channels do they prefer? Which channels do they trust?
- What infant and maternal health-related services do community groups lack which mothers desire?

**RQ3: How does the nature of interpersonal relations affect pregnant and lactating women’s participation in community health and development activities?**

Objective: To assess the nature of interpersonal relations (cognitive social capital)

- What level of trust do women have toward the community?
- What forms of cooperation exist among community members to aid in community health and development activities?
- What barriers do women face related to interpersonal relations that will affect their participation?
Chapter 2: Review of the Literature

Introduction

MCH and nutrition in developing countries have been receiving increased global attention since the introduction of the MDGs in 2000. Recognizing the urgency of increased MCH indictors, MDG Goals 4 and 5 are specific to women and children. MDG Goal 4 seeks to reduce under-five mortality (UN, 2009). MDG Goal 5 seeks to reduce maternal mortality and to achieve universal access to reproductive health (UN, 2009). In response, health programming related to this topic has grown in the past decade to achieve each goal by 2015 (Binka et al., 2007; Bullough et al., 2005; Campbell & Graham, 2006; Clements, Nishimirimanda, & Gasasira, 2008; Tontisirin, & Bhattacharjee, 2008). For example, Binka and colleagues (2007) focused on using existing technologies to accelerate attainment of the MDG Goal 4 related to child survival. By posting nurses and volunteers to various village locations, it was found that child mortality was reduced by over half in three years. Thus, health programs with a focus on community health can accelerate the progress toward attaining MDG goals compared to similar sites. In addition, this approach to community health was less than $10 per capita, demonstrating the cost-effective nature of achieving the child survival MDG.

BCC is a strategy increasingly used in health programs because it integrates multiple communication channels in order to best serve a target population. For many non-profit organizations working in developing countries, BCC provides an opportunity to address a health problem in a multi-faceted manner. Additionally, BCC can influence both individual change and social change. In contemporary health promotion, researchers
are incorporating an ecological-level appropriate to interventions because it is recognized that it “involves more than simply educating individuals about healthy practices” (National Cancer Institute, 2002, p. 10). Because it is not known whether individual behavior change or social behavior change comes first, it is important that communication strategies address both levels. Thus, by using multiple communication channels, organizations reach a wider audience and have the potential to create more change at both the individual level and social level.

A United States Agency for International Development (USAID) funded project, LINKAGES, used BCC to address IYCF and rMN practices in multiple countries. Programming using BCC strategies has proven to be highly effective in many LINKAGES program areas (Quinn et al., 2005). Elements of LINKAGES behavior change orientation include the following: formative research; targeted, concise messages; consistent messages and materials; saturation of primary audiences with messages; going beyond pregnant and lactating women; short-term practical training and peer group support and interaction (Quinn et al., 2005, p. 348). Window has adapted this approach to behavior change for its own BCC strategies in each of its six target countries. For example, Window is using interpersonal channels, community-oriented channels and mass media channels as components of its BCC strategy in Nicaragua. Interpersonal communication consists of growth monitoring sessions, counseling and mother-to-mother support groups (MtMSGs). Community-oriented communication consists of maternity waiting homes (MWHs), special events (i.e., World Breastfeeding Week) and educational sessions via community health workers (CHWs). Finally, mass media communication may include radio.
Social capital is another area of research that has grown in the past decade; however, it has not been studied as a particular component of a BCC strategy. Defined as the ability for people to work together for a mutual benefit, social capital may be a useful informant of a BCC strategy. Social capital creates natural communication networks among community members that can help facilitate the dissemination of key messages set forth by a BCC strategy. The low-resource nature of increased social capital gives it great potential for areas where there is a low literacy level, where access to mass media is limited and where other factors (i.e. poor roads, conflict) make it difficult for messages to be delivered.

This thesis is broken down into sections: a review of the literature, the methodology, results of the research study and a discussion. The literature review begins with a broad overview of global MCH and nutrition and its implications for developing countries then describes information specific to Nicaragua, where the author conducted research pertaining to social capital. Following is a review of Window, and how social capital fits into its BCC strategy. Studies regarding BCC and its effectiveness for health programming in other countries are included as examples. The final section of the literature review explains the concept of social capital and its relation to health outcomes. There is a growing body of literature on social capital and its association to certain health outcomes, and key studies will be highlighted in this section.

Maternal and Child Health in Developing Countries

Despite overall decline in global maternal and infant mortality rates, the situation in developing countries remains troubled. According to the World Bank (2006b), “undernutrition’s most damaging effect occurs during pregnancy and in the first two
years of life, and the effects of this early damage on health, brain development, intelligence, educability and productivity are largely irreversible” (p. 10). Therefore, interventions must focus on this window. Specific MDGs have aimed to halve the proportion of people who suffer from hunger, reduce the under-five mortality rate by two-thirds and reduce the maternal mortality rate by three-quarters by 2015 (UN, 2009). Investing in nutrition is critical to achieving the MDGs. For instance, MDG Goal 4 is to reduce child mortality, and “malnutrition is directly or indirectly associated with most child deaths, and it is the main contributor to the burden of disease in the developing world” (World Bank, 2006b, p. 15). Additionally, MDG Goal 5 is to improve maternal health, but “maternal health is compromised by malnutrition, which is associated with most major risk factors for maternal mortality” (World Bank, 2006b, p. 15). However, five years away from this target year, statistics do not look promising, especially in developing countries. The trend of declining rates of undernourishment in developing countries reversed in 2008, rising by one percentage point, most likely due to increasing food prices (UN, 2009). Child mortality rates have declined steadily in the past decade; however, many developing countries are still far from reaching target numbers set by the MDGs. The UN reports that approximately 536,000 women die each year from complications during pregnancy and childbirth, and the majority of these deaths are in developing countries (UN, 2009). As a result, more action is required to reach targets by 2015, such as increased attention given to health programming involving women and children, those most in need related to the aforementioned MDGs. In addition, larger-scale actions related to policy change must be advocated for in those countries with the most need for MCH protection.
Maternal and Child Health in Nicaragua

As a country in which nearly 25% of the rural population is living on less than one dollar per day (World Bank, 2004), Nicaragua faces a similar situation as other developing countries. According to the most recent DHS report for Nicaragua in 2006, the maternal mortality rate was 170 deaths per 100,000 live births and the infant mortality rate was 29 deaths per 1,000 live births (Measure DHS, 2006). However, these rates are usually much higher in rural areas (e.g., in Jinotega, the maternal mortality rate is 214.9/100,000) (PAHO, 2007). In comparison, in the United States, these figures are 8 deaths per 100,000 live births and 7 deaths per 1,000 live births, respectively (UNICEF, 2009a). UNICEF has identified the top causes of infant mortality worldwide as diarrhea, acute respiratory infections, measles, malaria and HIV/AIDS (UNICEF, 2004). In 2001, PAHO reported the leading causes of death for children under the age of one year as respiratory conditions of the newborn, sepsis of the newborn, asphyxia, pneumonia, congenital malformations and intestinal infectious diseases (PAHO, 2007). Although statistics regarding the causes of maternal mortality remain incomplete due to weak health information systems in developing countries, organizations such as UNICEF, WHO and UNFPA have been improving the tracking of maternal deaths (AbouZhar, 2003). Globally, the World Health Organization (WHO) has estimated that maternal death and morbidity can be attributed to five main obstetric conditions: post-partum hemorrhage, puerperal sepsis, pre-eclampsia and eclampsia, obstructed labor and abortion (AbouZhar, 2003). In PAHO’s report titled Health in the Americas in 2007, it reported the following about maternal mortality in Nicaragua between 1992 and 2005:
Postpartum hemorrhage remained the leading cause of maternal mortality, accounting for 48%, followed by puerperal sepsis (15%) and eclampsia (14%); these causes were associated with high fertility, short birth spacing and limited coverage and quality of services providing prenatal care, attendance at birth and care for complications. (p. 511)

Though some gains have been made toward better nutrition overall, maternal and child malnutrition continue to affect the health and well-being of the poor in Nicaragua. Approximately 16.9% of children under the age of five suffer from stunting, or low height-for-age. In addition 6.9% of children under the age of five suffer from underweight status and 1% of children under the age of five suffer from wasting, or low weight-for-height (Measure DHS, 2006). Malnutrition can be caused by undernutrition, which results in stunting and wasting. It has serious consequences for current and future generations of children. It has long been known that undernutrition undermines growth and perpetuates poverty. Among the effects of malnutrition on economic growth and poverty are the following: direct losses in productivity from poor physical status; indirect losses from poor cognitive functions and deficits in schooling; and losses owing to increased health care costs (World Bank, 2006b). Intervening on this issue can create high economic returns. Because nutrition is a “building block” for human capital, it contributes to economic development (World Bank, 2006b). Thus, addressing malnutrition must start early in life. According to the World Bank (2006b), the most important limiting factors of nutrition are the following:

First, inadequate knowledge about the benefits exclusive breastfeeding and complementary feeding practices and the role of micronutrients and second, the
lack of time women have available for appropriate infant care practices and their own care during pregnancy. (p. 10)

The situation for women in Nicaragua is no better. According to the WHO, “antenatal care reduces maternal mortality through the detection and treatment of pregnancy-related conditions (direct causes)” (WHO, 2010). The WHO antenatal care model recommends that pregnant women have their first visit within the first trimester of pregnancy and four visits total (Villar et al., 2001). In Matagalpa, 68.8% of pregnant women receive four or more prenatal care visits and 18.8% never receive prenatal care (Measure DHS, 2001). Additionally, in Jinotega, 52.3% of women receive four or more prenatal care visits and 25.2% never receive prenatal care (Measure DHS, 2001).

Additional factors affecting women’s health have been presented here. According to the 2001 DHS report, 14.4% of women have received no formal education, and only 36.1% finish secondary school (grades 7-12). In addition, of the women interviewed, 52.9% have not been employed in the past 12 months. As the education level of a woman decreases, the likelihood that she will not receive any antenatal care increases. Women who live in rural areas are also much less likely than those who live in urban areas to receive antenatal care (Measure DHS, 2001). For those women who do receive antenatal care, the average number of months into the pregnancy when she has her first antenatal care visit is 3.5 months for women who live in rural areas compared with 2.9 months for women who live in urban areas (Measure DHS, 2001).

Data for Nicaragua indicate that in order to achieve the target set by the MDGs for child mortality, changes must be made to the current strategy (MDG Monitor, 2007). Additionally, the target set for maternal mortality is off track to be achieved by 2015
(MDG Monitor, 2007). Furthermore, funding for health programs related to MCH remains limited in Nicaragua. In 2006, per capita government expenditure on health at an average exchange rate in United States dollars is a mere $42 (WHO, 2008). Nicaragua’s per capita government expenditure on health is the lowest among all Central American countries (excluding Mexico). In Guatemala, the government spends $54 per person on health. In Honduras government expenditure per capita is $47; El Salvador is $112; Costa Rica is $269 and Panama is $262 (WHO, 2008). As a comparison to a developed country, per capita government expenditure on health in the United States is a staggering $3,074. According to the Instituto Nacional de Información de Desarrollo (INIDE) in Nicaragua, household spending on delivery and antenatal care as a percentage of total health care expenditures is only 1%. In Figure 2, below, is a graphic representation of household expenditures on health care in Nicaragua, including delivery and antenatal care.

![Healthcare expenditures by household 2001](image)

*Figure 2. Health expenditures by household. Source: Encuesta Medición de Nivel de Vida - INEC*
Perhaps these dismal figures are a representation of Nicaragua’s history, steeped in political strife. In the early 1980s, Nicaragua experienced a development boom in which health and education levels improved dramatically. However, by the mid-1980s, Nicaragua was in a crisis largely caused by accusations from the United States government that Sandinistas were communists (Welsh, 2001). The United States instigated low-intensity warfare in Nicaragua that would completely evaporate any advances in health, education, agricultural reform and production by 1990 (Welsh, 2001). The conflict had a devastating effect on the development of Nicaragua. “According to Nicaraguan feminist writer Sofia Montenegro, the war of the 1980s set the country’s economy back by 40 years” (Welsh, 2001, p. 9).

The most recent data for Nicaragua indicates that the country receives approximately $606 million in official development assistance (ODA) (Earth Trends, 2007). In 2003, MINSA received support from more than 30 international non-governmental organizations (NGOs), including CARE. However, it has been shown that development aid in most developing countries, including Nicaragua, is inconsistent. For example, many countries receive a wide range of disbursements per year, and developing governments are unable to borrow externally in order to cover the difference between actual and expected aid, therefore causing increased strain on government budgets (Celasun & Walliser, 2008).

**Studies Related to Maternal and Child Health in Nicaragua**

Recent research related to MCH in Nicaragua highlight the importance of more health programming targeting young women and women living in rural areas (Reynolds, Wong, & Tucker, 2006; Sakisaka, Wakai, Kuroiwa, Cuadra Flores, Kai, et al., 2006;
Valadez, Hage, & Vargas, 2005). Reynolds and colleagues (2006) conducted a study related to younger and older women’s tendency to seek antenatal and delivery care. Using DHS data on use of antenatal and delivery care, they found through logistic regression that younger mothers are less likely than older mothers to use antenatal and delivery care. In addition, women with less decision-making power were less likely to receive these services. Conclusions suggested that there needs to be special attention given to younger women, while maintaining cost-effectiveness of programming.

Additionally, a recent cross-sectional study that focused on the nutritional status of children 0-23 months found that low education of mothers, female gender of children and short duration of breastfeeding factors associated with low nutritional status of children in Nicaragua (Sakisaka et al., 2006). This study suggests that more attractive health education, regular child health check-ups with growth monitoring, antenatal care programs and favorable community health service packages may lead to substantial improvements in MCH.

A case study conducted by Valadez and colleagues (2005) explored the effects of investments made by both international and local NGOs in their own interventions and those made by the network organization NicaSalud. Through interviews with supervisors and managers of these organizations, research found that physical capital (density of health huts), human capital (density and variety of paramedical personnel) and social capital (density of health committees) were associated with women attending antenatal care ANC and/or retaining antenatal care cards. Additional associations were made between these factors and health outcomes, such as diarrhea case management and breastfeeding behavior. Continuous breastfeeding behavior was associated with the
interaction of density of mother aides (human capital) and the density of mother clubs (social capital). It was concluded that various strategies may be employed to produce positive effects on both safe motherhood and child survival maternal behavior. However, the variety and density of paramedical personnel trained, the density of health huts, health committees and household visits appear to be essential elements either alone or in combinations.

Each of these studies concludes that although there is a growing empirical database in MCH research in Nicaragua, more is needed targeting special populations and geographic areas. For Nicaragua, much more research is needed specifically related to optimal IYCF and rMN. In addition to breastfeeding, research should focus on complementary feeding and maternal nutrition. As more MCH programming is integrated into existing health systems in developing countries, a body of empirical evidence is emerging to provide best practice advice and success stories (Bhutta et al., 2008c; Ekman, Pathmanathan, & Liljestrand, 2008; Quinn, et al., 2005). Ekman et al. (2008) suggests interventions must be implemented incrementally according to the strength of health systems and must receive focused attention at the district level with support from national policies and strategies along with international aid. Additionally, research suggests most success stories come from a dedication to community-based intervention strategies involving community support and community health workers (Bhutta et al., 2008c; Ekman et al., 2008). Furthermore, there is evidence that even large-scale community-based interventions can be successful to improve infant feeding practices in developing countries, and they should be a focus of MCH programming in order to reach
MDG targets (Quinn et al., 2005). These strategies may be useful for Nicaraguan health programs seeking to improve optimal IYCF and rMN practices.

