Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

_____ _____

Colleen Elizabeth Laurence Date

Women's Autonomy and Gender Equity in Mali:
Examining The Influence of Marriage on Perceptions of Women's Value

By

Colleen Elizabeth Laurence
MPH

Hubert Department of Global Health

_____
Robert B. Stephenson, PhD, MSc
Committee Chair

_____
Deborah A. McFarland, PhD, MPH
Committee Member

Women's Autonomy and Gender Equity in Mali:
Examining The Influence of Marriage on Perceptions of Women's Value

By

Colleen Elizabeth Laurence

Bachelor of Arts
University of Virginia
2007

Thesis Committee Chair: Robert B. Stephenson, PhD, MSc

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health

in the Hubert Department of Global Health
2012

Abstract

Women's Autonomy and Gender Equity in Mali:
Examining The Influence of Marriage on Perceptions of Women's Value
By Colleen Elizabeth Laurence

Background: Marriage forces women to reconsider their autonomy, inherent value, and value in relation to others. Women's experienced autonomy and equity as well as their perceptions there of are influenced by their husbands, mothers-in-law, and co-wives, who harbor their own respective beliefs. We believe that the institution of marriage reifies gender inequity rather than ameliorates it, which may portend negative consequences for the health of women.

Objective: This thesis aims to understand how marital characteristics influence perceptions of women's value among women, their husbands, their mothers-in-law, and co-wives in rural Mali.

Methods: From June to July 2011, the Project Espoir Baseline Survey randomly surveyed 600 households from the Bankasse and Bandiagara districts in North-Central Mali. The subsequent sample size after accounting for improbable and missing observations was 488 women, 466 husbands, 260 mothers-in-law, and 211 co-wives. This thesis used linear regression to assess the significance of marital characteristics with regard to two continuous outcome indices – household autonomy and gender equity - which were created using factor analysis.

Results: Women who were related to their husbands before marriage were more likely to poorly esteem their own autonomy ($\beta = 0.34$, p-value = .002), but embrace gender equity ($\beta = -0.48$, p-value <0.0001). Women who had a say in their marriage also reported higher perceived autonomy ($\beta = -0.33$, p-value < 0.0001). In addition to these variables, respect by co-wives, trust by husbands, women's income, and parity also influenced how women and others perceived women's value.

Conclusions: This thesis reinforces the connection between marriage and its influence on the perceived value of women. Based on the results, it reasons that the conditions of marriage, like the degree of say a woman exercises in the decision, may influence perceptions of her value for the remainder of her marriage. Qualitative research might be employed to further explain this relationship as well as the ways in which women relate to female counterparts in the home. Given these findings, CARE Mali should consider implementing village savings and loans associations (VSLA) to increase women's income and thus the functional autonomy of women; capitalizing on women's relationships with co-wives and mothers-in-law for programming and messaging; and increasing gender sensitivity education.

Women's Autonomy and Gender Equity in Mali:
Examining The Influence of Marriage on Perceptions of Women's Value

By

Colleen Elizabeth Laurence

Bachelor of Arts
University of Virginia
2007

Thesis Committee Chair: Robert B. Stephenson, PhD, MSc

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health

in the Hubert Department of Global Health
2012

Acknowledgements

In everyone's life at some point, our own light goes out and is rekindled by a spark from another person. Each of us has cause to think with deep gratitude of those who have lighted the flame within us.
- Albert Schweitzer

I would like to acknowledge the following individuals for the wisdom, guidance, and encouragement that they provided me in the course of developing and writing this thesis. They were the sometimes intellectual, sometimes emotional sparks, which kept me going throughout this process, and I am so very grateful to them.

There is a fine balance between guiding students in their intellectual pursuits and providing them the freedom to explore possibilities and learn from trial-and-error. I was fortunate to work with two individuals - my thesis advisor and my committee member - who understood this balance. As my advisor, Dr. Robert Stephenson was a great support, providing ready encouragement and insight. He challenged me to think about gender norms and the individuals, institutions, and systems, which support them in a more nuanced way than I ever have before. As I begin my public health career, I hope that I may be so holistic and critical in my thought processes, yet so mindful of the faces behind the figures as Rob is.

I am also grateful for the suggestions and insight, which Dr. Deb McFarland provided as a member of my thesis committee. Beyond this role, Deb has been an unflagging mentor and great source of inspiration and guidance for me in my public health career. I hope that I may continue to work with and learn from her even after I leave Rollins.

Though not apart of my committee, I am also grateful to Drs. Mo Ali and Aimee Webb Girard, Assistant Professors in the Hubert Department of Global Health, and to Kristin Unzicker, Director of Leadership and Community Engaged Learning at Rollins, for their encouragement and friendship throughout this process. Aimee routinely equated writing a thesis with running a marathon, and I absolutely appreciate this metaphor now.

I would also like to thank CARE Mali and CARE USA for allowing me to work with data collected as part of Projet Espoir Baseline Survey and hope that this thesis may prove useful in their future work.

Finally, I remain indebted to my family, friends, and work colleagues for the love, encouraging words, perspective, and faith, which they generously shared with me throughout this process. In particular, I'd like to thank my Mom and Dad for their love and support.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Acronyms and Abbreviations

ASCA – Accumulating Savings and Credit Associations

CARE – Cooperative for Assistance and Relief Everywhere

CBO – Community-based Organization

CFA - Communauté Financière Africaine

CS-COM - Centre de Santé Communautaire

DHS – Demographic and Health Survey

GDP – Gross Domestic Product

GEM – Gender-Equitable Men Scale

GMP – The Grandmother Project

IGA – Income Generating Activity

IPV – Intimate Partner Violence

IRB – Institutional Review Board

MDG – Millennium Development Goal

MOH – Ministry of Health

NGO – Non-governmental Organization

PEBS – Project Espoir Baseline Survey

ROSCA – Rotating Savings and Credit Associations

SLA – Savings and Loan Association

SRPS- Sexual, Relationship, and Power Scale

VSLA – Village Savings and Loan Association

WHO – World Health Organization

Chapter 1: Introduction

1.1 Introduction and Study Rationale

Marriage functions as a visible and invisible force on systems, populations, and individuals. For the couple, the act and experience of being married influences how they interact with the world around them and how they perceive the institution and themselves in it. It also binds their families and support systems together. Individually, marriage prompts people to reconsider their autonomy, inherent value, and value in relation to others.

These changes in perspective may occur at different times and are not necessarily unidirectional throughout the evolution of a relationship, assuming they occur at all. For example, the changes may take place as individuals begin to define their norms of interaction, during the marriage ceremony, or as the relationship develops. Similarly, women may perceive themselves as having low value immediately following marriage, but may shift in this view as they have children (Das Gupta 1995).

Because marriage is both a social institution and individual commitment, the roles of other actors in shaping individual perceptions of value and autonomy in marriage are also of paramount importance. These individuals – be they family, friends, peers, or religious leaders – vary with context and the manner in which they directly or indirectly influence the couple's perceptions of value and autonomy. For example, scholars of intra-household relationships in Africa have found that co-wives may cooperate with each other extensively, thus minimizing singular decision-making and women's

consideration for individual autonomy (Oppong and Abu 1987; Callaway and Creevy 1994).

Regardless of when these changes occur in a marriage and the figures involved, previous studies have established that perceptions of value and autonomy may have great implications for both the health of individuals and the health of communities more generally (Hindin 2000; Bloom, Wypij et al. 2001; Becker, Fonseca-Becker et al. 2006). Here, health is defined by the World Health Organization's (WHO) as "the state of physical, mental, and social well-being and not merely the absence of disease."[1]

Specifically, autonomy and equity differentially impact health outcomes by influencing the identities of individuals, their understanding and expectations of health, their health prioritization and decision-making, and access to care, in addition to other facets. Among the health outcomes significantly influenced by women's autonomy are reproductive health, including family planning and pregnancy care (Hindin 2000; Al Riyami, Afifi et al. 2004), health care utilization (Bloom, Wypij et al. 2001; Furuta and Salway 2006), and individual experiences of intimate partner violence (IPV).