CARE’s Window of Opportunity Program

Background of CARE

CARE is one of the largest international humanitarian organizations in the world, and it works to tackle underlying causes of poverty, contributing to sustainable gains in health and well-being. Founded in 1945 to provide relief for families following World War II, CARE was originally known as the Cooperative for American Remittances to Europe. CARE now works in more than 60 developing countries to help strengthen communities through programs that address the root causes of poverty. Recognizing that women and children suffer disproportionately from poverty, CARE places a special emphasis on working with women to create permanent social change (CARE, 2009). The headquarters of CARE USA, located in Atlanta, Georgia, is 1 of 11 member organizations committed to the same mission of serving families in some of the poorest countries in the world.

Development of the Window of Opportunity Program

Although some gains have been made related to MCH, the poor in developing countries still experience high levels of maternal and infant mortality, as previously described, as well as low nutritional status. Nutrition is critical to human development, as it greatly contributes to the foundation for health and development. The “window” for improving nutrition is small, from before birth through the first two years of life. Missing this “window” can have irreversible effects on a child’s physical growth, brain development and human capital formation (World Bank, 2006b). Window, initiated by
CARE in 2008, works to promote, protect and support optimal IYCF and rMN practices in six developing countries. According to UNICEF (2009b), optimal IYCF and rMN means the following:

- Mothers are empowered to initiate breastfeeding within one hour of birth,
- breastfeed exclusively for two years or more, together with nutritionally adequate, safe, age appropriate, responsive complementary feeding starting at six months.
- Maternal nutrition is also important for ensuring good nutrition status of the infant as well as safeguarding women’s health.

Window was developed from an earlier initiative at CARE that focused on increasing the capacity to improve infant and young child nutrition in emergency situations. The countries being served by Window include Bangladesh, Indonesia, Kenya, Peru, Nicaragua and Sierra Leone. A five-year, staggered implementation plan will allow the team based at headquarters to provide support, technical assistance and capacity training to Window staff around the world. The program is currently in its third year of implementation and utilizes several interventions such as improving the enabling environment, strengthening health system support for IYCF and rMN practices and empowering communities and individuals to make healthy nutrition decisions to achieve its overall goal of improved nutritional status of children who are under two years of age. Figure 3 is the framework within which Window works to achieve its overall goal.
Improved nutritional status of children <2 years of age

Increased optimal IYCF and rMN practices

**IR1: Improved enabling environment**

**Activities**
1. Conduct situational analysis
2. Develop and catalyze networks to support optimal IYCF and rMN
3. Provide results-based evidence for sustainable policy development

**IR2: Strengthened health system supports IYCF and rMN**

**Activities**
1. Assess capacity
2. Capacity building of health system personnel
3. Strengthen health staff knowledge and practices supervisory and referral systems to protect, promote and support IYCF and rMN

**IR3: Empowered communities and individuals make optimal IYCF and rMN choices**

**Activities**
1. Conduct participatory research regarding IYCF and rMN practices and care
2. Mobilize mother-to-mother support groups
3. Counseling services for pregnant and lactating mothers
4. Participatory group education

**Strategies:** Advocacy, Capacity Building, Behavior Change Communication, Monitoring and Evaluation, Organizational learning and knowledge sharing

*Figure 3. Window of Opportunity Results Framework*
Nicaragua in the Context of Window of Opportunity

Geographic setting and demographics.

One of the program countries served by Window, Nicaragua, is located in Central America and situated between Honduras to the north and Costa Rica to the south. Nicaragua is also bordered by the Pacific Ocean to the west and the Caribbean Sea to the east (see Figure 4). Nicaragua is the largest country in Central America and it covers 130,370 square kilometers (slightly larger than the state of New York). It also has the largest body of fresh water in Central America (Central Intelligence Agency [CIA], 2009). In 2006, Nicaragua’s population was approximately 5.5 million, with 59% living in urban areas. Gross national income per capita is $2,720 compared with $44,070 in the United States. People living in Nicaragua are relatively young, with a median age in years of 21. Only 6% of the population is over 60 years of age, and 37% of the population is under 15. In 2001, 45.1% of the population was living below the poverty line (living on less than $1 per day) (WHO, 2008).

For administrative purposes, Nicaragua is divided into 15 departments and 2 autonomous regions, Región Autónoma del Atlántico Norte (RAAN) and the Región Autónoma del Atlántico Sur (RAAS) (Figure 5). A department can be described as similar to a state in the United States. MINSA has identified two departments in which Window is to be implemented: Jinotega and Matagalpa. These departments were selected because they are two of the most vulnerable, poorest departments in Nicaragua, with some of the lowest health indicators (Measure DHS, 2006). A total of four rural municipalities, two from each department, were targeted for the study: El Cúa and Bocay in Jinotega, and Waslala and Rancho Grande in Matagalpa. A municipality can be
described as a large city within a department, similar to a capital city in one of the states in the United States, except there is usually more than one of these main cities within each department.

**Figure 4.** Map of Central America. Source: www.worldatlas.com

**Figure 5.** Map of Nicaragua with departments. Source: www.crwflags.com
The health system in Nicaragua.

In the 1980s, the Nicaraguan Social Security Institute infrastructure came under control of MINSA rather than the State (PAHO, 1998). In Nicaragua, MINSA is the main provider of health services, while social security covers five percent of the population and the private sector covers four percent (PAHO, 1998). The structure of patient care in Nicaragua includes health centers and health posts at the primary care level and hospitals at the secondary care level (Figure 6).

Figure 6. Structure of the Nicaraguan health system. Source: Espinoza, 2009

The 873 primary health care units have the potential to serve approximately 3 million people; however, problems persist within the system. Among the social factors affecting access to health care units, facility-based factors include medical and nonmedical supply shortages, hospital capacity and equipment deficiencies (PAHO, 1998). Intermediate structures, the integrated local health care systems (SILAIS), are the primary functional institutions serving the MINSA in each department. SILAIS acts as
the administrative component of health care in each department. According to PAHO (2007), they “organize and coordinate units at the primary- and secondary-levels, carrying out functions that include enforcement of the regulatory framework, public health surveillance, management of resources and establishments, oversight of the provision of care and promotion of social participation in health” (p. 520). The quality of health services in Nicaragua has been limited by poor infrastructure, as well as unmotivated and under-paid medical personnel (PAHO, 2007). Because of a deficient salary for Nicaraguan health care workers in the past two decades, many have resorted to collective bargaining to improve their incomes. Now, base wages make up only about one-third of the total wages of a health care worker (PAHO, 2007).

The National Health Plan (2004-2015) was recently created to “ensure the right to equitable and universal access to a basic set of health services designed to increase the population’s life expectancy and quality of life” (PAHO, 2007, p. 519). Additionally, the nine objectives of the National Health Plan are the following:

To increase survival and quality of life among women of childbearing age; to increase survival and quality of life among children under five years of age; to prevent and control diseases in general; to promote knowledge of healthy attitudes and practices among individuals, families, and communities; to reduce the incidence of accidents, disabilities, occupational diseases, and mental disorders; to reduce the incidence of risk factors associated with temporary and permanent disability; to increase survival among older adults; and to promote health community environments (PAHO, 2007, p.520).
At the community level, community health workers (CHWs) are volunteer health workers who provide a variety of services to community members in the rural areas of the country. The number of CHWs in each community can vary from zero to ten or more, depending on the interest of community members. In addition, experience and knowledge about health can vary greatly among CHWs, depending on time allocated to duties as a CHW, training and other factors related to the job. Community members usually select the CHWs to serve in their communities. However, it often becomes a decision of the males in each community to select the CHWs they think will serve well in the position. Most CHWs are male because of machismo. It is thought that women should not carry out duties of a CHW that involve going from house to house to visit families. Activities such as this are thought not to be suitable for a woman who needs to be at home caring for children, cooking and cleaning. CHW ages can be varied depending on who can volunteer for the job. Although CHWs are critical to the health of community members, particularly in rural areas, training and education is quite limited and the voluntary nature of the job necessitates few hours of commitment by appointed CHWS in the communities.

Access to health care.

Access to health care, especially in rural Nicaragua, remains limited. In total, there are roughly 9 hospital beds per 10,000 people throughout Nicaragua. In addition, the number of nursing and midwifery personnel is also very low at 5,862 in 2003, meaning that there were only 11 nursing and midwifery personnel per 10,000 people. In the same year, the number of physicians was 2,045, meaning there were only 4 physicians per 10,000 people (WHO, 2008). Maternity waiting homes (MWHs) in
Nicaragua offer shelter, medical counseling and assistance to high-risk pregnant women. They are located in municipalities near the main health center so women who live far from access to health care can receive antenatal services and delivery by a trained birth attendant (Otis, 2001). Although there are a number of MWHs throughout Nicaragua, resources to remain in operation are scarce, and space for women who need the services most is limited.

Related to reproductive health care for women, 77.5% of births were attended by skilled health personnel in the lowest wealth quintile, compared to 99.3% of births among women in the highest wealth quintile. Overall, 67% of births are attended by skilled health personnel. Contraceptive prevalence is 68.6%, and the percentage of mothers with at least 4 antenatal care visits is 72% (WHO, 2008). Poor access to reproductive health care and maternal death and morbidity in most developing nations is exacerbated by poverty, low status of women, a lack of education, poor nutrition, heavy workloads and violence (World Bank, 2006a).

Cultural setting – situation of women.

A note on the cultural setting in which this study took place is warranted, as the culture related to women affects the sexual and reproductive health environment in the rural communities where Window is being implemented. Gender stratification in Nicaragua is a predictor of maternal mortality specifically related to level of education relative to men, age at first marriage and reproductive autonomy (Shen & Williamson, 1999). Gender affects all aspects of communication and health care. Communication among and between men and women is often rooted in cultural contexts that place women at a disadvantage within the family and the community. Women often have little
opportunity to voice their opinion or initiate changes. Historically, it has been shown that when women are in control of family finances, more money will be spent on child nutrition and basic human needs. Thus, when women lose control of income, which is often the case in gender stratified societies, family well-being is affected (Blumberg, 1988). Even where their own health problems are involved, women are rarely the primary decision-makers. Paradoxically, family health is an area where women provide the most hands-on care for others while facing serious but often unattended health risks for themselves, especially during childbirth.

An often cited term related to Latin America is *machismo*, which can be defined as a mixture of paternalism, aggression and subordination of women (Sternberg, 2000). *Machismo* has had a long history in Nicaragua. Although it has been around for centuries the term *machismo* has only recently been coined and stems from the work of anthropologists in Mexico (Welsh, 2001). In Nicaragua, *machismo* is a result of the belief that men are “physically, intellectually and sexually superior to women” (Welsh, 2001, p. 15). Traditions of *machismo* are passed on from generation to generation and affect not only the relationship between men and women, but also their relationship with other women and children (Welsh, 2001). Even during the Spanish conquest, indigenous groups practiced elements of modern-day *machismo*, believing that women are the property of men. A result of Spanish conquest also resulted in the influence of the Catholic Church, further supporting *machismo* (Welsh, 2001). For example, Nicaragua celebrates the feast of the Immaculate Conception which signifies “cleanliness, purity and virginity as the essential qualities desirable in all women” (Welsh, 2001, p. 17).
One study conducted in 2000 explored men’s attitudes toward sexual and reproductive health issues in Nicaragua (Sternberg, 2000). There are a number of beliefs and attitudes that come into play in regards to sex and sexuality. For instance, related to men and sexuality, the study found that the participants talked about a man’s sexuality in terms of force and aggression and women’s sexuality as beauty and passivity. In fact, there is an old Nicaraguan proverb that says “The one who loves you beats you” (Lancaster, 1992, p. 34). A woman is supposed to be beautiful, but more importantly, she needs to be able to cook and clean (Sternberg, 2000). In an ethnographic study done by Roger Lancaster in Nicaragua, he perceived masculinity and femininity as interchangeable with domination and submission, aggressiveness and passivity (Lancaster, 1992). Men often have more than one partner, but women are supposed to be faithful. It is also a man’s right to decide how many children to have, however contraception is a woman’s responsibility. In addition, most men regard abortion as a sin (Sternberg, 2000). In Sternberg’s study, most men felt that abortions were the fault of irresponsible women, further supporting the notion of machismo that exists in Nicaraguan culture and the fact that “most men do not see contraception as their responsibility” (Sternberg, 2000). However, as Lancaster (1992) points out, “by and large, men who are considered too mild-mannered or too passive in their personal interactions are not considered good prospects for husbands, even if they are demonstrably industrious and hardworking” (p. 44).

Lancaster (1992) defines machismo as a type of system, in which relations among men, women and children are structured in standard ways. Therefore, these relations cannot be easily redefined, which may be part of the reason why it remains part of the
culture in Nicaragua. Lancaster’s 1992 book is based on his ethnographic study about the “hard life” in Nicaragua in which he followed the lives and problems of three families. Lancaster talks about the history of Nicaragua in the opening chapter, and how it set the stage for a patriarchal society and a culture rich with *machismo*. He commented that, “Its traditional family structure is both patriarchal and brittle, and under such conditions, women and children suffer the brunt of economic inequalities” (p. 16). Much before this, however, conditions for women were looking up. After the triumph of the Sandinistas in 1979 over the cruel dictatorship of Anastasio Somoza Debayle, Nicaragua experienced a development boom (Welsh, 2001). For women, this meant more participation in their communities to reduce illiteracy, opportunities for education and political involvement. Although women continued to organize through the revolution, their role in society began to change. During the Contra war, many women joined together to form co-operatives and farming collectives because of the collective need for survival (Welsh, 2001). Thus, the feminist agenda advocated for in the early 1980s was unable to flourish during the Contra war. So while women’s quality of life seemed to improve, gender equity did not.

After the end of the Contra war, Nicaragua faced many economic problems, one of the largest of these being a shortage of jobs. For men, this was a particular challenge for their role as the “provider” of the family (Welsh, 2001). Without a job, a man is less of a man. Furthermore, powerlessness began to set in because “unemployment and poverty mocked the dream of social justice they had fought for” (Welsh, 2001, p. 14).

A Closer Look at CARE’s Behavior Change Communication Strategy

In a previous USAID-funded IYCF project, LINKAGES, a BCC guide was developed. In the guide BCC is defined as any communication (i.e., interpersonal, group
talks, mass media, support groups, visuals and print materials, videos) that helps foster a change in individuals, families or communities. It goes further to say that BCC is a multi-level tool for promoting and sustaining risk-reducing behavior change in individuals and communities by distributing tailored health messages in a variety of communications channels (The LINKAGES Project, 2004). In addition, Family Health International (FHI) and USAID (FHI/USAID) (2002) provide a framework for using BCC to prevent HIV/AIDS, and this partnership views BCC as the following:

BCC is an interactive process with communities (as integrated with an overall program) to develop tailored messages and approaches using a variety of communication channels to develop positive behaviors; promote and sustain individual, community and societal behavior change; and maintain appropriate behaviors. (p.6)

Thus, BCC can be defined as an integrated communication strategy, utilizing various communication channels for behavior change and involving the target population in the process.

Window is largely a behavior change intervention. The Window BCC strategy incorporates health messages that are tailored to specific audiences and are distributed in a variety of communication channels (i.e. mass-media campaigns, print materials, interpersonal communication, group talks, health fairs, drama, story-telling, counseling and support groups) (CARE, 2009). Specifically, Window’s BCC strategy is based on past effective strategies including formative research to aid in program planning and implementation; focusing on a relatively small number of priority messages; targeting fathers and grandmothers in addition to mothers; emphasizing “negotiation skills” that go
beyond just passing the message; working with women’s groups; utilizing a skills-based training that is heavy on practice to ensure quick uptake. The three main activities in each of the six countries in which Window is working are MtMSGs, individual counseling and participatory group education. These strategies are supported by the literature as effective for MCH interventions (Bhatta et al., 2008a; Bhatta et al., 2008c; Green, 1999; Quinn et al., 2005).

Studies Related to Behavior Change Communication and Health

A key example of effective use of BCC to create behavior change is the USAID-funded LINKAGES project (1996-2006), which sought to provide “technical information, assistance and training to organizations on breastfeeding, related complementary feeding and maternal dietary practices and the lactational amenorrhea method” (The LINKAGES Project, 2003). One component of this project was to design and implement country-specific strategies to achieve IYCF and rMN goals. The LINKAGES BCC strategy included interpersonal communication, mass media and traditional media to increase infant feeding. For example, in Ghana one of the components of the BCC strategy was a mothers group which met twice a month to sing, discuss a health topic and share their experiences (The LINKAGES Project, 2003). Another component of the BCC strategy in Ghana was a breastfeeding campaign that utilized posters with culturally appropriate messages (The LINKAGES Project, 2003). In addition, radio messages were broadcast because it is a popular method of communication throughout Ghana (The LINKAGES Project, 2003). The LINKAGES Project achieved great success in its 30 countries served by the program activities. Additionally, the project experienced increased rates of timely initiation of breastfeeding
and exclusive breastfeeding of infants less than six months of age. The LINKAGES Project attributes some of these positive results to the effectiveness of an applied behavior change approach that uses multiple channels to spread consistent messages (The LINKAGES Project, 2003).

More recent research demonstrates the continued application of integrated, community-based communication strategies in achieving various health outcomes. The LINKAGES Project has proved to be successful at incorporating BCC into its programming for IYCF and rMN practices. Thus, Window has used some of their best practices for its own programming in Nicaragua and other program areas. Previous research about MtMSGs, counseling and participatory group education (Window’s BCC strategies being employed in Nicaragua) is described in the following paragraphs.

MtMSGs have been identified as effective for maternal and child survival and they support existing evidence that community participation can improve primary health care service use and quality (Carlough & LeMaster, 1998; Dhungel, 1992; Justice, 1999; Kutzin, 1993; Stone, 1986; Tipping 1995). In a cluster-randomized controlled trial study conducted by Manandhar et al. (2004), female facilitators were trained to support women’s groups through an action-learning cycle for 21 out of 42 clusters. This involved nine meetings each month in which women would identify local perinatal problems and formulate strategies for each. In a cohort of 28,931 women, birth outcomes were monitored. In the intervention group, both neonatal and maternal mortality rates were lower than those in the control group (26.2/1,000 versus 36.9/1,000 and 69/100,000 versus 341/100,000, respectively). Authors concluded that women’s groups can increase rural health outcomes at a low cost. Another study conducted in peri-urban areas of
Guatemala found that this was an effective strategy to increase rates of exclusive breastfeeding (Dearden et al., 2002). A third uncontrolled study in Bolivia, the Warmi project, used women’s groups to promote participatory mother and infant care (Howard-Grabman, 1993a; Howard-Grabman, 1993b; Howard-Grabman, Seoane, Davenport, MotherCare, & Save the Children, 2002). Although no research has been found associating MtMSGs with levels of maternal social capital, it can be hypothesized that MtMSGs may also provide a source of structural social capital for women in rural communities, such as those served by Window in Nicaragua. With existing evidence that MtMSGs influence behavior change, further research could support a hypothesis that they also increase levels of maternal social capital within a community.

Another technique that has demonstrated effectiveness in BCC strategies is counseling (Bhutta et al., 2008a; Green, 1999). Counseling may include peer counseling and social support in general to initiate optimal IYCF and rMN practices, and one of the most popular forms of counseling is home visits with women (Green, 1999). As Green (1999) states, “In general, mothers visited more frequently are more likely to adopt recommended behaviors than those visited less often or not at all” (p. viii). A cluster-randomized controlled trial conducted by Baqui et al. (2008) supports counseling as a practical activity to incorporate in a community-based intervention package. In Sylhet district, Bangladesh, researchers randomly assigned 24 clusters to one of two intervention arms or to the control group. In the home-care intervention, female CHWs made two antenatal visits and postnatal visits on the first, third and seventh days of birth. During the visits CHWs provided counseling to mothers about birth preparedness and to assess the newborn. In the community-care intervention, group sessions were used to provide birth
preparedness advice. Thus, the difference between counseling and group education is that
the person being counseled (i.e., the woman) is encouraged to come up with his or her
own solutions, while in group education settings the participants are told what the
solutions are. Neonatal mortality rates for each of the arms and the control group were
calculated in the last 6 months of the 30-month intervention. Rates for the home-care
intervention, community-care intervention and control group were as follows,
respectively: 29.2/1,000, 45.2/1,000 and 43.5/1,000. This suggests that a home-care
strategy is effective in reducing neonatal mortality in areas with a weak health care
system.

One example of using CHWs as counselors and educators is a study that
investigated the feasibility of delivering a package of community-based interventions for
improving perinatal care using lady health workers (LHWs) and traditional birth
attendants (Dais) in rural Pakistan (Bhutta et al., 2008b). The intervention took place in
the Hala and Matiari subdistricts and consisted of three components: LHW training in
home-based newborn care, Dai training for basic newborn care, and community
organization and mobilization and group education sessions. A component of the LHW
training program was to encourage them to identify all pregnant women in their area and
visit mothers at specific times: twice during pregnancy, within 24 hours of birth, and on
days 3, 7, 14 and 28 after delivery. Because a Dai training program had not been
conducted in almost three decades, researchers developed a 3-day voluntary training
program in basic newborn care for Dais. They were also encouraged to attend LHW-led
group education sessions. Community organization and mobilization and group education
sessions mainly involved setting up committees for maternal and newborn care in
villages. The committees supported LHWs in holding 3-monthly group education sessions which were attended by women of reproductive age, adolescent girls and older women. Through collaboration of LHWs and Dais and training, there were significant reductions in stillbirths and neonatal mortality rates. In addition, deliveries performed by skilled birth attendants increased, while home births decreased. Finally, frequency of early and exclusive breastfeeding increased in target villages. In this example, training LHWs (similar to CHWs in Nicaragua) was effective to improve health outcomes for infants and women.

More recent research demonstrates the continued application of integrated, community-based communication strategies in achieving various health outcomes. Kumar and colleagues (2008) found that a socioculturally contextualized, community-based intervention led to substantial behavioral modification and reduction in neonatal mortality in rural areas of India. In a cluster-randomized controlled trial, 39 village administrative units were allocated to one of three groups. The control group received usual services of governmental and non-governmental organizations in the area. The first intervention group received a preventive package of interventions for essential newborn care including birth preparedness, hygienic delivery and immediate newborn care including clean umbilical cord and skin care, thermal care including skin-skin care, breastfeeding and care-seeking from trained providers. The second intervention group received this package and also a liquid crystal hypothermia indicator because prevention, recognition and management of hypothermia were perceived by the community to be within behavioral control. Thus, attention to hypothermia could facilitate the uptake of the broader package for newborn care. The intervention design was informed by
participatory social mapping of all villages in the study area to identify high-risk behaviors for neonatal mortality; individuals with key roles in the practice and continuation of these behaviors and potential barriers, opportunities and factors affecting behavior change. Folk song group meetings were held on a monthly basis for participants and were led by CHWs. Additionally, CHWs visited pregnant women 60 and 30 days before the expected date of delivery to provide counseling on birth preparedness and to build trust. CHW performance was monitored by supervisors to ensure adequate community engagement. Compared to the control units, neonatal mortality was reduced by 54% in the first intervention group and by 52% in the second intervention group. Thus, this study is an example of how an integrated approach to behavior change can be effective when it involves stakeholders in the planning and implementation of the intervention, addressing the need for people to be involved in decisions affecting their lives. Window’s participatory group education component of the intervention is also modeled after this assumption that active participation of community members provides a foundation for building community capacity and sustained behavior change.

In summary, previous experience and research has shown that BCC should be culturally appropriate, with a focus on various methods used for dissemination. Research highlighted here has focused on interpersonal- and community-based strategies, which is the focus of Window’s BCC strategy as well. Following best practices, Window has selected to focus on community-based interventions including MtMSGs, counseling and participatory group education, all shown to be effective in the literature presented here.

Although no previous literature exists about how social capital can be incorporated into a BCC strategy, some hypotheses can be made based on this
information. For example, MtMSGs can build structural and cognitive social capital by providing a group and building trust among members through dialogue. Additionally, counseling by CHWs with women provides a source of cognitive social capital because the woman begins to have confidence in the advice given to her by the CHW. Participatory group education can form structural social capital and provide opportunities to build cognitive social capital among community members working together to provide solutions to their health problems together. Finally, the existence of social capital within communities can be a strategy itself for BCC because health information can be spread through networks created by social capital in the form of groups and trust among community members.

*Social Capital and Behavior Change Communication*

CARE has become interested in the use of social capital as a component of their current health programming. Social capital is created when groups of people work together for a common interest. Although the study of social capital related to health outcomes is relatively new, it stems from the earlier concept of social integration and cohesion. Research related to social integration and cohesion have both shown repeated effects on health behaviors, often related to sexually transmitted infections, condom use and other sexual behaviors (Burgard & Lee-Rife, 2009; Lippman et al., 2009; Thomas, Torrone, & Browning, 2010). A precise definition of social capital has not yet been agreed upon; however, it is commonly refer to it as encompassing the following dimensions: trust, norms, reciprocity, obligations, expectations, consensus, cohesion and information (Viswanath, 2008). According to Coleman (1988) and Putnam (1993), two of the principle theorists of social capital, social capital may be described as having both
structural and cognitive components. Structural components may be defined as what one does with others. Community participation is often a main indicator of structural social capital. It has been defined as “a process that increases a community’s capacity to identify and solve problems” (Gryboski, Yinger, Dios, Worley, & Fikree, 2006, p. 2). Through participation in the community via organizations and institutions, leadership and social networks, established capacities can lead to improvements in health (Gryboski et al., 2006). Cognitive components of social capital may be defined as what one feels about their relationships with others (Coleman, 1988; Putnam, 1993). In a study conducted by DeSilva and Harpham (2007) on maternal social capital and child nutritional status, they hypothesized why cognitive social capital may affect child nutritional status. High cognitive social capital can result in high psychological well-being and ability to cope, thus resulting in an increased ability to care for a child. Combined with high structural social capital, the outcome is good child nutritional status. Through analysis, the authors found that cognitive social capital did indeed display positive associations with child nutritional status.

Over the past decade, social capital has become increasingly popular in health research (Almedom, 2005; Birdsall & Kelly, 2005; Bolin, Lindgren, Lindström, & Nystedt, 2003; Cattell, 2001; O’Brien, O’Campo, & Mutaner, 2003; DeSilva, Harpham, Huttly, Bartolini, & Penny, 2007; DeSilva et al., 2006; DeSilva, Huttly, Harpham, & Kenward, 2007; DeSilva, McKenzie, Harpham, & Huttly, 2005; Grootaert, 2001; Gugerty & Kremer, 2000; Kana’iaupuni, Donato, Thompson-Colón, & Stainback, 2005) partly because, according to Viswanath (2008), it is thought “that its presence could lead to greater integration into the community, participation in civic affairs, better public
health and overall comity and cohesion among disparate social groups” (p. 259). Social capital has been shown to be positively associated with health outcomes such as child nutritional status, mental health, food security and general health and well-being. Nevertheless, levels of social capital vary between countries (DeSilva & Harpham, 2007). For instance, DeSilva and Harpham (2007) found that although maternal social capital is positively associated with child nutritional status in four developing countries (Peru, Ethiopia, Vietnam and India), levels and forms of social capital vary greatly between countries. In addition, results of this study suggest that further research is warranted for different sub-groups within countries. Furthermore, since most studies that have researched social capital related to health have been limited to quantitative associations between social capital and specified health outcomes (Carter & Maluccio, 2003; DeSilva & Harpham, 2007; DeSilva et al., 2007; Kana'iaupuni et al., 2005; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997; Martin, Rogers, Cook, & Joseph, 2004; Nobles & Frankenberg, 2009; Yip et al., 2007), qualitative research may add important insight.

Literature suggests that communication can act as a liaison between social capital and public health outcomes (Viswanath, 2008). Viswanath (2008) posits that from the point of view of health, communication facilitates diffusion of new information, reinforces social norms, mobilizes people for collective action and creates social support thus providing the base for understanding how social capital may impact public health. As he points out, it is important to build empirical evidence related to the link between health communication and social capital. For CARE, this would be important for development and implementation of a BCC strategy in Nicaragua.
Studies Related to Social Capital and Health

Much work related to social capital and health has been done by DeSilva and colleagues, especially related to child nutritional status and mental health (DeSilva & Harpham, 2007; DeSilva et al., 2007; DeSilva et al., 2006; DeSilva, et al., 2007; DeSilva, et al., 2005). DeSilva and Harpham’s (2007) study on maternal social capital and child nutritional status was the first study to be conducted related to this topic. They found that prior to this study, four studies had been conducted that focused on social capital and nutrition, two of these focusing on child nutritional status. Therefore, they thought that an analysis of maternal social capital and child nutritional status may be fruitful as these previous studies suggested that there may be a positive association between these two variables. Results from DeSilva and Harpham’s study revealed two key findings: (1) that maternal social capital is positively associated with child nutritional status and (2) that levels and forms of social capital vary by country. The authors of this article suggested that further qualitative research should be conducted related to social capital to explore related issues in further detail.

A study conducted by Brune and Bossert (2009) in Nicaragua examined levels of social capital in post-conflict communities and their relation to health and governance issues. Findings revealed that interventions designed to increase social capital were successful in increasing many outcomes including cognitive attitudes, trust and civic participation. In addition, higher levels of social capital were associated with health behaviors such as immunization of children and sanitation programs (Brune & Bossert, 2009). Another key study in Nicaragua related to social capital was Mitchell and Bossert’s (2007) study about measuring structural and cognitive social capital in poor
communities. The researchers analyzed relationships between membership density and social trust along with a set of household-level social capital indicators and selected civic and health behaviors. Interviews were conducted with 482 heads of households, which gave data from 2,882 individuals. Results suggested that measurement of social capital is highly complex, and more comprehensive indicators must be explored for more accurate assessment of levels of social capital (Mitchell & Bossert, 2007).