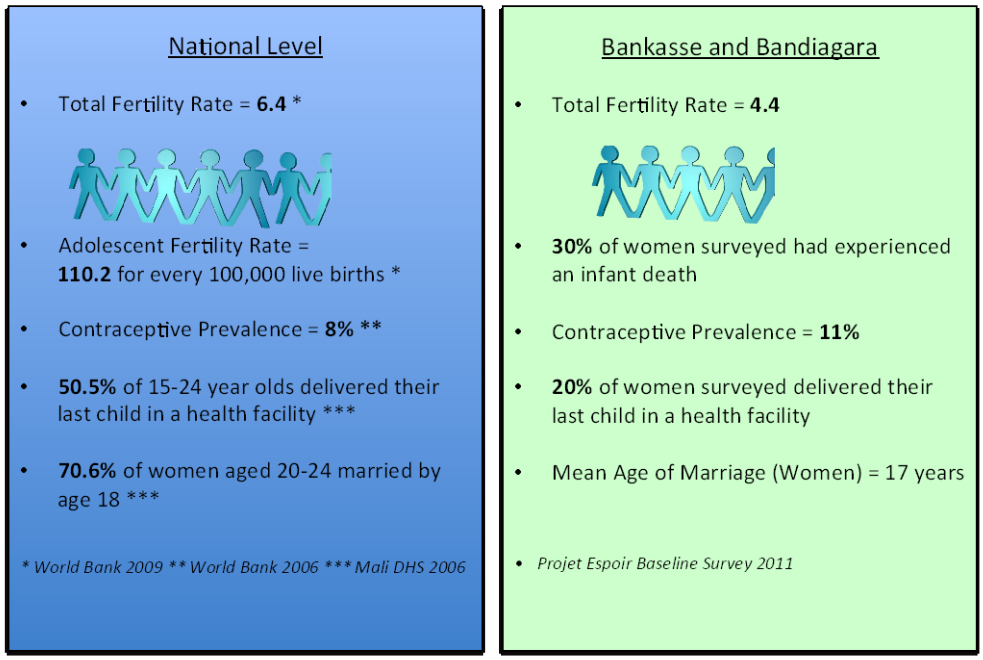
Certain marital characteristics, like early marriage and polygamy, have also been linked with health outcomes like contraceptive prevalence, delivery, and pregnancy care (Hogan, Berhanu et al. 1999; Otoo-Oyortey and Pobi 2003; Santhya 2011). However, studies have not yet established the intermediate factor(s) by which these marital characteristics influence health. This thesis will examine the association between marital characteristics and perceptions of autonomy and gender equity as a potential linkage.

[1] https://apps.who.int/aboutwho/en/definition.html

1.2 National and Regional Data for Women's Health in Mali

This connection between marital characteristics and women's perceived value suggests important implications for women's health in Mali, which is characterized by comparatively bleak prospects at present. **Figure 1** below compares health metrics at the national level with those from the Projet Espoir Baseline Survey (PEBS), which was conducted in two rural districts in North-Central Mali – Bankasse and Bandiagara – and provided the data for this thesis.

Figure 1: Comparison of National Health Metrics Data and Projet Espoir Baseline Survey Data



According to the World Bank, in 2010, Mali experienced population growth at a rate of 3%, which when coupled with the high total fertility rate, low contraceptive prevalence, and adolescent fertility rate listed above, suggest a trend continued growth for years to come. This population growth may unduly burden the health of women through increased maternal morbidity and mortality, which is already comparatively high in the

sub-Saharan Africa region. In 2008, Mali's adjusted maternal mortality ratio was recorded as 830 deaths for every 100,000 live births, compared to 640 deaths in sub-Saharan Africa as a whole.[2] These statistics also indicate a continuing trend of early and frequent childbirth in Mali, which, as previous studies have shown, is associated with limited autonomy among women.

1.3 Study Purpose

By collecting data on health care delivery and the social and cultural norms surrounding women's receipt of care in these two districts, Projet Espoir, which is a collaborative effort between Emory University, CARE International, and CARE Mali, hopes to improve maternal health care in Mali. This thesis will contribute to the realization of the project goal by providing information on gender norms in country. More specifically, it will address the following question: How do the marital characteristics that precede and follow marriage influence perceptions of women's autonomy and gender equity?

While acknowledging that marriage does not have a uniform impact on all individuals and may function differentially to heighten or diminish women's perceived value and autonomy, in this context, we believe that the institution of marriage more likely reifies gender inequity rather than ameliorates it. As such, we adopt the null hypothesis that marital characteristics will not significantly influence measures of women's autonomy and gender equity across the four groups surveyed – women, husbands, mothers-in-law, and co-wives.

[2] http://data.worldbank.org/country/mali

1.4 Study Significance

Women in Mali face great challenges with regard to their health, and gender inequity is ubiquitous throughout the world. The United Nations acknowledges that women's value and human rights have long been disregarded and abused and has prioritized gender equality and the empowerment of women as the 3rd Millennium Development Goal (MDG). However, achieving this goal remains one of the biggest, seemingly intractable challenges precisely because structural barriers and gender norms are so ingrained in the cultures and economies of countries and their people.

This thesis will, therefore, endeavor to:

- Examine the influence of key marital characteristics and other known determinants on women's perceived autonomy and gender equity in Mali
- Build on existing academic and institutional understanding of gender norms so that partners in Mali and elsewhere may adjust their objectives and work appropriately
- Propose potential programming suggestions for partners like CARE to improve gender equity education and advocacy through their work

Chapter 2: Literature Review

2.1 Deconstructing Women's Value – Women's Autonomy and Gender Equity

The perceived value of a woman shifts with context. Both, how she understands her own unique contributions and abilities as well as how other members of society regard these contributions and abilities vary with culture, socio-economic status, ethnicity, and religion, among other factors (Mumtaz and Salway 2009). This inherent mutability makes it difficult to define women's value and the factors that influence it. Absent its own measures and a crosscutting definition though, autonomy may be used as a proxy indicator for value since it is indicative of women's ability to access the resources, knowledge, and social networks that are necessary to form equitable relationships and to advocate for their value in society (Dixon 1978; Jejeebhoy 2000).

However, as with value, the concept of autonomy also defies a consistent definition. Autonomy has been alternatively defined as "the capacity to manipulate one's personal environment… the ability – technical, social, and psychological – to obtain information and to use it as the basis for making decisions about one's private concerns and those of one's intimates"(Dyson and Moore 1983). Jejeebhoy and Sathar define autonomy differently as "the control (that) women have over their own lives – the extent to which they have an equal voice with their husbands in matters affecting themselves and their families, control over materials and other resources, access to knowledge and information, the authority to make independent decisions, freedom from constraints on physical mobility, and the ability to forge equitable power relationships within families" (Jejeebhoy and Sathar 2001).

When unpacked, these definitions highlight several domains in which women may exercise differential degrees of autonomy – among them, in the household, physically, financially, and in relationships with their spouse or other family members. Recent literature has also examined women's decision-making autonomy in relation to their own health and others. This particular manifestation of women's autonomy will be discussed at greater length later while we now look at the rationale and suitability of different means for evaluating autonomy in the aforementioned domains.

2.1.1 Household Autonomy

Gender-stratified cultures often circumscribe women's responsibilities to caring for family members and maintaining the home, thus relegating women to this domain and limiting their mobility and social network outside of it. Given the extent to which these roles and responsibilities may shape women's perspectives and the potential primacy of the home in Malian women's lives, it is useful to critically examine women's decision-making autonomy in this domain.

There are no standard indicators for household autonomy, though some similar variables across studies do exist. For example, in her analysis of the influence of women's autonomy on fertility-related behavior in Zimbabwe, Hindin assessed household autonomy using questions centered around who decides major household purchases like a radio or TV, who ultimately decides whether women can work outside the home or not, and who determines the number of children a woman has. Her results revealed that women in Zimbabwe have limited input in the three domains; nearly a fifth of the women said that they have no input in major household purchases, and 30% said

that they could not decide their employment status (Hindin 2000). Alternatively, other studies have used measures which are tied to the daily rhythm of the home to evaluate household autonomy, like which foods to buy, which meals to cook, which daily purchases to make, and when to make larger household purchases, among others (Niraula and Morgan 1996; Ghuman, Lee et al. 2006; Acharya, Bell et al. 2010).

Regardless, the centrality of the home as one locus of culture necessitates that indicators for household autonomy be informed by the study setting. The concept of autonomy may not have any cultural currency in certain contexts or may be differentially defined or demonstrated (Mumtaz and Salway 2009). For example, in countries where polygamous relationships and extended family networks are common, household decision-making may be a more collaborative process between the wives and the ideas of equal weight or "final say" subsequently null and void (Oppong and Abu 1987; Callaway and Creevy 1994). In situations like this, autonomy may still play a role in preparing and empowering women to engage in such multi-party processes, but indicators and surveys may not be constructed to aptly capture these nuances.

2.1.2 Mobility and Physical Autonomy

Women's physical mobility is oft perceived as another critical component of their autonomy because it shapes the means and circumstances by which they access resources, people, and information. This, in turn, may influence women's participation in decisions concerning their own health and that of their family. In their study of women's autonomy in India and Pakistan, Jejeebhoy and Sathar use a mobility index to assess physical autonomy. To create the index, they summed "the number of five places – the

health center, the village community center or market, home of a relative or friend, a fair, and the next village – to which women can go unescorted." Their results indicated limited mobility among women, especially to those sites which are more remote compared to those which are nearby (Jejeebhoy and Sathar 2001).

As with household autonomy, it is important to tailor such indices to the cultural context and to interpret the conditionality that may be attached to women's mobility. Women in India and Pakistan, for example, may be able to visit more remote sites if it is for reasons or under conditions deemed acceptable by their societies. As Mumtaz and Salway note, there has been a tendency in recent scholarship "to reify the norm of female seclusion and the public-private divide" when evaluating women's physical mobility. They propose that researchers should instead further probe the conditionality of women's mobility. How do socio-economic status, work, family, and ethnicity, among other factors differentiate women's negotiation of the public-private divide? (Mumtaz and Salway 2009).

2.1.3 Financial Autonomy

Co-dependent and interacting with women's freedom of movement and household autonomy, women's financial autonomy has been the subject of increased study for its potential influence on women's autonomy in health matters and in society more generally (Bloom, Wypij et al. 2001). Per its name, financial autonomy refers to the ability to both engage in wage-earning work and/or independently execute decisions regarding the money and assets one has in his or her possession. Of course, all of these elements need not be present, and one can further parse this definition into its separate components.

In their study of women's autonomy and health care utilization in North India, Bloom et al. use two measures – whether a woman has regular access to a source of money (including both wages earned and gifts or support from family) and whether she stated that she could spend this money without consulting anyone - to assess a woman's relative control over finances. Other studies combine their measures for financial autonomy with those for household autonomy, using as their index the ability to make small and major household purchases independent of other family members. For example, Furuta and Salway use four indicators:

i. Current employment outside the home
ii. History of work outside the home
iii. Form of payment for work, and
iv. Who decides how to spend earnings

to evaluate control over financial resources and the relationship between this ability and women's maternal health care use in Nepal (Furuta and Salway 2006).

Despite the increasing popularity of financial autonomy as a subject of study and as a panacea for gender inequality, consistent interpretation of financial autonomy remains elusive. The absence or presence of certain financial indicators should not be interpreted in any absolute terms as having or not having financial autonomy. For example, Jejeebhoy and Sathar report that in India and Pakistan, wage work is synonymous with poverty and thus employment does not automatically confer increased respect and power to women (Jejeebhoy and Sathar 2001). Similarly, in rural Punjab, Mumtaz and Salway argue that while women often hand over wages earned to their husbands - a dynamic which might otherwise imply a lack of control on the part of the women – this interaction might instead be interpreted as women consciously contributing to and strengthening the collective position of the household (Mumtaz and Salway 2009).

2.1.4 External Validity of Indicators for Autonomy

As Mumtaz and Salway demonstrate in their dissection of the indices used for household, physical, and financial autonomy and their relevance in Pakistan, it is essential that indicators of autonomy be appropriate for the culture where the study is conducted (Mumtaz and Salway 2009). Other scholars have also questioned the external validity of different indicators for autonomy. For example, Kritz and Makinwa-Adebusoye debate the appropriateness of extrapolating certain determinants of autonomy from one region to another, like from Asian contexts to African contexts or even between countries in these regions. Boserup and Goody have separately argued that, despite differences between countries, there are linkages between Asia and Africa with regard to their interpretations of marriage, property systems, division of labor, and inheritance which make indicators of autonomy between the two regions comparable (Boserup 1970; Goody 1976). However, Kritz and Makinwa-Adebusoye counter that, "While we expect to find that some indicators of women's socioeconomic status will have similar effects on women's authority in Africa as they do in Asia, that may not be the case with other factors" (Kritz and Makinwa-Adebusoye 1999).

2.1.5 Synergy Between Domains and Household Autonomy in Mali

Equally important is the understanding that women's autonomy in these different domains – in the home, personally, and in finance – is not unidirectional and may be synergistic. More specifically, women's capacity to make decisions in one realm, like health care, may expand as they assert their authority in another realm, like household finances. The inverse effect is also possible, so that their decision-making power shrinks

in one domain as it increases in another. For example, Lawoko et al. found that "while high education among women reduced the risk of intimate partner violence exposure, both being employed and having a higher education/occupational status than her partner increased a woman's vulnerability to IPV" (Lawoko, Dalal et al. 2007).

In addition to the differential directionality of autonomy measures, it is also important to note that advances in women's autonomy are not guaranteed to last and may recede with time depending on the conditions that brought about their evolution. Das Gupta actually assigns societies to one of two groups based on the typical period when increased autonomy is ascribed to women. In pattern one societies, exemplified by northern European countries, autonomy is highest among young married adults and falls with age. Conversely, in pattern two societies, like India, the reverse is true, and autonomy increases with age (Das Gupta 1995). Regardless, additional study is needed to examine the specific mechanisms by which women's autonomy in one realm may influence decision-making in other domains, if at all. Suffice to say, female autonomy is not monolithic and remains an ever-evolving concept.

2.1.6 Gender Equity As An Outcome Indicator

This thesis uses two measures to assess the perceived value of women - an index of household autonomy and another index of the value of males compared to women, which we call gender equity. We could not find previous research, which explicitly examined the value of males compared to females as an outcome measure. As such, it is difficult to situate the index used in this thesis analysis within the broader base of academic research.

Despite this lack of precedent though, the gender equity index is one of the premier facets of this thesis in that it expands on previous examinations of sex preference by scholars. In their study of child sex preferences among Indian women, Dyson and Moore wrote that, "Women's entire socialization experience tends to internalize this sex preference. The men of the family wanted sons, therefore, so did the women" (Dyson and Moore 1983).

In addition to women's sex preferences for their children, this thesis also asks whose health is more important – men's or women's? The other question used to create the gender equity index variable asks respondents to make a choice between men and women who are already alive, thus placing the relative value of men and women in stark contrast. While still a hypothetical question, it challenges respondents to think about their preferences in a different way and, in so doing, creates a more robust measure of male value relative to women's.

2.2 Women's Autonomy and Health

Having reviewed the different indices used to assess autonomy and their validity, we may now examine those factors that contribute significantly to autonomy and how it, in turn, is correlated with different health outcomes. There is a mass of literature that dissects different facets of women's identity in order to determine those elements that may differentially contribute to increased or decreased autonomy. This paper will briefly review the literature pertinent to some of the covariates used in the study's models – namely, ethnicity, education, income, age, and parity.

2.2.1 Ethnicity and Autonomy

There are a multitude of ethnicities that compose Malian society and several in the study setting of Bankasse and Bandiagara. Recent survey evidence suggests that ethnic identification is socially important in Mali (Dowd and Driessen 2008), and the results of another study further support the significance of ethnicity as a determinant of pre-natal and deliver care in country (Gage 2007). However, the relationship between ethnicity and the perceived value of women in Mali has not yet been examined.

Kritz and Makinwa-Adebusoye address this question in the context of Nigeria. They hypothesized that Hausa and Kanuri wives would have less authority in household decisions than wives from other ethnic groups because gender inequity is evident in these societies and women's access to education and work outside the home remain restricted among the Hausa and Kanuri compared to the Yoruba, Ibo, and Ijaw. The results of their analysis confirm these initial hypotheses that "ethnicity plays a very important role in shaping wife's decision making authority and is even more important than the wives' individual-level characteristics as a determinant of authority." After controlling for a number of demographic, family, and work factors, respondents' ethnicity remained significant in the model for women's decision making authority (p-value <0.001) (Kritz and Makinwa-Adebusoye 1999).

It is important to note that Kritz and Makinwa-Adebusoye's findings do not prove the equal significance of ethnicity or that ethnicity functions in the same way to increase decision-making authority in each of these subgroups, but only that different factors contribute to women's decision-making ability in each of the ethnic groups. For example, Kritz and Makinwa-Adebusoye's analyses found that "spousal age gap, for

instance, was significantly related to wifesay in three of the groups, but only had the expected negative effect for the Yoruba. Among the Kanuri and Hausa, in contrast, spousal age gap had a significantly positive relationship to wifesay." Basically, the influence of different factors was conditional upon the ethnic group. However, the findings from Becker et al.'s analysis of women's decision-making power in Guatemala contradict those of Makinwa-Adebusoye's. Becker et al. found that education and earning power superseded inequalities linked with certain traditions connected with women's ethnicity (Becker, Fonseca-Becker et al. 2006), which suggests that the significance of ethnicity varies with the context.

2.2.2 Education and Autonomy

Moursand and Kravdal begin their analysis of the influence of women's education and autonomy on contraceptive use in India by acknowledging the established significance of education as a determinant of certain health outcomes like fertility. As a qualification, they note that evidence of the intermediate factors connecting education and health is notably lacking (Moursund and Kravdal 2003). One pathway proposed by academics and those who work in development alike is autonomy. In development work, education is often conflated with autonomy, so that people presume education begets autonomy or that the presence of either one guarantees the existence of another. It is important to examine the validity of these assumptions in academic literature and the ways in which education may function to increase women's autonomy.

The aforementioned Kritz and Makinwa-Adebusoye study offers evidence to this end. Though the study eventually determined that ethnicity was a higher-level

determinant of women's decision-making autonomy than education, they also acknowledged that within certain ethnic groups, education was a principal determinant of women's autonomy. Specifically, they found that women with some secondary or higher-level autonomy were significantly more likely than others to have some decision making authority ($\beta = 0.18$, p-value <0.001). Even women with some primary school education evidenced greater decision-making authority than those with no education ($\beta = 0.08$, p-value <0.001). From these results, they then theorized that "wives who acquire some education or who gain access to other resources … might enhance their bargaining power…" thus establishing one possible conduit by which education increases autonomy – strengthening women's ability to assert their opinion (Kritz and Makinwa-Adebusoye 1999).