Social capital, specifically social capital and communications, has been shown to be a predictor of higher health indicators related to many health outcomes. However, there is still work to be done related to specific countries and sub-groups (DeSilva & Harpham, 2007), such as pregnant and lactating women in Nicaragua. Given there is relatively little information on social capital among pregnant and lactating women in Matagalpa and Jinotega, a qualitative study is warranted. In particular, CARE’s Window program could benefit from a qualitative study on social capital in Nicaragua especially given that the country experiences low MCH indicators, particularly in the target departments of Matagalpa and Jinotega. The utilization of social capital in communities does not require many resources and can be cost-effective and useful for health communicators focusing on behavior change at a community level. Findings from this qualitative inquiry will add to the increasing body of literature regarding social capital, specifically related to maternal social capital in Nicaragua. The next section describes the methodology utilized in this study to achieve the objectives set forth as a result of the review of the literature.
Chapter 3: Methods

Study Description

Window aims to increase optimal IYCF and rMN practices and care. Findings from this research will enhance the interventions carried out by Window and help to achieve the overarching goal of improving the nutritional status of children less than two years of age. In particular, this study provides baseline findings that will help CARE understand key components of social capital in the project areas and how these factors might be capitalized on to encourage optimal nutrition for children under two years of age. Specifically, this study explores women’s attitudes, beliefs and perceptions of community participation and the existence of structural and cognitive social capital in the target communities.

Qualitative methods were used for data collection because they facilitate an understanding of why, how and under what circumstances behavior occurs (Ulin, Robinson, & Tolley, 2005). In addition, qualitative inquiry is particularly useful for unexplored or emerging topics in order to gain a holistic understanding of the complexities of human behavior (Sterk & Elifson, 2004). Without prior selection of categories, an open-ended approach to data collection allows the researcher to understand and capture the points of view of other people (Patton, 2002). Furthermore, qualitative inquiry is particularly useful for exploring social capital in rural Nicaraguan communities because it can provide a context that is not captured by quantitative research methods (Ulin et al., 2005). Moreover, an understanding of the complexities of community participation and trust among community members in these communities will provide resources for Window’s BCC strategy.
With this in mind, the following research questions are addressed by this study:

RQ1: What factors predict maternal community participation in rural Nicaragua?

RQ2: How can community groups be used as infant and maternal health communication channels?

RQ3: How does the nature of interpersonal relations affect pregnant and lactating women’s participation in community health and development activities?

**In-Depth Interviews**

**Participants**

In-depth interviews (IDIs) were conducted with two groups of people: (1) women who are pregnant and living in the targeted municipalities and (2) male and female CHWs. Pregnant women were included in the study in order to capture information about their feelings, attitudes and beliefs about community participation as well as components of structural and cognitive social capital that exist in their community. It is important to interview pregnant women because no information has been gathered about maternal social capital and its applicability for BCC related to IYCF and rMN practices. CHWs have been identified in the literature as important for reducing mortality and morbidity, and often serve as a bridge between medical professionals and community members (Bhattacharya, Winch, LeBan, & Tien, 2001). The researcher wanted to include them as participants in this study to explore how they may act in the community as promoters of social capital. IDIs were selected as the best method to answer the research questions because of their exploratory nature. The goal was to “explore and to probe the interviewee’s responses so that an in-depth understanding of the phenomena can be reached” (Salazar, Crosby, & DiClemente, 2006, p. 182). Because of the limited research
on social capital and BCC, IDIs are most appropriate for discovering the interviewee’s “attitudes, interests, feelings, concerns and values as [they] relate to the research topic” (Salazar et al., 2006, p. 182). Inclusion criteria for pregnant women to participate in the IDIs are the following: (1) need to be pregnant at the time of the IDI, (2) must be living in the Window target municipalities and (3) must be at least 18 years of age. Inclusion criteria for male and female CHWs to participate in the IDIs are the following: (1) need to be currently working as a CHW, (2) must be living in the Window target municipalities and (3) must be at least 18 years of age. The researcher was only interested in participants who lived in Window target municipalities because this study was sponsored in part by CARE. In addition, CARE staff had established contacts in these communities. In addition, for ethical purposes, the researcher only had permission from Emory University’s IRB to interview participants over the age of 18.

**Procedures**

**Setting.**

IDIs took place in the four target municipalities where Window is being implemented: El Cúa and Bocay in Jinotega, and Waslala and Rancho Grande in Matagalpa. Research could not be conducted within individual communities mainly because of accessibility issues related to the rainy season as well as coordination with the main CARE office. IDIs with community health workers took place in between training sessions conducted by CARE staff. For example, many of these IDIs occurred after lunch or dinner, when most of the community health workers were still in the main area and were easily recruited to participate in the study. The IDIs would usually take place in a corner, separated from the other people in the room and out of hearing distance to
maintain confidentiality of the participant. A more ideal location would have been a separate room; however, this was not possible given the limited availability of space in the facilities where the interviews took place. IDIs with women took place within MWHs, many times in a room separated from the other people and out of hearing distance. Data collection with the women occurred at various times throughout the day.

Data collection instruments development and administration.

For the IDI guides, there were two semi-structured interview guides – a 13-item guide for women and a 12-item guide for CHWs. Each main item had follow-up questions and probes written underneath to help facilitate the conversation. Appendices B and C are the IDI guides developed for women and CHWs. Questions asked during the IDIs addressed structural social capital in terms of community participation, cognitive social capital, access to health care and health communication channels. For the purposes of this study, constructs of structural and cognitive social capital were used to guide instrument development.

The questions asked in regards to structural and cognitive social capital were based on two related quantitative surveys developed by Grootaert, Narayan, Nyhan Jones, & Woolcock (2004) and Harpham, Grant, & Thomas (2002). Grootaert et al. (2004) introduced the Integrated Questionnaire for the Measurement of Social Capital (SC-IQ) to enhance research on social capital by providing a tool for measuring social capital. The SC-IQ focuses on six dimensions of social capital: groups and networks; trust and solidarity; collective action and cooperation; information and communication; social cohesion and inclusion; empowerment and political action (Grootaert et al., 2004). Each question in this tool was drawn from prior research where it has demonstrated reliability.
and validity. Harpham et al. (2002) provide information about definitions of social capital and the rising empirical evidence for the link between social capital and health. Additionally, they present measures used in key social capital studies. The Adapted Social Capital Assessment Tool (A-SCAT) was primarily drawn upon for use in this study, although it has not yet been tested for reliability and validity (Harpham et al., 2002). The A-SCAT draws upon the lengthier Social Capital Assessment Tool (SCAT) developed by Krishna and Shrader (2000). The SCAT is a 60-item measure that combines a community profile, an organizational profile and a household survey, and has been used in Panama and India (Harpham et al., 2002). Nonetheless, the questions included in this tool are useful for developing measures in a study on social capital. For example, the questions were designed to be applicable in low literacy settings, such as rural Nicaragua. Additionally, this adapted version is much shorter and less time consuming than the SCAT, and it still enables the researcher to capture both structural and cognitive components of social capital. Questions from these two articles were adapted into qualitative questions for this study. For example, the SC-IQ asks participants in a survey interview, “Of how many such groups [groups or organizations, networks, associations] are you or anyone in your household a member” (p. 45)? In addition, it asks participants: “Of all these groups to which you or members of your household belong, which one is the most important to your household” (p. 45)? These questions were adapted for a qualitative IDI by asking participants, “What types of groups exist in your community?” and “Which are the most important groups or the best groups?” Questions related to access to health care were developed to assess barriers for women seeking care to further support the need for integrating social capital into a health program. It has been cited that
distance between people and medical care is a problem in developing countries that will take a lot of time to resolve, and therefore it is better for health programs to strengthen and use existing resources to improve maternal and child health (Thaddeus & Maine, 1994). Additional questions were developed based on the specific needs and interests of CARE Nicaragua.

Table 1 identifies main questions and follow-up questions included on the IDI and FGD guides. They are separated based on domain. In addition, questions taken from both the SC-IQ and A-SCAT are identified.

Table 1. Data collection instruments items

<table>
<thead>
<tr>
<th>Domain</th>
<th>Related Main/Follow-up Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Social Capital</td>
<td>What types of groups exist in your community?</td>
</tr>
<tr>
<td></td>
<td>What are the most important groups?*</td>
</tr>
<tr>
<td></td>
<td>How did these groups form?</td>
</tr>
<tr>
<td></td>
<td>Why did you decide to become a member?</td>
</tr>
<tr>
<td></td>
<td>Why do you continue to participate in groups year after year?</td>
</tr>
<tr>
<td></td>
<td>What is the level of confidence in your community?**</td>
</tr>
<tr>
<td>Cognitive Social Capital</td>
<td>Do you feel like you are part of the community?**</td>
</tr>
<tr>
<td></td>
<td>How easy is it to talk about health?</td>
</tr>
<tr>
<td></td>
<td>Where do women in this community receive health care services during pregnancy and lactation?</td>
</tr>
<tr>
<td>Access to Health Care</td>
<td>How easy or difficult is it to obtain these services?</td>
</tr>
<tr>
<td>Health Communication</td>
<td>How do you receive information about health?*</td>
</tr>
<tr>
<td></td>
<td>Who gives you the most information about your health during pregnancy and lactation?</td>
</tr>
</tbody>
</table>
Who gives you the most information about health and care of children?

*Grootaert, Narayan, Nyhan Jones, & Woolcock, 2004

**Harpham, Grant, & Thomas, 2002

A main difference between the IDI guides for CHWs and pregnant and lactating women was the last question that was asked. For CHWs, it reads as:

*What resources would you like to receive in order to improve your job and help more women?*

For women, it reads as:

*What type of health information would you like to receive from groups that you are not currently receiving?*

Data collection began after receiving approval from Emory University’s Institutional Review Board (IRB). In total, 17 IDIs were conducted in the month of June 2009. Eight CHWs were interviewed at capacity trainings sponsored by CARE in each of the four target municipalities, two female CHWs and six male CHWs. In addition, nine pregnant women were interviewed at MWHs located in each municipality. Interviews typically lasted between 25 and 60 minutes.

*Recruitment of participants.*

Eligible participants, as defined above, were recruited with the help of staff members from CARE Nicaragua, CHWs and directors of MWHs via non-probability convenience sampling. Recruitment of CHWs occurred at pre-arranged CHW capacity trainings in each of the four target municipalities. CARE staff members would recruit participants at the beginning of the training sessions. In each municipality, the
interviewer would try to interview at least two CHWs. In addition, pregnant and lactating women were recruited from MWHs located within each target municipality. Directors of MWHs were asked to help recruit eligible participants. To ensure that each participant was over the age of 18, records on hand at the MWHs were checked by the director. The women who were eligible were asked to participate, and those who agreed were interviewed the same day in a private room designated by the MWH director. At least two women in each municipality were recruited. All those eligible for the study were invited to participate.

Audio recordings.

All data collection was digitally recorded to ensure that the ideas were captured. During the informed consent process, participants were asked to give permission to record their voices for the IDIs. The files were saved on an external hard drive and were kept locked up in the researcher’s bedroom while in Nicaragua, and in the researcher’s house in Atlanta, GA. All recordings were transcribed word-for-word in Spanish. Once the recorded interviews were transcribed and analyzed, they were destroyed.

Informed consent and confidentiality.

The study was approved as exempt by Emory University in the first week of June 2009 (see Appendix E). Informed consent was obtained from each participant via oral agreement prior to commencement of the IDI. Verbal consent was obtained because of the low literacy rates as well as low educational levels in the target communities. All study procedures and data collections were in locations as quiet and private as possible.

To maintain anonymity of the participants, their names were not recorded and each transcription was given a specific identification to differ among the participants. All
audio files and transcriptions were kept on one external hard drive, which was stored in the researcher’s locked house when not in use. After analysis, the recordings were destroyed.

Focus Group Discussions

Participants

Focus group discussions (FGDs) were conducted with women who are pregnant or have children under the age of two years living in two identified communities within the target municipalities. FGDs were included in the study because “one advantage of using a group interview as opposed to conducting individual interviews is the group dynamics” (Salazar et al., 2006, p. 186). The researcher decided that it would be important to note the interactions among group members as part of a study on social capital. Topics covered during the FGDs addressed structural social capital in terms of community participation, cognitive social capital, access to health care and health communication channels, which are the same topics covered by the IDIs. Inclusion criteria for participation in the FGDs are the following: (1) need to be pregnant and/or lactating at the time of the FGD, (2) women with children must have at least one under the age of two years and (3) must be living in the Window target communities.

Procedures

Setting.

FGDs took place in two communities and were pre-arranged through coordination of the technical advisor and CHWs from that community. The first FGD was conducted in the municipality of Bocay, in the community of El Colectivo. A preschool building was identified by a CHW as the meeting place for the FGD because it was relatively
isolated from community members’ houses, and it was also vacant at the time of the FGD. The second FGD was conducted in the municipality of Waslala, in the community of Garrobo. The participants sat in a circle under a shaded tree that was located outside a community center. Although not as private as the other FGD, this space was used because the community center was occupied for other research activities. Since communication between the technical advisor and CHWs had to occur face-to-face, these two communities were selected because of their proximity to the municipality. Both communities agreed to participate in the study.

Data collection instruments development and administration.

The FGD guide was developed according to the same process as the IDI guides (see Page 46). The FGD guide was a 13-item semi-structured guide. Questions for the FGD mirror the questions asked in the IDI guide for women (see Appendix D). Data collection began after receiving approval from Emory University’s IRB. In total, two FGDs were conducted in the month of June 2009. FGDs typically lasted between 20 and 40 minutes. In both FGDs, the women were invited to sit in a circle and refreshments were distributed prior to commencement of the discussion.

Recruitment of participants.

Eligible participants, as defined above, were recruited with the help of technical advisors from CARE Nicaragua and CHWs from two target communities, Garrobo and El Colectivo. One or two days prior to the date set for the FGD, the technical advisor for that particular municipality would travel to the community by motorcycle to ask the CHW if it would be possible to recruit pregnant and lactating women for a FGD on the
set date and time. Typically, 10-12 mothers were recruited and all would show up with the CHW at the specified time.

*Audio recordings.*

The same recording procedure was used for the FGDs as was used for the IDIs.

*Informed consent and confidentiality.*

The same procedure was used in the FGDs for obtaining consent as was used for the IDIs.

**Data Analysis**

Throughout the analysis process, the researcher employed thematic analysis theory techniques when searching the data for themes. A widely used analytic method, thematic analysis is a method for identifying, analyzing and reporting patterns within data (Braun & Clarke, 2006). There are many forms of thematic analysis, but the method used for this study was a combination of theoretical assumptions and data-driven themes. “According to this exploratory approach, the analyst codes (marks or indexes) sections of a text (e.g., a transcript, field notes, and documents) according to whether they appear to contribute to emerging themes” (Schwandt, 2007, p.291).