Jejeebhoy and Sathar's study of women's autonomy in India and Pakistan reinforces the varying influence of education on women's autonomy among disparate groups. They found that, "traditional factors conferring authority on women – age, marital duration, number of surviving sons, nuclear family residence, and dowry – have a more powerful effect on women's autonomy in Uttar Pradesh and Punjab, the settings with wider gender disparities, than in Tamil Nadu, where gender relations are more egalitarian. In contrast, in Tamil Nadu, education (even a primary education) plays a prominent role in enhancing almost every dimension of autonomy" (Jejeebhoy and Sathar 2001). While providing additional evidence of the education-autonomy link (at least in Tamil Nadu), Jejeebhoy and Sathar's analysis also highlights education's variable influence in different contexts and raises questions about how and why education functionally increases women's autonomy.

In addition to Kritz and Makinwa-Adebusoye's theory that education increases autonomy by expanding access to resources, several other theories have been proposed to answer this question. In *Women's Education, Autonomy, and Reproductive Health,* Jejeebhoy suggests five interdependent aspects of women's autonomy, which are important in explaining the causal pathway between education and autonomy. Among the five aspects are: (i) the autonomy of knowledge, which basically asserts that educated women have a wider world view; (ii) decision-making autonomy, which says that education strengthens women's say in decisions that affect their own lives; (iii) physical autonomy, which says that educated women have more contact with the outside world; (iv) emotional autonomy, whereby educated women shift loyalties from extended kin to the conjugal family; and (v) economic and social autonomy, whereby educated women have greater self reliance in economic matters and are thus able to rely on themselves rather than on their children or husband for social status (Jejeebhoy 1995).

Further study is needed to test these theories. Based on Kritz and Makinwa-Adebusoye and Jejeebhoy's research, it is certain that whatever causal pathways are explored in the future – whether they revolve around women's increased access to resources or increasing contact with the outside world – the linkages are likely to vary widely by context. In addition to these questions about education and autonomy though, others need to be explored in order to evaluate education's influence on the degree of autonomy women feel empowered to exercise. Specifically, what level and quality of education is sufficient for women to develop autonomy? Does it mater whether education is secular or religious?

2.2.3 Employment and Income and Autonomy

Financial autonomy has already been briefly discussed as a burgeoning area of interest for academics and development practitioners who are interested in expanding women's autonomy. To recap, financial or economic autonomy may assume different dimensions depending on the context, but generally refers to the ability of women to engage in wage work and/or participate in decisions about how money will be spent. The two elements that make up this definition – ability to decide employment status and what to do with money - are examples of the proxy indicators sometimes used in studies of women's financial autonomy, and their respective significance with regard to women's autonomy and different health outcomes been have confirmed in various studies (Moursund and Kravdal 2003; Becker, Fonseca-Becker et al. 2006; Acharya, Bell et al. 2010).

Notably, in Archaya et al.'s study of women's household autonomy in Nepal, they found that women who worked for cash were more likely to participate in decision making in all four of their major outcome variables, defined as deciding one's own health care, participating in major household purchases, making purchases for daily household needs, and being at liberty to visit family or friends ($p<0.001$). Based on these results, Archaya et al. concluded that employment empowers women to participate in decision-making, and work in the home is not a substitute for employment outside the home, such that there is something specific to working outside the home that empowers women (Acharya, Bell et al. 2010). In support of these findings, Al Riyami et al. also found that women engaging in paid employment averaged a higher score on their empowerment scale than women who did not, and Becker et al. found that when a woman worked for

pay, both the husband and wife were more likely to report that they both participated in making final decisions, which may be interpreted as a sign of greater gender equity and, by extension, women's autonomy (Al Riyami, Afifi et al. 2004; Becker, Fonseca-Becker et al. 2006).

The premise that underlies several of these studies is that increased financial autonomy necessarily begets increased autonomy in other realms of women's lives like health. Moursund and Kravdal present findings in support of this association in their study of women's contraceptive use in India. They found that women's cash earnings were associated with weaker fertility desires and more contraceptive use, suggesting that those women who are more productive in the labor market may be less disposed to frequent childbearing (Moursund and Kravdal 2003). Similarly, results from Mistry et al.'s study of women's autonomy and pregnancy care in India signified that women's financial autonomy alone was predictive of delivery care by a trained person (OR: 1.25, CI: 1.13 – 1.39) and was also significant in the models for institutional delivery (OR: 1.30, CI: 1.15 – 1.47) and postnatal checkup (OR: 1.18, CI: 1.06-1.32) (Mistry, Galal et al. 2009).

However, some skepticism must be employed when interpreting associations between economic autonomy indicators and health outcomes because it remains difficult to separate out the influence of possible confounders, like education and aggregate village level influences, within this association. Furthermore, as Moursund and Kravdal point out and others affirm, interpretations of women's employment status and income vary widely between and within different contexts. For example, Casique concludes that while women's economic activity may enhance and justify their autonomy in the case of

some urban and well-educated Mexican women, this same relationship does not exist among women in rural areas of Mexico who experience the greatest increases in their autonomy at different stages of their marriage (Casique 2000). In short, the importance of financial autonomy may shift with socioeconomic status and with time.

Moursund and Kravdal synthesize this complexity and variability inherent in evaluating and interpreting women's financial autonomy in the following statement. They write:

> Work has been considered a signal of women's autonomy in many previous studies, often for lack of better indicators. This may be quite appropriate, because some kinds of work can reflect, for example, physical autonomy. On the other hand, a woman's work may be primarily poverty-driven. Moreover, a consequence of income-generating activates may be that the woman becomes economically more independent of men, or that she is more likely to be well treated by the family, but either consequence may be less likely to occur if the amount she earns is very small.

Subsequently, though women's employment status and income level have emerged as important factors associated with their autonomy, these indicators themselves may have poor internal and/or externally validity.

2.2.4 Age, Parity, and Autonomy

As several anthropological studies have established, a woman's autonomy and status in relation to others is very rarely static throughout her entire life. It is more likely that her position in society and liberties rise and fall with context specific cues like marriage, childbirth, and widowhood, among others. As a result, one cannot definitively say that a woman's autonomy absolutely increases as she ages or, conversely, that a woman achieves the height of autonomy immediately after her marriage.

In her analysis of these trends in northern India versus European societies, Das Gupta only acknowledges that patterns do exist in each society. In northern India for instance, Gupta explains that women's power and autonomy in the household are typically at their lowest when the woman first marries her husband, and her prospects do not improve until she gives birth to a male child. Subsequent to this event, her status is mapped on to that of her son(s). "As her sons grow, her status increases and continues to increase as she becomes a mother of grown sons and then a mother-in-law. Finally, as a grandmother, an asexual woman and the female head of the household, she can have a considerable say in domestic matters." It is important to note though that even at the peak of her authority, a woman in northern India is still dependent and, more or less subservient to a man – namely, her son. Women are dependent on their sons in old age not only as a source of support, but, more intrinsically, as a source of identity. "Women are the moving, peripheral parts of their society, while men are the permanent members of the lineage. As a result, women have little intrinsic source of standing other than as the mothers of the future men of the lineage" (Das Gupta 1995).

As this case study demonstrates, age and parity often interact to determine a woman's level of autonomy at a given stage of her life. Jejeebhoy and Sathar confirmed this theory in their study, also conducted in India, of women's autonomy. Their results in Uttar Pradesh, positively linked women's autonomy to the number of sons that they had whereas in Punjab, autonomy was negatively related to the number of daughters that women had. Conversely, in Tamil Nadu, the only traditional factor to play a significant role was age (Jejeebhoy and Sathar 2001). In Bloom et al.'s study, age also had an edge over parity in the multivariate regression model analyses with culturally appropriate

indicators of autonomy - living with a mother-in-law and having frequent contact with natal kin. When both variables were included in the model, age remained statistically significant and parity did not. Age was also marginally significant in the models for high control over finances, greater decision-making power, and freedom of movement. Despite these seemingly contradictory findings, the two variables were found to be highly correlated (Pearson's r = 0.68), suggesting that women begin bearing children soon after marriage in India and continue to do so throughout their reproductive years. As such, the two measures may be conflated to some degree in this context (Bloom, Wypij et al. 2001).

Of course, patterns mapped on to age are not always fair or true predictors of women's autonomy and value, which is why it important to include other mediating factors like parity in analyses. In India, we have several examples in different regions of how women's place in society pivots around their parity and reproductive capabilities

2.3 Marriage and Health

Marriage is among the most significant events in lives of individuals around the world. As individuals formally establish their relationship and transition from one stage of life to another, a host of changes inevitably follow, not the least being those which affect the health of those married. Characteristics such as marriage type, age at marriage, choice of partner, and quality of the relationship have been examined in studies situated in Mali and elsewhere for their potential impact on women's health.

2.3.1 Marriage in Mali

Following their liberation from France in 1960, Mali integrated French colonial laws with preexisting customary laws to form a cohesive set of guidelines, titled the Code of Marriage and Guardianship. As with the colonial laws that preceded it, the Code stipulated minimum ages at marriage, divorce proceedings, state recognition procedures, and bride wealth regulations, among other ordinances. It also granted all marriages, whether they were polygamous or monogamous, civil legal status.

The Malian Code of Marriage and similar laws enacted in francophone countries post-independence were beneficial in that they codified legal measures to protect women, but some countries also instituted measures that discriminated against them. In Mali specifically, Articles 32 and 34 of the Code established the husband as the head of the household and stated that the "husband owes protection to this wife, and the wife owes' *obedience* to her spouse" (Boye, Hill et al. 1991). However, such legal measures may be differentially interpreted and observed within each country.