The first phase of analysis began during the data collection period to identify any themes early in the interviewing process. After completing the first five interviews in the municipality of Waslala with both CHWs at the capacity training and women in the MWH, the researcher reviewed the recordings for similarities among the interviews. For example, common facilitators and barriers to participation in the community by women were identified, along with types of community groups. These initial themes were driven by the research questions. The semi-structured nature of the guides enabled main themes
to be easily identified. For example, religious organizations were referenced by each of the interviewees as sources of structural social capital in the first round of data collection. After completion of all data collection, the IDIs and FGDs were transcribed in Spanish with the aid of a native speaker and manually analyzed using a color-coding method to identify themes. To do this, blocks of text related to the same theme were highlighted with color codes to provide a distinguishing factor among the themes. This preliminary analysis was done in-country. Themes identified include the following, in relation to the research questions:

RQ1: What factors predict maternal community participation in rural Nicaragua?
- Facilitators of participation
- Barriers of participation
- Participation levels

RQ2: How can community groups be used as infant and maternal health communication channels?
- Community groups
- Formation of groups
- Health communication channels
- Access to health services (location and ease of access)
- Role of the community health worker

RQ3: How does the nature of interpersonal relations affect pregnant and lactating women’s participation in community health and development activities?
- Confidence levels
- Additional issues regarding interpersonal relations
Upon return to Atlanta, the initial themes were used as a premise for the second phase of coding done by two analysts for inter-coder reliability. The first analyst was the primary investigator and the second analyst was a team member in Nicaragua. She is currently a MPH candidate at The University of North Carolina at Chapel Hill, studying MCH. She also speaks Spanish fluently and worked alongside the primary investigator on the research study. All of the interviews were reviewed independently by both coders and it was agreed that an open-coding method would be most appropriate (Strauss & Corbin, 1998). In open-coding, each line of text is reviewed by the analyst and coded, usually in the margins (Strauss & Corbin, 1998). Therefore, for this study, each transcript was reviewed using the existing themes, and sub-themes were notated in the margins of the text. After this was completed, the two coders met via phone to discuss what each found in the transcripts. Very few deviations were found between each coder’s data sets. For example, one discrepancy was in relation to identification of a facilitator of participation in the community. One of the analysts had coded a facilitator of participation being that the husband was “accepting” of a female CHW’s participation. The other analyst had recognized this dialogue as an ice breaker and therefore did not code it as a facilitator of participation. When discussed via telephone, both analysts came to an agreement that this section of text did not fall under the thematic definition of facilitator of participation (see Table 2 in the next chapter). For any other discrepancies, analysts referred to the thematic definitions used in the results and came to an agreement on whether a code should remain or be deleted. From this discussion, a final set of themes and sub-themes was decided upon, and the researcher then created a coding tree from these agreed upon themes. The final coding tree is included in Appendix F.
In the final phase of data analysis, nVivo 8, software for computer-assisted qualitative data analysis, was used to organize the data for easy retrieval during the manuscript writing (QSR International, 2007). Each of the interviews was coded based on themes and sub-themes from the final coding tree. Key quotations were then taken from each of the themes and sub-themes using the search feature in nVivo8.

After thematic analysis was completed, as described in the previous chapter, it was decided that the focus of this paper would be on the interplay between maternal community participation, CHWs and interpersonal relations. Responses from participants heavily focused on these particular themes. In addition, a special emphasis was placed on how machismo affects each of these main concepts. Elements of machismo are present in many topics discussed during the data collection. Furthermore, machismo relates to each of the research questions because it affects a woman’s community participation levels, her interactions with CHWs, the selection process of CHWs and also interpersonal relations that a woman may have with male medical personnel. Results demonstrate that CHWs may act as a key source of social capital for women, especially related to MCH.
Chapter 4: Results

Themes that were manifested by participants and included in this section are the following: facilitators of participation, barriers of participation, the role of CHWs, the “good and the bad” of being a CHW, women’s perceptions of CHWs, additional forms of health communication, confidence levels in the communities and trust of male health personnel by women and spouses. Main themes were formed as a result of combining sub-codes that resulted from open-coding done by both coders. Additionally, main themes reflect sub-questions addressing each of the main research questions. The semi-structured nature of the IDI and FGD guides provided easier identification of main themes from the research. The results of the IDIs and FGDs are organized by research question. A description of the thematic patterns can be seen in Table 2, as seen below.

Table 2. Description of thematic patterns from qualitative analysis

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RQ1: What factors predict maternal community participation in rural Nicaragua?</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Facilitators of participation</td>
<td>Included in this thematic pattern are reasons why community health workers or women would join a group or why they like to participate in the community.</td>
</tr>
<tr>
<td>(2) Barriers of participation</td>
<td>Included in this thematic pattern are reasons why it would be difficult to join a group or participate in the community.</td>
</tr>
<tr>
<td><strong>RQ2: How can community groups be used as infant and maternal health communication channels?</strong></td>
<td></td>
</tr>
<tr>
<td>(3) The role of community health workers</td>
<td>Included in this thematic pattern are responses that related to activities that community health workers might provide to community members as part of their position as a community health worker.</td>
</tr>
</tbody>
</table>
Factors that Predict Maternal Community Participation

RQ1 asked what the factors are that predict maternal community participation in rural Nicaragua. It is note-worthy that much of the discussion by CHWs and women was related to health groups in the community as well as religious organizations. Most of the CHWs and women said that they like to participate in the community because they want to learn more. In particular, one CHW from Rancho Grande, who also happened to be a mother, said that each year one becomes more knowledgeable about health and she hopes that she improves in her counseling and is well-received by the patient. She said that in Nicaragua, children and pregnant women need the most. A pregnant woman from Waslala talked about her participation in the health activities in her community by saying,
To me, this is the group that I like the most because it explains to me all that I need to know... Other CHWs and women reflected this same opinion, and they recognize their responsibility as leaders in the community. As one CHW from Waslala mentioned, without health there is nothing. We have to put health first. Although both CHWs and women reflected a strong desire to learn more through community participation, it was the CHWs who cited more motivation to participate because they wanted to help the community grow and prosper. A CHW from El Cúa said that his CHW brigade meets regularly to benefit the community. He said that sharing knowledge as a CHW is beneficial to future mothers who will have adequate knowledge about proper nutrition for her child. In summary, there is a willingness by both pregnant and lactating women and CHWs to participate in the community, and participants recognize the importance. Much of the discussion was around health care because participants want to create a more healthy community. They want more health information to help pregnant women and children and also to learn more about illnesses such as influenza and Dengue.

The participants also shared information regarding the difficulties that many women face that keeps them from participating in an organization or other community activity. Participants agreed that there are many challenges for women to participate in the community, especially related to health care for herself and her children. Distance that community members have to travel in order to participate in their community was identified as a barrier of participation. Many times, families are widely dispersed and taking the road to a community activity is often very unpleasant because of the rain that makes dirt roads muddy and potholes caused by lack of maintenance of asphalt roads. One CHW from Rancho Grande puts it this way:
Yes, there are difficulties because in communities that are very far away we have difficulties because we are very poor. And there are difficulties because it is so far away...there are difficulties...bad roads. Fast communication is a burden.

Additionally, she mentioned that poverty is also an issue for women to participate in the community. For example, women often need to work along with their spouses in order to earn the bread each day, as a CHW from Waslala described.

Above all other difficulties related to community participation by women, *machismo* was the main factor preventing women from participating in their communities. A CHW from El Cúa said:

*There are some who do not participate because sometimes there is an issue where the husband does not let her and therefore she does not go...One motive is because sometimes at the meeting they share information about birth control, and so they do not like it.*

CHWs and women who were more willing to share information often referred to *machismo* as men’s control over a woman’s decision to enter a group or participate in a community activity, especially related to health. Another CHW described the situation as,

*If I am machista, my point of view is that it may be beneficial for my partner [to participate], but I do not let her be a part of any society [community organization].*

Usually women only made slight references to the topic of *machismo*, and it was the more outspoken CHWs who described *machismo* in detail. Perhaps this was because women were not accustomed to talking about *machismo* in a public setting. Many of the women were very reserved and quiet when being interviewed. In personal observations, it
was also noted that women will not speak up if they need something. For example, during lunch at one of the CHW capacity trainings, two women were waiting for seats at a table to become free so they could sit down. However, nobody noticed that they were waiting to eat, so nobody stood up to allow them to sit down. A member of the CARE staff and me noticed their behavior and stood up. As soon as we walked away, the two women sat down in our seats. This example reflects the passive behavior displayed by women, and it was also reflected in the data collection. One CHW from El Cúa who had a lot to say about _machismo_ said that women delay entrance into community groups because her husband will not allow her to join. If the husband does not attend meetings, then the woman cannot attend either. One reason for this is that health groups sometimes _share advice about family planning so they do not like that_, meaning that the husbands do not like their spouses to receive information about family planning.

Other less referenced barriers to participation included a lack of desire because a woman may view it as a waste of time. They see that, in reference to CHW brigades, _they are not making progress for them_. In addition, family responsibility on the part of the woman came up. A CHW from El Cúa explained that women already have so many children to take care of, and they usually plan to have more in the future.

**Groups as Maternal and Child Health Communication Channels**

RQ2 inquired about how community groups could be used as infant and maternal health communication channels. CHWs were by far the main topic of discussion throughout the IDIs and FGDs, especially related to factors influencing participation by women in the community. Thus, it is important to focus the discussion of structural social capital on the existence of CHWs in each community. References were made about
CHWs around these topics: (1) the role of the CHW, (2) the “good and bad” of being a CHW and (3) women’s attitudes toward CHWs. Each is discussed in turn in the following paragraphs.

The Role of Community Health Workers

Much of the activity of CHWs occurs in public and in private with community members in their homes. Mostly, CHWs focus on providing “chats” health topics, as well as making visits to community members’ houses. However, frequency and intensity of these activities varied greatly among communities. A CHW from Waslala said that the CHWs in his community meet each month, and he talked about the importance of sharing knowledge with women because there are a lot of illnesses like diarrhea, influenza, things like that. While this community is very active in providing health care activities for the community, a pregnant woman from another community in Waslala said that no CHWs come to her house. She said that it seems like they only like to have meetings when people come to give vaccinations, and sometimes on Sundays. Yet another woman from a different community in Waslala said that although CHWs do not come to her house, they do hold meetings and workshops in which they talk about pregnancy and family planning. These meetings are every two or three months. Responses like these allude to the lack of structure provided by the CHW system in Nicaragua. As will be discussed in the next section, CHW duties are voluntary, which may be another reason for variability in CHW activity in each community. Like other community members, they need to generate an income and spend time with their families.

It seems that much of the discussion that occurs during CHWs’ various activities revolves around maternal and child health. One CHW from Rancho Grande holds twice
weekly meetings just for women and children. In another community in Rancho Grande, the CHW visits women in their houses to encourage them to go to the health center for prenatal care. Other CHWs provide encouragement to go to the health center so that women [do not] have problems during delivery as a community health worker from El Cúa said. This particular CHW also gives advice to fathers about family planning and contraception. Most women appreciated that the CHWs share information about how to care for their children and keep them clean and free of illnesses.

In summary, CHWs serve as, quite often, the only source of health information within a community. They do their best to provide information in a variety of ways, from holding town meetings, to giving “chats” and also visiting women in their homes. Much of the discussion relates to MCH, and there is a lot of encouragement for women to go to the health center in order to receive essential prenatal care to prevent difficulties during delivery. Nonetheless, data from DHS reports indicates that women do not attend health centers. Thus, it can be speculated that even with positive encouragement, barriers identified by women still outweigh the perceived benefits of going to the clinic. It should be noted that none of the CHWs made a comment about their utilization of MWHs. This may be due to the use of MWHs for high-risk pregnant women (i.e., adolescent girls or older women nearing the end of their reproductive years). These groups are prioritized for going to the MWHs because of the extreme lack of space for pregnant women in the MWHs. It could also be due to lack of knowledge about the services offered by the MWHs.

The “Good and Bad” of Being a Community Health Worker
The majority of the CHWs in Nicaragua are male. In personal communication with a director of the MWH in Rancho Grande, it was discovered that a main reason for this is the *machista* attitude in Nicaraguan culture. She said that being a CHW involves walking unaccompanied over long distances, and women are not seen to be physically fit for this type of work. In addition, it is thought that women should not spend long hours outside of the home to visit houses as part of their duty as a CHW because they need to be at home doing the housework and caring for the children. In a different conversation with a female CHW from El Cúa, she said that she is a very independent woman. She was divorced from her husband and raised her two young girls alone in her home that also acted as a preschool for small children. On weekends, she made the 5-6 hour hike to secondary school with her brother so she could finish her education. On top of all of these responsibilities, she was also a CHW in her community. Although she did not mention how she handled going against the cultural norms, from her mannerisms throughout the capacity training, one could see her quiet but forceful nature that would command respect from those around her. Many of the men who were present at the capacity training were embarrassed about discussing a woman’s breast and would make it a joke, but when this woman demonstrated a counseling session, the men became very quiet and attentive. Of course, this is not a normal situation for a woman from a rural community in Nicaragua, but she does provide evidence that women can thrive on their own.

The voluntary nature of CHWs in Nicaragua is very challenging for the men and few women who try to provide health services to community members in rural areas. Even with the motivation of participating in the community, the unpaid nature of the work done by CHWs is the main inhibiting factor for their progression. It is burdensome
for them to have both a paid job in another profession, along with duties as a volunteer CHW charged with the responsibility of often being the only source of health information in a community plagued by a multitude of health problems. A CHW from Bocay said:

> Visiting the houses takes a lot of time and the problem is that as volunteers we do what we can because to visit the houses you need a lot of time and that is something we do not have. If we were paid as a community health worker for what we do, then we could do everything, but since it is volunteer work, we do what we can.

Therefore, even though the motivation exists to serve the needs of the community, all too often CHWs are limited by time in what they are able to realistically accomplish. Because the job responsibility is so large, it is often unable to be accomplished by one person. Related to this, it was noted that there is also a lack of CHWs in the communities.

On a more positive note, the CHWs seemed really happy to be doing their communities a service by participating as CHWs. A CHW from Ranch Grande said she does it because you have to have love for sick people. Another CHW, this one from El Cúa, said that the motive to work is because it expands our knowledge – you have more knowledge to be able to work for the community and to have a relationship with health personnel. A selfless attitude was seen across all CHWs. They do not do the work of a CHW because of the money, since there is not a salary, but more because they want to help the community with whatever they can in regards to health. A female CHW from Rancho Grande had the following opinion of providing health services to women:
Pregnant women should be the women most prioritized, those we encourage most...children and pregnant women are the future for us and children continue growing with education, knowledge and more child development.

Comments like these made by the CHWs indicate a sense of pride in the knowledge they have about health issues. In addition, they view their work as a duty to the community since access to health care is limited. For example, a CHW from El Cúa said that the CHWs need to be there for community members in order to provide solutions to health problems that may exist. He said that in the rural areas we are more exposed to illnesses, the [bad effects] of health... and therefore, the CHWs need to be able to tell the community members what is good and bad in regards to helping them solve their health problems. Perhaps the CHWs also like the respect they receive from community members and this is what motivates them to continue. So, the status that being a CHW gives to a person by possessing critical health knowledge provides incentive to continue the work that is required.