In Mali, adherence to all facets of the Code of Marriage and Guardianship varies greatly. For example, bride prices (or dowries) are rigorously regulated by the Code, differentiating between women who have never been married, those who are remarrying, and those who are remarrying with children. There is a maximum bride price assigned to each of these bridal categories. Despite the extensive contingencies specified in the law and still debated in current policy, bride prices are not a part of the marital customs of the Dogon and are not known among the Peuhl – two of the most common ethnic groups in the Bankasse and Bandiagara where the Projet Espoir Baseline Survey was conducted (van Beek 1992). Similarly, different groups may observe traditional landmarks in their

relationships at different points. The Peuhl, for example, delay cohabitation until two to three years after the religious ceremony, though they may spend the night together during that initial period when the husband is home from tending his herds (Lardoux 2004). Small though they may seem, these nuances portend real differences for the health of the women in each respective group.

2.3.2 The Influence of Polygamy on Women's Health

Polygamy is practiced throughout Mali and constitutes a majority of marriages in the area where the Projet Espoir survey was conducted. In fact, the Malian Code of Marriage and Guardianship presumes that all marriages in country are polygamous unless otherwise stated. Only men have the formal authority to designate a marriage as polygamous or monogamous (Boye, Hill et al. 1991). As this legality demonstrates, gender inequality is characteristic of many polygamous relationships in Mali and elsewhere. Such disparities in the rights and abilities of partners have lead to several studies of the institution with regard to its impact on women's health.

Specifically, Nyblade and Menken note that women in polygamous marriages may be more inclined to have large families and avoid family planning measures in order to ensure a robust support system in old age (Nyblade and Menken 1993). Whereas husbands in polygamous societies can rely on support from their many wives as they age, women must often depend on their children (Fapohunda and Todaro 1988). In seeking the security of a large family by avoiding contraception and having many children, women thus expose themselves to the higher probability of various health risks posed by early and/or frequent childbirth (Singh and Samara 1996; Akpan 2003).

Hogan and Berhanu substantiate this claim in their study of the knowledge and practices of fertility and family planning in Ethiopia by marriage type and location. They report that, "Urban women whose husbands have another wife are only 56 percent as likely to discuss family size and family planning with their husbands as are those in monogamous marriages. Rural women in polygamous marriages are 27 percent less likely than those in monogamous marriages to discuss family planning with their husbands." Polygamy only proved a significant determinant of actual fertility and contraceptive knowledge among women in urban areas, suggesting that the effect of the institution on family size and knowledge is not universal and may depend on context (Hogan, Berhanu et al. 1999).

Polygamy has also been connected with experience of intimate partner violence, which may affect the emotional, mental, and physical well-being of a woman. A study that used 2003 Demographic and Health Survey (DHS) data from Kenya confirmed that polygamy was significantly associated with the experience of intimate partner violence, though it did not establish causality or further probe the reason for this connection. It reported that, "women in polygamous relationships were more likely to report physical ($p < 0.001$), emotional ($p < 0 .001$), sexual ($p < 0.001$), and all/any [forms of IPV] ($p < 0.0001$) violence than peers whose husbands had no other wives and peers who were not sure" (Lawoko, Dalal et al. 2007).

2.3.3 The Influence of Early Marriage and IPV on Women's Health

Mali's Code of Marriage and Guardianship mandates that girls be at least 15 years of age and boys be at least 18 years of age in order to marry (Boye, Hill et al. 1991). This

law conforms to standards established by the French Mandel Decree and United Nations' 1962 Convention on the 'Consent to Marriage, Minimum Age for Marriage, and Registration and Associated Recommendation.' Despite national and international regulation of the practice though, it is not uncommon for men and women to marry at much younger ages in Mali. Parents routinely circumvent the law and promise their daughters to future spouses before the girls are legally of age to do so and long before they are ready to begin a family (Boye, Hill et al. 1991). In these ways, the practice of early marriage impinges on both the health and autonomy of women because it takes the choice of partner and timing, among other things, out of her hands.

The negative impact of early marriage on the health of women has been established in several studies. Specifically, Jensen writes that, "early marriage is often associated with early age at first childbirth, often before physical growth and development is complete" (Jensen and Thornton 2003). The subsequent risks in terms of morbidity and mortality are well-documented. According to a 2009 report from the United Nations Population Fund (UNFP) which relied on data from several sources through 2007, girls aged 15-20 were twice as likely to die in childbirth as women in their twenties, and this risk increased dramatically for girls under the age of 15 such that they were five times more likely to die from maternal causes. It is no surprise then that complications during pregnancy and childbirth were the leading cause of death for girls aged 15-19 years of age in developing countries according to UNFP sources[3].

A host of other morbidities and co-morbidities have been recorded as well. A case-control study of adolescent girls (<18 years) and adult women (20-34 years) who

[3] http://www.unfpa.org/public/cache/offonce/home/factsheets/pid/3851

delivered in a tertiary hospital in Nigeria found that the incidence of conditions like eclampsia and preeclampsia was six times higher among the adolescents as compared with the adult women (20% v. 3%, respectively), and that adolescents were twice as likely as adult women to experience at least one pregnancy-related complication, including eclampsia, preeclampsia, antepartum hemorrhage, and postpartum hemorrhage (44% v. 22%, respectively) (Adeyinka, Oladimeji et al. 2010). Furthermore, young women who marry early and begin bearing children shortly thereafter are at a higher risk for crippling conditions like obstetric fistulas, which may develop in the case of prolonged labor common to girls with immature bodies (Santhya 2011).

In addition to early and increased frequency of childbirth, there are other, more indirect ways in which early marriage negatively affects the health of women. Women who marry early are less likely to continue their education, predisposing them to the poverty trap and the host of health issues linked with lower education (Mensch, Bruce et al. 1998; Lloyd and Mensch 2006). Several studies have confirmed this linkage in different contexts, but especially with regard to mothers' willingness to seek antenatal care and to deliver their babies with trained providers (Otoo-Oyortey and Pobi 2003).

Finally, women's exposure to intimate partner violence and their general mental health and well-being may be adversely affected by early marriage. Women who marry early are more likely to have limited mobility and power in the household (Santhya and Jejeebhoy 2007). This disequilibrium between the woman and her partner may help to create an atmosphere, which is more accepting of intimate partner violence. However, causation between early age at marriage and IPV has not been established, only association. Two studies conducted in India indicate an increased risk of violence among

women who marry before the age of 18 compared to those who marry later (Raj, Saggurti et al. 2010; Speizer and Pearson 2011). These findings were corroborated by a study conducted in Bangladesh by Rahman et al. They found that women who were married as adolescents were significantly more likely to report physical IPV (OR = 1.71; 95% CI = 1.08-2.72), physical and/or sexual IPV (OR = 1.40; 95% CI = 0.92-2.12), any less severe IPV (OR = 2.63; 95% CI = 1.77-3.91), and any severe IPV (OR = 1.78; 95% CI = 0.91-3.46) after adjusting for other variables (age, education, place of residence, religion, and husband 10 years or more older than wife) than those married as adults." The only correlation not observed to be significant was that between early marriage and sexual IPV, though this may be because sexual violence is largely perceived as acceptable by Bangladeshis (Rahman, Hoque et al. 2011).

As the Rahman et al. study intimated, IPV may be physical, sexual, and psychological or emotional in nature and may be differentially perceived depending on the context. The effects on women's health are similarly diverse in their symptomology, manifestation, severity, and duration. Regardless, it presents very real health implications for the women who suffer from it, and a real challenge in creating local movements against it because of its perceived acceptability or stigmatization.

This may be said more generally of early marriage though. Early marriage represents a decisive factor in an women's freedom to choose their spouse and is thus an important determinant of a their health and autonomy. It remains difficult to collect data on age at marriage for both women and their partners due to recall bias. In some societies, there are multiple marriage ceremonies, so surveys may not capture these nuances. For example, in Mali, there are sometimes three marriage ceremonies

(religious, customary, and civil). Only civil is required (Boye, Hill et al. 1991). There may be significant gaps between each ceremony, which could confuse those surveyed and those conducting the data analysis.

2.3.4 Arranged Marriage and Having a Say in Marriage Decisions

Arranged marriages are marriages in which either one of the proposed partners is restricted in his or her choice of mate. The practices surrounding the brokerage of marriage deals may assume different forms in different countries. For example, the above definition does not presuppose that individuals have no say in the decision. Parents may consult with their children on their partner preferences, but, ultimately, someone else may have final authority over the union. In Mali, the de facto decision maker is the father. The father is recognized as the head of the household and has the greatest influence in determining whom his children marry. However, there is one exception to this rule in that if the daughter is under age (as if often the case in Mali), then the mother may be consulted (Boye, Hill et al. 1991).

No studies have explicitly examined the influence of having a say in marriage on the subsequent health of women who have absolute authority compared to those who do not. Rather, studies often focus on determining the number of arranged marriages in the population, the degree of say which the different actors may have in it, and its correlation with regard to women's autonomy. For example, Kritz and Makinwa-Adebusoye found that mate selection and presence of the mother-in-law in the household was significantly associated with increased authority in decision-making among women (Kritz and Makinwa-Adebusoye 1999). These research questions would benefit from further study.

2.4 Extended Family Networks and Health

Interpersonal factors have been suggested as one of the principal determinants of individuals' propensity to engage in certain health behaviors. For example, the Social Support Theory proposes that other individuals may function to provide emotional, tangible, informational, and/or companionship support. In this way, relationships may contribute knowledge, perspective, emotional support, and/or assistance to an individual's health behaviors (Langford, Bowsher et al. 1997). Similarly, the Social Cognitive Theory assumes a slightly different tact, suggesting that individuals learn their health behaviors from others and that this process is shaped by the surrounding environment, the behavior itself, and cognition of the persons involved (Santrock 2008). Even those theories emphasizing the importance of upstream social determinants of health also acknowledge that interpersonal relationships are shaped by these determinants and serve as conduits for influencing the behaviors and beliefs of individuals (Schultz and Northridge 2004; Braveman, Egerter et al. 2011).

The above theories note that the sources of such support and guidance are diverse and may include family, friends, romantic partners, peers, and co-workers, among others (Taylor 2011). Previous research has also proven that family networks influence women's assuredness, in particular. Specifically, Sathar and Shahnaz established the significance of family structure as a determinant in women's health, influencing their ability to connect to other individuals and feelings of self-worth and self-confidence (Sathar and Shahnaz 2000). For the purpose of this review, we will concentrate on the potential influence of the husband, mother-in-law, and co-wives on women's health.

2.4.1 Husbands

As previous sections have alluded, husbands are arguably one of the most important actors in women's health. They may play a dominant role in making certain health decisions and may influence the degree of autonomy which women experience in their lives and subsequently in their own health. Furthermore, several studies have established a connection between the quality of men and women's romantic relationship and women's health, so that women's health improves as the quality of the relationship improves.

One of the most concrete ways in which men influence women's health is when they participate in health-related decisions. The husband's degree of influence may be absolute or minimal depending on the issue and context, but in societies plagued by gender inequality, sometimes the smallest presence is influential. For example, in Al Riyami et al.'s study of women's autonomy, education, and employment and their influence on contraceptive use in Oman, they found that for nearly half the sample of 1,830 women, their husbands decided whether or not contraception was used (Al Riyami, Afifi et al. 2004). Similarly, in Becker et al.'s study of men and women's role in decision-making in Guatemala, fully 38% of the 546 couples surveyed believed that the husband had the final say in what to do if a pregnant woman became very ill; this is especially significant in light of the country's high maternal mortality ratio of 153 deaths per 100,000 live births – one of the worst in Latin America (Becker, Fonseca-Becker et al. 2006).

In Mali, the protocol that women must follow in order to access contraception provides another, more relevant example of men's direct influence on their health.

According to Boye, married women must produce evidence of their husband's consent in order to access contraceptive methods. Unmarried women similarly encounter intractable barriers in accessing contraception even though they lack husbands; they must prove parental consent. Finally, divorced women in Mali must show a certificate of divorce to receive contraception, so that men are still able to control women's reproductive health decisions even after they have legally separated from them. These legal hurdles to contraceptive access present very real barriers to women who want to manage their own sexual and reproductive health and offer evidence pertinent to one of this thesis' questions concerning men's influence on women's health (Boye, Hill et al. 1991).

Even if men do not have final or proportional authority in a decision though, they can still influence women's health. Jejeebhoy and Sathar write of the "extent to which young women's freedom was curbed by social norms and the watchful eyes of the men and elders in the family" in India and Pakistan (Jejeebhoy and Sathar 2001). The "watchful eyes" to which Jejeebhoy and Sathar refer speak to the veiled influence, which men may exercise in shaping women's autonomy and the choices available to them, even outside the realm of health. As previous sections on autonomy have intimated, men often affect women's health through unequal partnerships.

The degree to which these opinions and perspectives have been validated varies. There have been a few studies, which have collected information from other family members in order to assess concordance and discordance between the woman and her husband. One study by Jejeebhoy in Uttar Pradesk and Tamil Nadu revealed that interspousal agreement ranged from a low of 54% to a high of 93% with regard to women's decision-making ability. Interestingly, where discrepancies exist, men are more

likely to ascribe greater authority to the women as opposed to less; however, Jejeebhoy admits that qualitative focus group data collected as part of the same study in India indicate that such discrepancies are more likely a result of the survey instrument and do not reflect men's (realistically) much more conservative perceptions of female autonomy. She also writes that women may strategically decrease the authority, which they ascribed themselves in order to conform with social norms (Jejeebhoy 2002).

An important mediating factor of the aforementioned correlations between husband's authority in decision-making and women's health is the quality of the relationship. When a woman feels supported by other members of the family in high quality relationships and these individuals demonstrate a desire to see her in good health, then a woman will feel empowered to make smart choices for her own health. She also has a safety net in that her family members will help her to make good decisions.

A great deal of literature reinforces this positive correlation between marital quality and improved health outcomes in Western contexts, but Allendorf demonstrates that it is also applicable in non-Western contexts in her study of family relationship and maternal health care in India. She found that, "compared with women who have many difficulties with their husbands, women who have very few or some difficulties have twice the odds of having had a hospital delivery in nuclear families." This finding was significant at the 95% confidence level; however, her results did not support her original hypothesis and instead suggest that good relationship quality may serve more as an accelerator of good maternal health, rather than a direct indication thereof. In other words, the odds ratios suggest that having both good relationship quality and a high level

of agency has a stronger effect than the separate benefits of the two summed together (Allendorf 2010).

Other studies confirm Allendorf's conclusion regarding the potential mediating effect of quality romantic relationships on women's agency and thus her health. These studies examined those factors associated with high quality romantic relationships between men and women. Specifically, Santhya et al. note that those women who marry before the age of 18 are less likely than those who delay marriage till 18 years of age or older to have a close marital relationship, defined as engaging in activities indicative of friendship and affection like going to the movies or other places of entertainment (Santhya, Ram et al. 2010). Though it has yet to be studied, the quality of the relationship may also vary with the economic contributions of women. Becker et al. established that spouses generally agree that men are the primary decision makers, but that this relationship changes as women earn more money (Becker, Fonseca-Becker et al. 2006).

2.4.2 Mothers-in-Law and Co-wives

Men are not the sole arbiters of women's autonomy and health. Women too are important members of the household structure and, in their various capacities as mothers-in-law, daughters-in-law, and co-wives, may influence the support, shared knowledge and access to different resources, which other women recognize. The influence of other women in the household or family structure is not universally positive or negative. Studies have found examples of their effect to exist along a spectrum. What seems

certain though is that the repercussions of having more than one or more female figures in the home are not null.

Of these possible female authority figures, several studies have examined the importance of the mother-in-law as one of the most challenging and indomitable in her in relationship with her daughters-in-law. In their study of women's autonomy in India and Pakistan, Jejeebhoy and Sathar found that co-residence with the mother-in-law was a significant determinant of women's autonomy in both study settings. More specifically, "in more gender-stratified settings of Uttar Pradesh and Punjab, autonomy is largely a result of factors that traditionally confer status, notably family structure or absence of controls implicit in co-residence with mother-in-law, and size of dowry, along with economic activity" (Jejeebhoy and Sathar 2001).

It is important to note that these studies examined the influence of mothers-in-law who lived in the same household as the husband and wife surveyed and did not examine the autonomy of women whose mothers-in-law were not living or did not share the same household as them. This distinction raises the question of the counterfactual and the absolute effect of living in the same household as the mother-in-law. It also questions the causal pathways by which mothers-in-law influence the autonomy of their daughters-in-law.

Bloom et al. attempt to answer this question in the context of their study of women's autonomy in India. According to their study, living with a mother-in-law was not significantly associated with either antenatal or delivery care in their study, but it was significantly associated with decreased decision-making power. In India, women tend to gain authority as they age, so when they first marry into their husband's family, they are

likely to have little authority compared to that of their mother-in-law who is more established in the family structure. Women's subsequent advance in power thus hinges on establishing themselves as permanent members of the family and, to some degree, on producing progeny who in turn bind her to the family (Bloom Ss, Wypij D et al.). Furthermore, several studies have established that if a woman is separated from her natal kin and is limited to infrequent contact with them following her marriage, then she may lack the material and emotional support to recognize her own abilities and desires and, subsequently, to negotiate the new household structure (Jeffery and Jeffery 1993; Visaria 1993).

Bloom et al.'s conclusions regarding the respect accorded daughters-in-law and how their position is likely to shift as they age and produce children may be extrapolated to the fates of their co-wives, assuming they exist. They write that, "All married women are subject to the mother-in-law's authority, but the oldest daughter-in-law usually enjoys far greater autonomy than the youngest. Women living without older female affines, particularly the mother-in-law, have more interpersonal control simply because they are beholden to fewer individuals" (Bloom, Wypij et al. 2001). However, it is not only the absence of the mother-in-law from her presumed position of power, which contributes positively to a woman's autonomy and well-being in polygamous households, but also the potential to form connections with the other women in the house. According to some scholars, women may also form cooperative rather than competitive relationships with each other, so that they are able to efficiently exchange labor and share the significant tasks of child rearing and productive work (Oppong and Abu 1987; Callaway and Creevy 1994).