Women’s Attitudes toward Community Health Workers

Women’s opinions of CHWs were varied. For example, two pregnant women expressed that they did not like the CHWs because either they do not like what they do in the community (i.e. community “chats” or meetings) or they have never seen the CHWs. One woman from Waslala said her view of CHWs is less favorable because she has never seen them once in [her] two childbirths. She mentioned that they also they don’t ever like to visit us, only those who live nearby. In addition, other women expressed gratitude for the work that the CHWs did in their community, such as making house visits and providing advice about care for their children. The majority of women had this favorable
attitude about the CHWs in their community. A lot of the women liked to be participants in the activities that the CHWs provide in the community because they were able to learn all they needed to know about health for themselves and their children.

In conclusion, CHWs may be perceived both negatively and positively by women in the community. However, the CHWs do play a central role in the health of women and children in rural Nicaragua because they are often the only source of health access to women for miles around. The women who responded that they did not like the CHWs typically were those who were not exposed to the work done by CHWs. For these women, they feel left out of the activities performed by the CHWs in their community. In addition, CHWs have motivation to serve their communities’ health needs, but the voluntary nature of their work does not allow much time for adequate attention the health needs that exist. There is a lot of potential for CHWs to act as sources of social capital for women in rural communities in which they are often the main source of health information.

Additional Forms of Health Communication Channels

RQ2 also asked about through which mediums, pathways or people do women receive health information and which they prefer the most. It was interesting to find that although some women viewed CHWs in a negative way, they cited them as sources of health information in their community. Therefore, a main source of health information may not be received by these women who have no contact with CHWs, creating a gap in knowledge that is necessary for optimal health outcomes related to pregnancy and child rearing. Aside from CHWs, however, the other main forms of health communication were via radio and also word-of-mouth among community members. The radio is widely
available even in the most remote communities. Most of the on-air programming comes from doctors at health centers located in the municipalities of each department. For example, one radio program is broadcast daily for one hour, in which the doctors talk about various health topics. A pregnant woman from the Bocay MWH said she gets her health information by radio, and for the most part I listen to the radio from El Cúa that talks a lot about health and how to protect a pregnant woman and a child that is at risk. CHWs also support the use of radio as an alternate form of health communication. They also learn things from the radio. A CHW from El Cúa said that he thinks the “chats” are effective, but there is a large opportunity to reach more people with radio. He talked about one program that existed in communities near him where community members were provided a radio if they listened to the radio station that provided health information. He thought that this is one way to get people to pay more attention to health information. Another CHW from El Cúa advocated for increased use of the radio to spread information:

The “chats” and the counseling that [community health workers] give...there are different forms, including how to motivate a person and one of these is directly by radio. In the case of El Cúa we have a radio program for one hour. I wish they would broadcast it more, to be dedicated only to health, principally to pregnant women...what to do, how to do it, what is the importance and all of that.

Word-of-mouth is a low-resource, but highly effective, method for communicating information in a community. As will be discussed later in this chapter, rural communities in Nicaragua generally experience high levels of cognitive social
capital. Most community members feel comfortable with others in their community. They feel that they are a part of the community and can talk about health issues. Broadly, this provides an environment conducive to effective interpersonal relations, such as word-of-mouth communication. A pregnant woman from Waslala said that it works because *one will tell another and another and another.* In addition, it was mentioned that if a community member learned something new about health from a doctor or via radio, h/she would immediately share with others in the neighborhood. A pregnant woman from Waslala said that even though radio is really important and nearly everyone in her community listens to the broadcast about health, word-of-mouth is much more effective because it is reliable and travels quickly. A few women mentioned that they prefer to just go to the health center for all of their information. One of the CHWs from Rancho Grande said she mainly goes to the health center for information because the radio station does not reach her community. Another pregnant woman from Bocay said she prefers to go to the health center for all of her information. However, this woman cited very few sources of both structural social capital (community groups) and cognitive social capital (trust in community members and ability to talk about health). She said that she does not like to listen to the CHWs, so she just goes to the health center. A lack of cognitive social capital such as trust could relate to her dislike of the CHWs in her community.

*Interpersonal Relations and Women’s Participation*

*Confidence Levels in the Community*

Finally, RQ3 sought to assess the nature of interpersonal relations, or cognitive social capital, of women related to their community. Women were most likely to report that they view their neighbors and communities in a positive way, and they trust other
community members. A few participants mentioned that relationships among community members used to be different, much less social. But now, more people come into contact with each other and form friendships. The CHW from Bocay said it like this:

*The people in my community are more open and much more tranquil...they talk, they come into contact. In [previous] times, no...the houses were closed and now it is much nicer.*

A CHW from Waslala said that he feels very comfortable in his community. When he was younger, many women were uneasy around him because he is male and he was inexperienced, so he would just bring along the midwife on his house visits, and the women would feel much better. Now, the women have come to trust him, but sometimes he will still ask the midwife for assistance to provide the best environment for the women he visits. He said that in his community, there is a lot of discussion and collaboration among the CHWs, midwife and also church leaders. As he said, *we are focused on health...we all work together. We do not have any division.* Another CHW from El Cúa talked about community unity and the creation of friendships:

*The majority of us live like that, we have friends, we have a family. I live in the middle of some houses and everyone influences each other. We share knowledge and that helps us. If I give you something, [then] you give me something, and it works in this way...I help you in another way, and therefore we create an environment of friendship.*

The reciprocity represented in this example is a main indicator of cognitive social capital. It implies a notion of giving and receiving for mutual benefit.

*Trust of male health personnel by women and spouses*
In a conversation with a MWH director from Rancho Grande, she told me about trust issues that women have with seeing male doctors. One reason is that their husbands do not like them to be seen by other men. This would obviously pose problems for the male CHWs who are counseling mothers on breastfeeding techniques and other mother health issues. Women do not feel comfortable receiving information about reproductive health from a man. As one pregnant woman from Rancho Grande commented, *Women are embarrassed in front of the male doctor. The female doctor, no...* One of the pregnant women who I interviewed at a MWH in Bocay said:

-During my work as a midwife, [women] have told me ‘For me I do not like to give birth in the hospital because the majority [of doctors] are men and they look at you’ and therefore that is the problem.-

In addition, the female CHW from El Cúa whom I spoke with mirrored this opinion when she said that most of the male CHWs do not know how to talk with women and make them feel comfortable. In my own observations, I was able to see male CHWs interact with pregnant women in simulations of health counseling that they would be expected to do on a regular basis in their own communities. Most of the men appeared to be very uncomfortable when giving advice about breastfeeding or prenatal care. Perhaps one reason is that it was the first time many of them had ever been exposed to information about breastfeeding or technique. This became more apparent when they had to come into contact with the women if they were having trouble placing the doll on their breast. Also, when I was able to see a real counseling session with a woman who was having trouble breastfeeding, the CHW was very anxious to provide information in front of other family members.
Regarding *machismo*, I was able to see that the woman’s husband stood in the doorway during the entire counseling session and seemed to be very nervous (and possibly angry) when the CHW was showing the woman how to place the baby on the breast. Again, in personal communication with the same MWH director from Rancho Grande, we talked about how most CHWs are male because of this idea of *machismo*. Women need to be at home with the children and doing housework, and they cannot be walking around alone from house to house to perform duties of a CHW.

*Synthesis of Findings*

Based on the findings, a few key concepts have been identified. Both CHWs and women view community participation in a positive way. Although there is a positive attitude toward community participation, there are challenges for both CHWs and women. CHWs are challenged by the large responsibility and no pay. Women are challenged mainly by *machismo*, resulting in a lack of autonomy to make their own decisions. *Machismo* seems to weave its way throughout the concepts identified here. *Machismo* was identified as a barrier to community participation by women, including participation in health activities. *Machismo* also exists in the selection process for CHWs, resulting in the majority of CHWs being male. *Machismo* plays an important role in the interpersonal relations among pregnant and lactating women and CHWs and other medical personnel in the communities. As previously mentioned, women cited being uncomfortable at times around men interacting with them about maternal and child health (i.e., breastfeeding techniques). Additionally, husbands of women being attended by male medical personnel did not like the men touching his wife.
CHWs were identified as leaders in the community, and they provide much health information to women. Activities organized by CHWs are a main source of structural social capital, although many community-wide events are not attended by men and women for reasons identified above in the section on barriers to participation (i.e. no time, machismo, bad roads). Other health communication channels identified by participants include radio and word-of-mouth. Trust in other community members as identified by participants were generally high, an indicator of cognitive social capital. Personal communication revealed that women can be uncomfortable receiving health information from men. Machismo has created a network of CHWs who are mostly male. Husbands often do not want their spouses to be seen by other men. Although CHWs are sources of structural social capital, and thus potential change agents in the community, machismo can be identified as the main factor inhibiting progress to be made within communities to promote more maternal social capital to create positive health outcomes for women and children in poor, rural Nicaraguan communities.
Chapter 5: Discussion

Summary of Findings

In 2000, the United Nations placed a special focus on addressing key global health issues by developing the Millennium Development Goals (MDGs) (UN, 2009). Two of these goals are specifically related to maternal and child health (MCH). In Nicaragua, maternal and infant mortality continue to be high, despite targets set by the MDGs for 2015. In response, CARE has developed and is implementing its Window of Opportunity Program (Window) to protect, promote and support optimal infant and young child feeding (IYCF) and related maternal nutrition (rMN) practices. Nicaragua is one of the six target countries being served by Window’s program activities. Behavior change communication (BCC) is one strategy being employed through Window’s activities in each of these six target countries. One area of interest for Window is in social capital. Social capital is created when groups of people work together for a common interest. On an individual basis, social capital may be described as having cognitive components – what one feels about their relationship with others – and structural components – what one does with others. This study, therefore, sought to address social capital as a way to inform a BCC strategy in a developing country like Nicaragua. The following research questions were addressed through qualitative research:

1. What factors predict maternal community participation in rural Nicaragua?

2. How can community groups be used as infant and maternal health communication channels?
3. How does the nature of interpersonal relations affect pregnant and lactating women’s participation in community health and development activities?

Findings from RQ1 provided factors that predicted participation in the community, as well as barriers to participation. In general, pregnant and lactating women participated in the community in order to learn more. Specifically, they seek information about health for themselves during pregnancy and care for their children. CHWs, on the other hand, also wanted to gain more knowledge, but they also saw their duty in the community as a responsibility to provide solutions to community members who had health problems. They often cited betterment of the community for future generations as a motivation for continuing their work. Women cited main barriers of participation as distance between community members and activities, lack of time and *machismo*.

RQ2 asked how community groups could be used as communication channels. CHWs were identified as potential sources of structural social capital in rural communities, but they too face challenges in their work. Among these challenges, the voluntary nature of the work was the main factor that prevents many CHWs from doing more in their community. Even so, CHWs are motivated to provide help to their community in order to create better health, especially for mothers and children. Women’s opinions of the CHWs were varied, from extreme dislike to overall happiness with the activities they provide to community members.

Finally, RQ3 sought to explore how interpersonal relations affect women’s participation in community activities. This research question addressed elements of cognitive social capital. Both women and CHWs identified high levels of trust among community members. One CHW talked about reciprocity he felt in his community – the
idea that he helps his neighbor and his neighbor helps him. In addition, most participants felt that they could talk about health issues with other people in their neighborhood. Another component of interpersonal relations experienced by pregnant and lactating women is the effect of *machismo* on their relations with medical personnel including doctors and CHWs. First, women sometimes feel uncomfortable receiving care and counseling from men in regards to breastfeeding or other health topics related to maternal health. Also, husbands sometimes do not want their spouses to receiving this care or counseling from men because it can involving looking at a woman’s breasts or touching them in a way that is seen as inappropriate. However, it becomes a more complex problem because most of the CHWs are male also because of *machismo*.

Figure 1 has been included again in this chapter so that elements of the social capital conceptual framework can be readdressed based on the findings of this study. Both structural and cognitive components of social capital were addressed by the research questions in this study. It was found that women’s participation in community organizations (structural social capital) is not only predicted by their own decisions, but also by aspects of their interpersonal relations (cognitive social capital), mainly in the form of *machismo*. Thus, although community organizations and other activities may be present in a community, *machismo* and a woman’s autonomy can both act together to affect a woman’s level of social capital. As previously mentioned, Shen and Williamson (1999) discuss the affect of women’s status and autonomy on maternal mortality. They posit that they are indicators of maternal mortality. Since *machismo* views a woman’s status as less than a man’s status, and women are not the primary decision-makers related to their own health or the health of their children, it can be hypothesized that both a
woman’s level of autonomy and the presence of *machismo* in a community can affect maternal social capital. Furthermore, it may be hypothesized that a woman’s level of autonomy is in turn influenced by *machismo*. Current literature suggests that higher levels of social capital can influence certain health outcomes. In this case, higher levels of social capital in the form of a woman’s participation in health activities in her community may predict better IYCF and rMN practices to improve overall health of children who are under two years of age.

*Figure 1. Social capital conceptual framework*

These findings support current literature related to social capital and health, and they also add to the research database. Currently, no research has been done using qualitative methods to assess predictors of community participation by a subgroup of
pregnant and lactating women. Viswanath (2008) posits that communication can act as a liaison between social capital and health outcomes. This study demonstrates that CHWs, who provide much of the health communication in rural Nicaragua, are potential sources of social capital for women to improve optimal IYCF and rMN practices.

Limitations

Certain limitations of this study must be considered when addressing the findings from the data collection. Firstly, mobilization to and from field sites remained limited because of logistical factors and the rainy season. Because many of the target communities are widely dispersed, it would have taken a considerable amount of time and resources to transport me to the various communities. As staff is already somewhat limited in the CARE Nicaragua office in Matagalpa, it was more feasible to take advantage of existing trips to municipalities where I would have access to women at the MWHs as well as CHWs at capacity trainings. However, by the nature of this convenience sampling technique, I excluded many eligible participants from the various target communities. Transportation was made further difficult because I collected data during the rainy season (end of May – October), so many of the access roads to the target communities were washed out, thus making travel nearly impossible.

Another limitation was the inclusion criteria of 18 years and older. In Nicaragua, many women have their first child at a very young age. Therefore, by excluding anybody under 18 years of age, I was not able to interview a large portion of the population. Perhaps their responses to the IDI and FGD questions would have differed from older women with more experience at child rearing. Also, by interviewing women at the MWHs, I was not able to get the opinion of women who stayed at home to give birth or
who do not participate in community activities. This population of women would have been particularly interesting to interview because their responses would have added depth to the data about why women do not participate in certain community activities related to health.

Furthermore, the primary investigator of this research study is not a native Nicaraguan. With a proficient understanding of Spanish, it was still a challenge to communicate effectively with participants from rural communities in Nicaragua because the dialect is different. Therefore, there were instances in the IDI and FGD data collection when opportunities to probe further were lost because of a misunderstanding of the participant’s response. Further research should take this language barrier as an opportunity to include native speakers as data collectors in order to obtain the most complete set of data.