Within these relationships, it remains difficult to isolate the pathways by which some women influence other's sense of authority and to determine an absolute directionality between these relationships and women's health. As with many of the variables proven to be significantly associated with women's autonomy and health, the truth likely depends on the context – geographically and otherwise. The aforementioned studies by Bloom and Jejeebhoy are just two of many studies that examine women's autonomy and health in Southeast Asia. There are comparatively very few studies, which examine the influence of these roles and relationships in African contexts, one of the few being by Kritz and Makinwa-Adebusoye discussed earlier. The extrapolation then of results from studies conducted in Southeast Asia to an African context may be inappropriate. Furthermore, one must acknowledge that relationships evolve and shift with situation, so that partner's relationships are not static throughout their duration, and they may respond differentially to the same stressors over time.

2.5 Contributions to Existing Literature

This thesis will contribute a new contextual understanding of the subject matter to existing literature. One of the fallibilities oft noted in existing literature is reliance on data collected almost exclusively from women. Few studies have surveyed men and attempted to triangulate this data with women's responses, as we propose to do. This thesis acknowledges other equally important actors by incorporating the perspectives of husbands, mothers-in-law, and co-wives and will look at how these family members influence the health of women and the dimensions of these interactions. More specifically, it attempts to answer the question - how do family members shape women's

perception of and access to health and how do they function as actors in women's different health decisions?

This thesis also expands analysis beyond the Southeast Asian context where most existing research has been concentrated. Jejeebhoy has studied concordance and discordance between spouses in India, but it is difficult to extrapolate these findings to African contexts like Mali.

The dual outcome variables, which assess women's household autonomy and gender equity, were constructed from a diverse, yet culturally appropriate set of questions using factor analysis so that the subsequent questions are internally valid and may provide a strong base from which to extrapolate conclusions.

Finally, the number of marriage characteristics examined in this thesis are also more diverse than in previous studies which have tended to focus one or two variables to the exclusion of others, as with early marriage, for example. In creating more comprehensive models which include more relevant marital characteristics, this thesis analysis addresses each characteristic's influence in consideration of all others and known mediating factors like ethnicity, income, and education, among others.

Chapter 3: Methodology

3.1 Project Background and Sampling Procedure

The data for this thesis was collected as part of the Project Espoir Baseline Survey from June to July 2011. The Project surveyed 600 households across 60 villages from two districts in North-Central Mali where CARE currently works. The households and villages were evenly divided between the two districts in Bankasse and Bandiagara, so that the eventual sampling frame consisted of 300 households from each district. The Ministry of Health (MOH) provided the two lists of the villages, sorted by the Centre de Santé Communautaire (CS-COMs) in each district. From these lists, 30 villages from each district were randomly chosen, with those CS-COMs with larger catchment areas contributing more because of the greater distribution of villages in them.

Within each village, 10 households were randomly selected. Each team of data collectors began at the locally defined center of the village and then proceeded to work outwards in a randomly selected direction, sampling every third household. If the household did not meet the eligibility criteria – defined as the presence of a woman who had given birth in the last 12 months and the presence of a husband – then the team called at the next house.

At those households which met the inclusion criteria, four members of the household were separately interviewed: the woman who had given birth in the last 12 months (regardless of birth outcome), the husband, the mother-in-law, and a co-wife, assuming the latter two figures existed and were available. If more than one co-wife was present, then one co-wife was randomly selected.

Data collectors eventually surveyed 544 households total – 275 in Bandiagara and 269 in Bankasse. Of those households surveyed, 527 were available for use in the analysis because they met the inclusion criteria.

3.2 Instrument Development and Survey Protocol

The content of the survey was largely the same for each household member. Each questionnaire requested routine information about the respondent's demographic characteristics (age, education, employment, and marital status) and then proceeded to ask about attitudes towards gender equity, the value of women, importance of traditional practices in pregnancy and childbirth, conceptions of power among family members, distributions of decision-making across household members, and attitudes about the quality of care provided at CS-COM's. The women's questionnaire was slightly different in that it did ask additional questions about her utilization of maternal health care (prenatal, delivery, and postnatal) in her last pregnancy.

The questionnaire was translated into French, but the data collectors conducted the face-to-face interviews in the appropriate local language – Dogon, Bambara, or Peuhl. Per Emory University and Malian MOH Institutional Review Board (IRB) approval, respondents were permitted to waive written consent and instead verbally consent to participate in the interview. No incentives were offered to participants to reward participation.

In order to standardize the data collection process and to reduce measurement error, data collectors participated in an intense four-day training, which involved a discussion of the guide, training in ethical conduct, interview techniques, and the piloting

of the guide in a non-sampled village. The guide was revised accordingly following the pilot interviews. Subsequently, three teams of eight data collectors were created, totaling 24 data collectors. Teams surveyed one village per day and completed the baseline survey in 20 days.

On average, interviews were 45 minutes in duration, and there was only one case of discontinuation mid-survey. Answers were recorded on paper versions of the survey and then entered into Excel, where they were cleaned with a focus on degree and randomness of missing data and improbable values. Subsequently, less than one percent of the data were missing.

3.3 Covariates of Interest

Figure 2 on the next page lists the principle covariates included in this thesis' analysis. These include basic demographic variables for the age of respondent, level of education, ethnicity, history of employment outside of the home in the past month, income earned outside the home (in Malian CFA francs) during the past month, age at marriage, and whether the respondents were in a polygamous marriage or not.

After accounting for and correcting improbable values, the age of the respondent was differentially stratified for each respondent group based on the initial distributions. For women, age was stratified into 19 years of age and under, 20-24 years, 25-29 years, 30 years and over, and "Don't know;" the age of the husband was likewise stratified into 29 years of age and under, 30-39 years, over 40 years, and "Don't know;" the age of the mother-in-law was simply stratified into under and over 50 years of age and "Don't know;" and, finally, the age of the co-wife was stratified into 20 years of age and under, 21-29 years, 30 years and older, and "Don't know." The age of the respondents at

Figure 2 : Descriptions of Variables Included in Analyses						
Variable Name	Used in sub-group regression analyses				Variable Type	Description
	Women	Husband	Mother-in-law	Co-wife		
1. Age of respondent	X	X	X	X	Categorical	Age of respondent at time of interview
2. Ethnicity	X	X	X	X	Categorical	Dogon, Peuhl, or other
3. Level of education	X	X	X	X	Binary	Some education or no education
4. Employment	X	X		X	Binary	History of work outside home in past month
5. Income	X	X		X	Continous	Amount earned in Malian CFAs through work outside home in past month
6. Parity	X	→	→	→	Categorical	The number of live births - 1-2/3-4/5+
7. Age at marriage	X	X	X	X	Categorical	Age of respondent at time of marriage
8. Polygamous	X	X	X	X	Binary	Respondent in polygamous marriage or not
9. Number of co-wives	X	X	→	X	Categorical	Number of co-wives/household - 0/1-2/3+
10. Order in marriage	X	→	→	X	Binary	First wife or other wife
11. Arranged marriage	X	→	→	→	Binary	Arranged marriage or not
12. Related to husband	X	→	→	→	Binary	Familial relation to the husband or not
13. Say in marriage	X	→	→	→	Binary	Women's say in the marriage or not
14. Intention to take another wife	X	→	→	→	Categorical	Husband's intention to take another wife - Yes/No/Don't know
15. Relationship Prompt 1 - Husband	X				Categorical	My husband trusts me.
16. Relationship Prompt 2 - Mother-in-laws	X				Categorical	My mother-in-law trusts me.
17. Relationship Prompt 3 - Co-wives	X				Categorical	My co-wives trust me.
18. Attitudes towards traditional birthing practices scale variable	X	X	X	X	Continuous	Factor analysis variable assessing attitudes towards traditional birth practices
19. Attitudes towards IPV scale variable	X	X	X	X	Continous	Factor analysis variable assessing attitudes towards gender expectations in relationships
20. Marital status of mother-in-law			X		Binary	Mother-in-law presently married or single/widowed
→ Blue arrows signify that responses from women's dataset were used in this sub-groups's regression analyses.						
An "X" signifies that data from the sub group was used in its analyses.						

marriage were uniformly stratified into three levels – 19 years of age and under, 20 years of age and older, and "Don't know" – once improbable values were addressed. Given the considerable number of respondents who did not know their age at the time of the interview or at the time of their marriage, it was necessary to retain this response group, "Don't know," as a separate level instead of recoding it as missing.

The ethnicity variable was condensed into three strata, though initially the questionnaire offered nine options. The latter seven ethnic categories - Mossi, Haoussa, Dafing, Bambara, Tout-coulers, Bozo, and Samogo – were combined to create the "Other" category while Dogon and Peulh remained separate categories given the initial distribution of respondents in them. Similarly, the education variable was converted into a binary variable, so that those respondents that marked having incomplete, complete, or more education were condensed into one category, and those with no education remained apart from those with any. For the descriptive analysis, the mean income of each respondent group was used to create an additional binary variable for each sub group, representing those respondents who earned either above or below the mean income value in the past month. Those individuals missing a response for income earned in the past month were not dropped from the dataset because it is logical that respondents without employ would not report a value or would feel disinclined to respond.