Finally, a quantitative component would have been useful to inform the research questions addressed by this study. Although qualitative research is important for this study, additional quantitative information specific to this population would have further enriched the data. Originally, this research was a mixed methods study, but because of reasons previously mentioned concerning transportation, I was unable to complete this component of the study. The quantitative component of the study was to include a questionnaire administered to pregnant and lactating women in the target communities identified as part of Window. The questionnaire was also adapted from the SC-IQ and A-SCAT (Grootaert et al., 2004; Harpham et al., 2002) and included 28 items to measure the participant’s level of social capital. Additionally, responses would have assessed health care access and identified health communication channels used by women. Ideally,
women would have been recruited from each community participating in the Window program, or a randomly selected sub-set of communities.

**Implications for Public Health**

As a result of the findings of this research study, recommendations have been made for public health practitioners. Specifically, recommendations were made related to BCC and how to overcome the barriers identified by the participants.

**Recommendation 1: Using power relations for its strength and not as a barrier**

In 2003, Arvind Singhal wrote an article called *Focusing on the Forest, Not Just the Tree* (Singhal, 2003). In it he describes four assumptions that are commonly made by BCC strategists that focus solely on the individual. First, they assume that individuals are in control of the context in which they live. Second, they assume that all people are on an “even playing field.” Third, they assume that people make their own decisions. Finally, they assume that people make logical preventive health decisions. Singhal suggests that instead, health communicators need to take into account the very influential social and cultural environment in which all people live. In addition, he says that culture should be viewed as an ally – “the forest is more important than the individual tree”. All too often, researchers look at culture as a barrier for optimal health.

The effects of culture on a woman’s ability to receive health care and information related to MCH are seen in the findings of this research study. Through the IDIs and FGDs conducted with pregnant and lactating women and CHWs, *machismo* is found to be a barrier for women to create high levels of social capital within their communities. *Machismo* affects both the ability of women to participate in community groups that focus on health promotion as well as the ability of women to be CHWs within their
community. Recommendations are provided for both of these perceived “barriers” in the following paragraphs, with a focus on using power relations created by machismo to create behavior change related to MCH.

Father support groups facilitated by a trained male leader from the community may be an option for increasing awareness and action around the importance of MCH. Care groups, such as father support groups, have been cited as being useful when there are low numbers of health staff (i.e., CHWs and other volunteers from NGOs or the community) because groups make it easier to reach large numbers of beneficiaries at one time (Laughlin, 2004). Unfortunately, machismo probably will not go away in the near future, so it is important to harness fathers’ decision-making authority within the family for the positive benefits that it can provide. By creating father support groups, social capital is facilitated because of the presence of a community institution (structural social capital), as well as the dialogue created by a trusted male leader from the community (cognitive social capital). CHWs and religious leaders were both cited many times by participants in the research study as types of leaders within the communities. Therefore, facilitators for a father support group should be recruited from these groups of opinion leaders. Additionally, groups may be most effective in areas of high population density (Laughlin, 2004). Since households in rural Nicaraguan communities are typically widely dispersed, it may be more effective to hold father support group meetings after work, when large groups of men are together (i.e., during coffee season, on the cafeteles, which are coffee farms). Further research is needed to identify the best opportunities in which to intervene in the men’s lives with father support groups. Potential barriers include no motivation to participate after long, hot days working in the fields, resistance from the
cafeteles owners or use of limited free time. Perhaps another option would be to facilitate groups through identified leisure activities such as sports. Incentive to participate, then, would be the ability to participate on a team. Father support groups should focus around topics of maternal nutrition and care during and after pregnancy, as well as child nutrition and the importance of breastfeeding and complementary feeding. Additionally, CANTERA’s model of redefining masculinity can be mimicked to provide additional content around gender norms and gender identification (Welsh, 2001). CANTERA, one of the pioneering organizations in an effort to promote reflection on the meaning of being male, has worked in Nicaragua since 1993. They believe that

the behavior of human beings in general, and in particular of men, is learned, and can therefore be unlearned through conscious processes of reflection on daily practice, and the effects of this on themselves and on others. (p. 4)

By 1999, CANTERA had developed a course for men that consisted of four workshops with the following topics: (1) male identities, (2) gender, power and violence, (3) unlearning machismo and (4) forging just relationships. CANTERA’s work on masculinity and gender in Nicaragua has seen positive impacts on many levels, including personal change, family decision-making, the use of violence (both emotion and physical), sexual relations and participation in domestic chores (Welsh, 2001). This model should be more widespread because it can address similar issues found in the results of this study. Based on observations at CARE capacity trainings, male CHWs do not currently have adequate levels of knowledge around these topics. It could be that the same is true for fathers in these communities. Therefore father support groups may be effective at increasing knowledge of and advocacy for these health behaviors. Perhaps
one way to introduce these groups is to start with the CHWs, who have been identified as influencers within the communities. Additionally, the presence of father support groups could provide an opportunity to create dialogue about the participation of women as CHWs. As an incentive for men to participate in these groups, MINSA or a NGO could provide all participants with hats or some other small item that indicates they are part of a group. A cheaper alternative would be providing men who participate in a set number of meetings receive a certificate and recognition within the community. From the data collected for this study, the CHWs appreciated the recognition they received from community members. Additionally, men could be asked to track duration of breastfeeding within their households, and those who exclusively breastfeed for six months could receive a small gift or recognition. The same can be done for complementary feeding, prenatal care for the mother and other optimal IYCF and rMN practices that are engaged in by pregnant or lactating women in their families. Thus, father support groups, if structured and culturally appropriate, can create more optimal IYCF and rMN practices in a community, and may create an environment of understanding that women can work alongside men as CHWs. CANTERA’s model provides an opportunity for NGOs to partner with this organization to create father support groups utilizing the workshops designed by CANTERA.

While father support groups may be effective at raising awareness of MCH issues in Nicaraguan communities and foster a more supportive environment for optimal IYCF and rMN practices, they do take time and resources to get started. A well-organized support group typically requires the most financial support at the beginning, but maintenance is relatively low-cost once established (Laughlin, 2004). Thus, a NGO
sponsor may be needed. A guide for mobilizing CHWs to work with care groups that was developed by World Relief has identified three considerations for creating care groups (in this case, father support groups): (1) volunteer pool, (2) reasonable travel and (3) volunteer availability. For father support groups, there needs to be a sufficient number of leaders for the groups, either drawn from CHWs, religious leaders or other opinion leaders identified by the community. Additionally, participants must be able to get to the support group meetings relatively easily and quickly. Finally, all participants must be able to commit time to attending support group meetings. All of these factors must be assessed prior to creating groups so that they can be facilitated most effectively for each community.

Father support groups are highlighted in this study because of the distinctive power relations that exist between men and women in Nicaragua. However, if father support groups are successful in this setting, there are other options to consider in order to build on what men are learning in their support groups and to foster more equitable relations between men and women. Family-oriented groups or MtMSGs can also be created, perhaps in a religious setting. Religious organizations and services were identified by women in this study as the most popular form of structural social capital in rural communities. Therefore, large numbers of people can be reached on Sundays before or after church services.

Careful consideration must be made prior to creation of these groups, however. In her research on social capital, women’s empowerment and micro-finance in Cameroon, Mayoux posits that there exists a possibility of building on existing social capital if done in the right way (Mayoux, 2001). Consistent with the social capital framework created for
this study (see Figure 1), Mayoux (2001) suggests that “this would entail building on existing horizontal organizations and developing new networks [while] working towards altering the nature of rules and norms where these are unequal” (p. 459). Applying this information to rural Nicaraguan communities, utilizing CHWs as sources of social capital would build upon existing social capital. As will be described in the next two recommendations, establishing a more formal structure for the CHW system in Nicaragua will build upon horizontal organizations through increased collaboration by CHWs to provide health information and services to women. Development of new networks will come in the form of previously described support groups. Thus, a more equitable gender power dynamic should be in place prior to the creation of family-oriented support groups or MtMSGs. Results of this research study demonstrate that men are one of the biggest predictors of community participation by women. Therefore, the creation of MtMSGs may not be as effective in this cultural setting as it has been shown to be in others (Bhutta et al., 2008a; Bhutta et al., 2008c; Green, 1999; Quinn, 2005). However, the creation of family-oriented groups provides the ability to build more equitable relationships between men and women.

**Recommendation 2: Using an integrated approach for health communication to enhance CHW efforts**

As opinion leaders in their communities, CHWs provide a foundation for building maternal social capital for more optimal IYCF and rMN practices. However, the voluntary nature of the work performed by CHWs makes it difficult for them to provide enough services for everyone in the community. To help achieve a more widespread of effect of CHWs, an integrated approach to health communication must be adopted in
order to increase efficiency of health care in rural communities with limited access to health care. Based on results of this study, three modes of communication seem to be the most desirable for women in the target communities: (1) house visits by community health workers, (2) radio and (3) word-of-mouth.

In order to organize more house visits, a wider network of CHWs must be established. This requires recruiting more CHWs within communities. Perhaps the establishment of father support groups will create an environment more accepting of women as CHWs. Although women typically work full-time in the house cooking, cleaning and caring for children, they may have more flexible schedules than men to perform duties as CHWs. It is necessary to explore ways that women would be able to be CHWs in their communities given their heavy workload at home. Another population to consider as CHWs would be grandmothers in the rural communities. Although this research study did not address grandmothers as decision-makers in rural Nicaragua, research demonstrates that grandmothers are influential as decision-makers related to infant feeding in developing countries (Fjeld et al., 2008; Grassley & Eschiti, 2007; Grassley & Eschiti, 2008; Kerr, Dakishoni, Shumba, Msachi, & Chirwa, 2008; Masvie, 2006). Because grandmothers might not have the same workload as a mother in rural Nicaragua, they provide an option for integrating women into the CHW system. Not only that, but they also provide experience, wisdom, influence and authority related to IYCF and rMN. Organizations like CARE can work with MINSA and community members to create a sustainable training program for CHWs so that they have the capacity to train others who will eventually replace them.
Use of the radio as a form of mass communication gives CHWs the ability to broadcast important health information to many women. Most women interviewed for this research study reported reliance upon the radio. Therefore, it should be utilized by CHWs to lessen their workload. Listener clubs would provide a platform for community members to gather and discuss health topics broadcast on the radio. By forming structural social capital as well as cognitive social capital (trust is created among members), listener clubs can be a way to bring MCH issues to the public. In this study, many women identified that they listen to a certain health programs that are broadcast at specific times throughout the day. Perhaps an opportunity for a listener club could coincide with one of these broadcasts. Women who live close together can meet to listen to the program and discuss the topics of that particular day. CHWs can assign women to a certain group, depending on where they live. Additionally, MINSA-sponsored radio programs that are broadcast by doctors could use time during these programs to recognize some of the CHWs working in various rural communities.

Finally, word-of-mouth is a low-resource way for information to reach pregnant and lactating women in rural communities. A network of health information can be created by taking advantage of the existing tendency to share information with others in the community. For example, church would be an existing resource to use for spreading health information via interpersonal communication and culturally appropriate flyers or posters (i.e., image-based to account for low literacy). Furthermore, pastors and priests can reference IYCF and rMN messages in their services and sermons. For example, USAID and Access (Access to clinical and community maternal, neonatal and women’s health services) have developed a guide for religious leaders to incorporate IYCF and
rMN messages into their messages (Chand & Erb, 2009). Examples of topics discussed in this guide include “God’s Tools for a Safe Pregnancy and Delivery,” “The First Food-From the Hand of God” and “Nutrition in Pregnancy for Healthy Moms and Babies.”

To provide a foundation for each of these communication strategies, however, more structure is needed for the CHW system. Currently, there are no formal requirements for men and women to become CHWs in their communities. Therefore, knowledge levels of important IYCF and rMN issues vary greatly and cannot be tracked. Additionally, the number of CHWs in each community is not regulated. Furthermore, communication between CHWs and MINSA is not consistent, if present at all.

Collaboration with MINSA to produce a formal structure for CHWs will help provide more consistency throughout rural communities. Additional communication channels have the power to enhance the efforts and increase influence of CHWs throughout rural communities. NGOs can help organize collaboration between MINSA and CHWs and provide suggestions for best practices based on other CHW models in developing countries that have worked.

**Recommendation 3: Using positive deviance to create a more sustainable CHW model and to build social capital**

Positive deviance is based on the idea that “in every community there are certain individuals or groups whose uncommon behaviors and strategies enable them to find better solutions to problems than their peers, while having access to the same resources and facing similar or worse challenges” (Positive Deviance Initiative, 2010). Recent research demonstrates that positive deviance can work to improve health (Marra et al., 2010). Positive deviance can also be used in rural Nicaraguan communities to increase
optimal IYCF and rMN practices. Specifically related to social capital and BCC, CHWs who are employing positive strategies in rural communities should be learned from and their strategies should be adapted to other communities and an overall CHW structure that builds social capital and improves BCC. For example, the female CHW from a rural community in El Cúa who was previously mentioned as an unusually independent woman would be an example of positive deviance. She transcends the norm for a rural Nicaraguan woman because she has left her husband, is raising two children she had after the age of 20, goes to school on the weekends, runs a preschool from her home and is a CHW. Further research can identify communities employing strategies that work with limited resources. As a result, CHWs from these communities can be sponsored with monetary incentives to teach their techniques to nearby communities.

For example, in Waslala there is a community that is practicing high levels of collaboration among religious leaders, CHWs and midwives. The church leaders periodically allow the CHWs to provide health information on Sundays. In addition, space at the church is allowed to be used by CHWs and midwives for community education programs. The church is very supportive of health education in the community, recognizing the importance of improved health. Focusing on the strategies used by these people may be useful for other communities seeking to create better health for women and children. Organizations like CARE doing work in Nicaragua could put more emphasis on working with communities such as this one in order to assess what are the best practices for creating a community environment conducive to building social capital for increased health communication. Through qualitative data gathering and participation
by CHWs in promoting best practices, knowledge can be spread to promote low-resource health promotion in other communities.

*Future Research*

This research study had many limitations, but it provides a lot of opportunity for further research to explore social capital and its implications for BCC in rural communities. A larger-scale mixed methods study would incorporate a quantitative component that was missing from this research study. Use of a quantitative instrument to measure social capital levels within communities will provide a more complete picture of the current situation in rural Nicaragua. Through enhanced collaboration with an organization such as CARE, researchers can randomize target rural communities to get a more representative sample of women and CHWs. Doing this would address the limitation related to only interviewing women who went to the MWHs. After interventions have been implemented in these same communities, researchers could re-assess social capital levels and related health outcomes to quantify impact of an intervention related to social capital and BCC. It is also recommended that future researchers address issues that Singhal (2003) brings up in his article, previously mentioned in Recommendation 1. He said that health communicators need to take into account the very influential social and cultural environment in which all people live. In addition, he says that culture should be viewed as an ally. Although there is no existing theoretical framework that incorporates culture and allows for regional and national differences in communication, it is nonetheless important to keep in mind that individual theories of behavior change may not work in the context of Nicaraguan familial and societal traditions. Airhihenbuwa and Obregon (2000) discuss the often inappropriate
application of individualized theories to communication interventions in developing countries that do not support the Western tradition of individualized decision-making processes. While the authors recognize the value of theory, many times they are applied in contexts different from those for which they were designed (Airhihenbuwa & Obregon, 2000). Thus, an ecological perspective supports the idea that behavior both affects and is affected by multiple influences at the intrapersonal, interpersonal and community level, including a broader-based societal- and policy-level (National Cancer Institute, 2002). Future research exploring the complexities of maternal social capital and behavior change should be cognizant of these factors that will likely influence optimal IYCF and rMN practices. Thus, advocacy becomes important.

Future research is also warranted regarding CHWs and their work in the community. With a focus on CHWs, researchers can isolate power relations and intricacies of being a CHW in a rural community. Findings could further support re-organization of the CHW network within the Nicaraguan health system. Ultimately, CHWs can act as change agents to build social capital and widen the health communication network of women. Related to this, additional research should be conducted with CHWs to create a more sustainable model for their work done in rural communities. As it stands, CHWs cannot balance their personal workload with the duties of a CHW. Thus, a more sustainable model must be created for them to help women in these communities as much as possible

Conclusion

Social capital and behavior change in rural Nicaraguan communities are highly complex and challenging. However, findings from this study provide recommendations
for using social capital to inform a BCC strategy aimed at increasing optimal IYCF and rMN practices in rural Nicaragua. Community-level work is a first step at overcoming the barriers identified by participants in this study. Establishing a more formal structure for the CHW system in rural communities and the positive use of power created by *machismo* both provide a foundation for achieving positive health outcomes in women and children. In addition, an integration of health communication channels such as word-of-mouth and radio can enhance efforts made by CHWs. Creating structural and cognitive social capital for women through use of MtMSGs can provide a voice for women related to their health and the health of their children. Much work is to be done to achieve targets set by the MDGs, but this research is a starting point for future research and interventions about MCH.
References


Running head: Social capital and behavior change in rural Nicaragua


Howard-Grabman, L. (1993a). “Planning together”: a methodology to facilitate the development of strategies and actions to address priority maternal health problems in rural Bolivian communities, working paper 16B. Virginia: MotherCare, John Snow International.


*Social Science & Medicine, 49*, 197-214.


*Social Science & Medicine, 38*(8), 1091-1110.


Statistics Division, Department of Economic and Social Affairs.


Appendix A

Definitions of Social Capital (DiClemente, Crosby, & Kegler, 2002, p. 232)

<table>
<thead>
<tr>
<th>Author</th>
<th>Definition</th>
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<tr>
<td>Bourdieu (1985)</td>
<td>“The aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition.”</td>
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<tr>
<td>Coleman (1990)</td>
<td>“Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure and they facilitate certain actions of the individuals who are within the structure. Like all forms of capital, social capital is productive, making possible the attainment of certain ends that would not be possible in its absence. Like physical and human capital, social capital is not completely fungible with respect to certain activities. A given form of social capital that is valuable in facilitating actions may be useless or even harmful for others. Unlike other forms of capital, social capital inheres in the structure of relations between persons and among persons. It is lodged neither in individuals nor in physical implements of production.”</td>
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<tr>
<td>Portes (1995)</td>
<td>“The capacity of individuals to command scarce resources by virtue of their membership in networks, or broader social structures…The ability to obtain [social capital] does not inhere in the individual…but instead is a property of the individual’s set of relationships with others.”</td>
</tr>
<tr>
<td>Putnam (1996)</td>
<td>“The features of social life – networks, norms, and trust – that enable participants to act together more effectively to pursue shared objectives. (Whether or not their shared objectives are praiseworthy is, of course, another matter.)”</td>
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<tr>
<td>Fukuyama (1999)</td>
<td>“A set of informal values or norms shared among members of a group that permits cooperation among them. If members of the group come to expect that others will behave reliably and honestly, then they will come to trust one another. Trust is like the lubricant that makes the running of any group more efficient.”</td>
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Appendix B

IDI Guide for Community Health Workers

Hello and thank you for taking the time to participate in this very important study. I appreciate it. Let me begin by explaining a little bit about the interview process. It will be a discussion with me about your feelings, attitudes and beliefs toward community participation and health during and after pregnancy. This study is part of a larger project being done by CARE.

Now I will the informed consent out loud to be sure that you are comfortable with the conditions.

The interview will not last more than one hour. You do not have to respond to any question that you do not want to, and you can choose to end the interview at any time. There are no foreseeable risks or compensation for your participation. I am not going to connect your name to anything that you say. Do you agree to participate?

To be sure that I can concentrate while speaking with you and to be sure that I can capture all of the ideas that you share with me today, I would like to record our interview. It is only to help me, and I will not use your name during the recording, is this okay?

Are you ready to begin?

Initial question to break the ice

Can you tell me what your community is like?
What is your job like being a community health worker in this community?

What types of groups exist in your community?
(work group, mother’s/women’s group, political group, church group, sport/social group, youth group, health group…)

What do these groups do (meetings, discussions, events in the community)?
Do you participate in any of these groups? Do you participate a lot or a little in these groups?

Which are the most important groups or the best groups?

Why are they the most important or best?

How did these groups form?

Who can participate (women, men, children, etc.)?
Are there more men or women in the groups?

Why do you participate in groups?

Why do you like to be a member?
Why do you continue participating in groups each year?

Can you tell me about the difficulties (barriers) that women have joining a group?
- Is it difficult to join the groups?
- How do you join a group?
- Can you tell me about the process?
- Do you know any people who do not participate in the groups? Why do you think that they do not participate?

What part of the year are you most active in groups?

Now we are going to talk about the health of women and children in the community. Where do the women in your community obtain health services (medical) during pregnancy or lactation?
- How easy or difficult is it to obtain health services?

How do women obtain health information?
- (radio, newspaper, word-of-mouth, health provider, family, neighbors and friends, the market, television, groups, work, community leaders, community health workers…)

What is the level of confidence is your community?
- Do you feel like you are part of the community?
- Do you feel like you can talk about health?

Does your group share information about other health groups in your community?
- (health facilities, local government, social agencies like CARE, family, friends and neighbors…)
- If so, which? If not, would you like to?

Which resources would you like to receive to improve your job and help more women?
- (health information, access to medical resources, educational materials…)

I think that you have given me some very good information. I appreciate your help and your time with me today. Do you have any other comments?

Thank you!
Hello and thank you for taking the time to participate in this very important study. I appreciate it. Let me begin by explaining a little bit about the interview process. It will be a discussion with me about your feelings, attitudes and beliefs toward community participation and health during and after pregnancy. This study is part of a larger project being done by CARE.

Now I will the informed consent out loud to be sure that you are comfortable with the conditions.

The interview will not last more than one hour. You do not have to respond to any question that you do not want to, and you can choose to end the interview at any time. There are no foreseeable risks or compensation for your participation. I am not going to connect your name to anything that you say. Do you agree to participate?

To be sure that I can concentrate while speaking with you and to be sure that I can capture all of the ideas that you share with me today, I would like to record our interview. It is only to help me, and I will not use your name during the recording, is this okay?

Are you ready to begin?

Initial question to break the ice
- Can you tell me about your community?
- Can you tell me about your family?

What types of groups exist in your community?
- (work group, mother’s/women’s group, political group, church group, sport/social group, youth group, health group…)
- What do these groups do (meetings, discussions, events in the community)?
- Do you participate in any of these groups? Do you participate a lot or a little in these groups?

Which are the most important groups or the best groups?
- Why are they the most important or best?

How did these groups form?
- Who can participate (women, men, children, etc.)?
- Are there more men or women in the groups?

Why do you participate in groups?
- Why do you like to be a member?
Why do you continue participating in groups each year?

Can you tell me about the difficulties (barriers) that women have joining a group?
   Is it difficult to join the groups?
   How do you join a group?
   Can you tell me about the process?
   Do you know any people who do not participate in the groups? Why do you think that they do not participate?

What part of the year are you most active in groups?

Now we are going to talk about the health of women and children in the community. Where do the women in your community obtain health services (medical) during pregnancy or lactation? How easy or difficult is it to obtain health services?

How do women obtain health information?
   (radio, newspaper, word-of-mouth, health provider, family, neighbors and friends, the market, television, groups, work, community leaders, community health workers…)

Who provides you with the most information about your health during pregnancy and lactation? Why?
   (mother, mother-in-law, family, friends and neighbors, groups, health facility, community health workers…)

Who provides you with the most information about the health and care of children?
   (mother, mother-in-law, family, friends and neighbors, groups, health facility, community health workers…)

What is the level of confidence in your community? Do you feel like you are part of the community? Do you feel like you can talk about health?

What type of health information would you like to receive from groups that you are not receiving right now?

I think that you have given me some very good information. I appreciate your help and your time with me today. Do you have any other comments?

Thank you!
Appendix D
FGD Guide for Pregnant and Lactating Women

Hello and thank you for taking the time to participate in this very important study. I appreciate it. Let me begin by explaining a little bit about the interview process. It will be a discussion with me about your feelings, attitudes and beliefs toward community participation and health during and after pregnancy. This study is part of a larger project being done by CARE.

Now I will the informed consent out loud to be sure that you are comfortable with the conditions.

The discussion will not last longer than one hour. You do not have to respond to any question that you do not want to, and you can choose to end the discussion at any time. There are no foreseeable risks or compensation for your participation. Your names will remain anonymous.

To be sure that I can concentrate while speaking with you and to be sure that I can capture all of the ideas that you share with me today, I would like to record our interview. It is only to help me, and I will not use your names during the recording, is this okay?

We are going to take a five-minute break before starting the focus group discussion. If you agree to participate in this conversation I appreciate it, but if you wish to leave there will not be any consequences.

Are you ready to begin?

What types of groups exist in your community?
(work group, mother’s/women’s group, political group, church group, sport/social group, youth group, health group…)
What do these groups do (meetings, discussions, events in the community)?
Do you participate in any of these groups? Do you participate a lot or a little in these groups?

Which are the most important groups or the best groups?
Why are they the most important or best?

How did these groups form?
Who can participate (women, men, children, etc.)?
Are there more men or women in the groups?

Why do you participate in groups?
Why do you like to be a member?

Why do you continue participating in groups each year?

Can you tell me about the difficulties (barriers) that women have joining a group?
   Is it difficult to join the groups?
   How do you join a group?
   Can you tell me about the process?
   Do you know any people who do not participate in the groups? Why do you think that they do not participate?

What part of the year are you most active in groups?

Now we are going to talk about the health of women and children in the community.

Where do the women in your community obtain health services (medical) during pregnancy or lactation?
   How easy or difficult is it to obtain health services?

How do women obtain health information?
   (radio, newspaper, word-of-mouth, health provider, family, neighbors and friends, the market, television, groups, work, community leaders, community health workers…)

Who provides you with the most information about your health during pregnancy and lactation? Why?
   (mother, mother-in-law, family, friends and neighbors, groups, health facility, community health workers…)

Who provides you with the most information about the health and care of children?
   (mother, mother-in-law, family, friends and neighbors, groups, health facility, community health workers…)

What is the level of confidence in your community?
   Do you feel like you are part of the community?
   Do you feel like you can talk about health?

What type of health information would you like to receive from groups that you are not receiving right now?

I think that you have all given me some very good information. I appreciate your help and your time with me today. Do you have any other comments?

Thank you!
FROM: Carol Corkran, MPH  
Senior Research Protocol Analyst

TO:  Allison Ingalls  
Principal Investigator

CC:  Butler  Susan  Behavioral Science

DATE: June 1, 2009

RE:  Notification of Exempt Determination  
IRB00019855  
Maternal social capital and factors that predict community participation in rural Nicaragua

Thank you for submitting an application in eIRB. We reviewed the application and determined on 06/01/2009 that it meets the criteria for exemption under 45 CFR 46.101(b)(2) and thus is exempt from further IRB review.

This determination is good indefinitely unless something changes substantively in the project that affects our analysis. The PI is responsible for contacting the IRB for clarification about any substantive changes in the project. Therefore, please do notify us if you plan to:

• Add a cohort of children to a survey or interview project, or to a study involving the observation of public behavior in which the investigators are participating.  
• Change the study design so that the project no longer meets the exempt
categories (e.g., adding a medical intervention or accessing identifiable and potentially damaging data)
• Make any other kind of change that does not appear in the list below.

Please do not notify us of the following kinds of changes:

• Change in personnel, except for the PI
• Change in location
• Change in number of subjects to be enrolled or age range for adults
• Changes in wording or formatting of data collection instruments that have no substantive impact on the study design

For more information about the exemption categories, please see our Policies & Procedures at www.irb.emory.edu. In future correspondence about this study, please refer to the IRB file number, the name of the Principal Investigator, and the study title. Thank you.

Sincerely,

Carol Corkran, MPH
Senior Research Protocol Analyst
This letter has been digitally signed

Emory University
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Appendix F

Final Coding Tree

Objective 1: Identify mothers’ feelings, attitudes and beliefs toward community participation
1. Facilitators of participation
   1.1 Making a difference
   1.2 Learning
   1.3 Improvements in health
   1.4 Development/betterment
   1.5 Help community
2. Barriers of participation
   2.1 Poverty/lack of resources
   2.2 Gender dynamics/machismo
   2.3 Rain in winter
   2.4 Illiteracy
   2.5 No interest
   2.6 Must be invited
3. Activity levels throughout the year
   3.1 High participation
      3.1.1 Receipt of goods
      3.1.2 Summer
   3.2 Low participation
      3.2.1 Informational meetings
      3.2.2 No interest
      3.2.3 Winter
   3.3 Coffee season
4. Necessary resources
   4.1 More information
   4.2 More funding
   4.3 More trainings and workshops
   4.4 Current illnesses

Objective 2: Identify local level institutions that address IYCF (structural social capital)
5. Community groups
   5.1 Religious groups
   5.2 School groups
   5.3 Youth groups
   5.4 Health groups
   5.5 Political groups
   5.6 Emergency committees
   5.7 Lack of groups
   5.8 Process to join
5.9 Collaboration between groups
5.10 Respected community members lead groups

6. Role of community health workers
   6.1 Volunteer
   6.2 Motivation
   6.3 Treatment of community health workers by MINSA
   6.4 Activities in the community
   6.5 Women’s attitudes toward community health workers
   6.6 Leaders are motivators

7. Formation of groups
   7.1 Outside influence
   7.2 External funds/projects
   7.3 Importance of issue
   7.4 Poverty

8. Communication channels
   8.1 Radio
   8.2 MINSA
   8.3 Community health workers
   8.4 Projects
   8.5 Doctors at the health center/health post
   8.6 Discussions (*charlas*)
   8.7 Word of mouth
   8.8 Neighbors
   8.9 Family

9. Health service access
   9.1 Location
   9.2 Distance
   9.3 Facilities
   9.4 Overcrowding
   9.5 Difficulty in transport
   9.6 Family responsibility
      9.6.1 Children
      9.6.2 Husbands

**Objective 3: Assess the nature of interpersonal relations (cognitive social capital)**

10. Confidence levels
    10.1 Groups facilitate dialogue
    10.2 Ability to talk about health
    10.3 Embarrassment
    10.4 Trust, confidence in community members

11. Trust of male doctors
    11.1 Embarrassment
    11.2 Community health workers and home visits
    11.3 Husbands