Data collectors also collected different marital and reproductive health information from the subgroups. The women, husbands, and co-wives were asked about the number of co-wives in their household, and the women and co-wives alone were asked about their respective place in the marital order – were they the first wife or did they marry their husband subsequent to his first marriage. Only the women who last gave

birth were asked about their parity, whether they had an arranged marriage, their familial relation to their husbands, their say in deciding whom they would marry, their perception of their husband's intention to take another wife, and how they perceived their relationship with their husbands, mother-in-law's, and co-wives.

Among the marital characteristic variables, a few required recoding. The number of live births registered by women was used to create a parity variable, which was then stratified into three levels – 1-2 children, 3-4 children, and 5 or more children. The one respondent who did not know the number of live births she had was set to missing and summarily dropped from the dataset. The number of co-wives reported by women, husbands, and co-wives were condensed into three strata – 0 co-wives, 1 co-wife, or 2-3 (or more) co-wives - for each group. With the exception of the husband's dataset, any value over 3 was considered improbable, set to missing[4], and dropped from the dataset. For the variable, "Intention to take another wife, the strata, "Don't know" was retained as a separate level instead of set to missing because the response was seen as distinct and significant. For the 46 women who did not signify their place in the marital order – first wife or other – the study assumed that they were the first wives and recoded them as such. The remaining marital characteristic variables were preserved as binary variables and any improbable values set to missing and dropped.

Three additional variables, measuring women's perceptions of their relationship with the other three subgroups, were included in the women's regression model as categorical variables. The three questions asked women to register, on a scale of one to ten, their degree of agreement with the following statements: "I feel my husband trusts

[4] In the Islamic religious tradition, men are permitted 4 wives.

me," " I feel my mother-in-law respects me," and "I feel my co-wives respect me." Ten was positively valued, and one was negatively valued. The study then stratified the index which women used to record their responses into three levels of low (1-3), medium (4-7), and high (8-10) for each question. Some women did not have co-wives or mothers-in-law, in which case, missing was deemed acceptable and kept as an additional strata.

Two additional variables were created through factor analysis and included in the models for each respondent group. The index variable assessing attitudes towards IPV was based on seven questions about respondents' attitudes towards gender relations and expectations, which in turn were derived from the externally-validated Gender Equitable Men (GEM) and Sexual, Relationship, and Power Scale (SRPS) surveys. The second index variable on attitudes towards traditional birthing practices was likewise based on the respective responses of participants to seven questions focused on practices in pregnancy and childbirth. These questions included prompts such as, "A woman can use traditional herbs as an enema during pregnancy to relieve constipation," and "The baby should not be breastfed until all of the colostrum has been removed."

As with the relationship variables, respondents were asked to rank their degree of agreement with statements, such as the ones just mentioned, on a scale of one to ten. Ten was positively valued, and one was negatively valued. To create a uniform directionality among the questions, responses to "A man can cook and clean the house for his wife" were redistributed, such that those respondents who initially registered a ten in response to the prompt were recoded as one. This was accomplished by creating a new variable for responses to this question and only affected the index variable on attitudes towards IPV.

Factor analysis was then used to create index variables for each set of questions in each respondent group. Significant clusters had an Eigen value of 1 or more, and a baseline loading values of 0.70 determined which variables loaded into each set. From these clusters, index variables were generated and their multicollinearity assessed using the pairwise correlation coefficient test. Assuming non-collinearity, the internal validity of each index variable was evaluated with the Cronbach alpha reliability score. Prior to analyses, internal validity was defined as having an alpha score of $\alpha = 0.70$, which indicates a high level of internal consistency in the index. Questions were subsequently added and removed from each index as necessary to achieve the highest possible Cronbach score. This same process was used to create the two outcome indices for each group and is illustrated on the next page in **Figure 3**.

Subsequent to this process, the analyses for women, husbands, mothers-in-law, and co-wives each contained two group-specific index variables on attitudes towards IPV and traditional birthing practices. Since the Cronbach reliability scores were not high for each index generated, only those indices with the highest alpha scores were included in the analyses. Fortunately, these indices were derived from the same sets of questions and were thus uniform across all sub-groups.

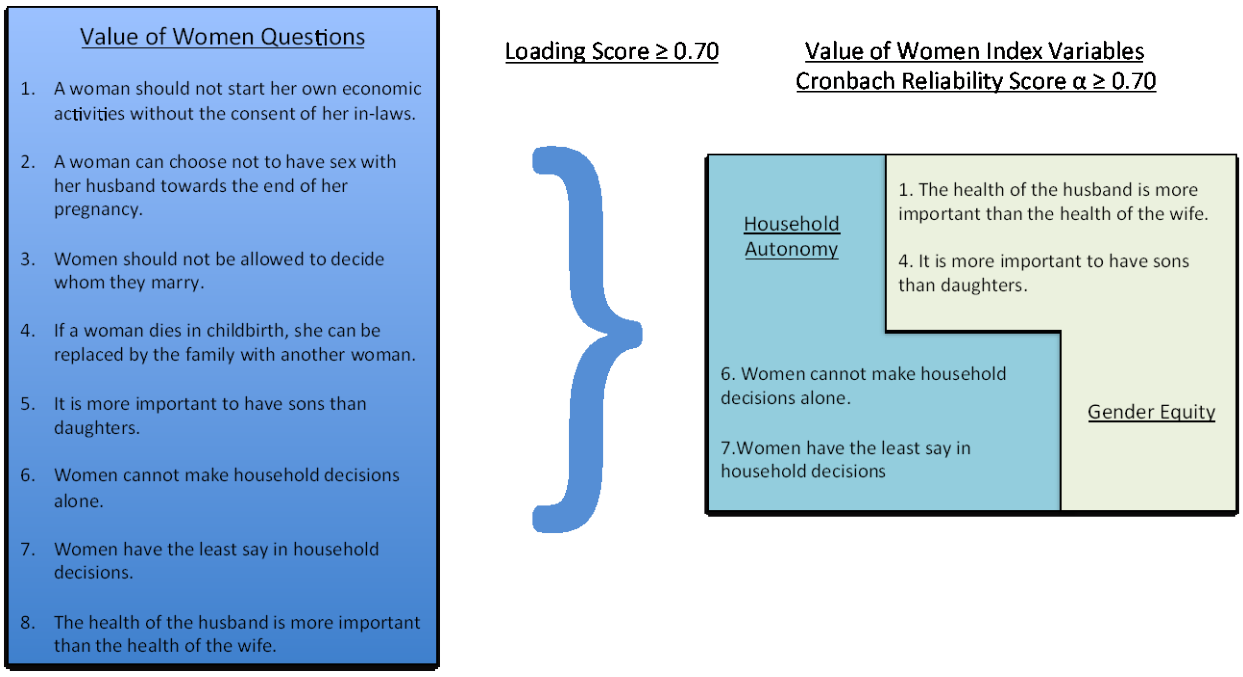
3.4 Outcome variables

Two index variables – one representing women's autonomy in household decisions and the other gender equity - served as the two outcome variables for this thesis' analyses. These variables were created using the same factor analysis process and standards outlined above. Cronbach reliability scores dictated which sets of questions

were eventually used, and these proved to be the same for all respondent groups surveyed.

These two indices were derived from the eight prompts listed below in **Figure 3**, which focus on the value of women. As with the other index variables, respondents were asked to indicate on a scale of one to ten their degree of agreement with the statement. Ten was positively valued, and one was negatively valued. All observations for the seventh prompt – "Women have the least say in household decisions" - were redistributed in a new variable to conform to the directionality of the other variables in the set.

Figure 3: Factor Analysis Schematic – Creation of Outcome Index Variables



3.5 Improbable Values and Missing Data

Less than one percent of the data was missing. There were, however, some improbable values, which were summarily corrected and/or converted to missing and

dropped from the data sets. Some of these corrections have already been outlined above. Others are explained below.

Notably, there were several intra- and inter-respondent observations that conflicted with each other, especially in women's responses to polygamy, number of co-wives, and order in marriage. Specifically, those women who reported that they were NOT polygamous or who were missing a value for the variable, but said that they had one co-wife or had a co-wife complete a survey were recoded as polygamous. Conversely, those women who marked that they were polygamous but reported having zero co-wives were recoded as NOT polygamous. Several women marked that they were NOT polygamous AND also not the first wife, which would indicate that they were confused on one or both of the accounts. A chi-square test subsequently revealed that these women also reported zero co-wives, thus confirming the original report that they were NOT polygamous. We assumed that their response to marital order was a mistake and recoded them to "first wife" to reflect the change. Similar discrepancies were noted for women and their husbands, but correcting these mistakes would necessitate several assumptions, which we were not prepared to make.

Also, in accordance with the study's focus, those women who did not meet the inclusion criteria of having given birth in the past year or who listed an improbable value for this variable were dropped from the dataset.

Upon creating and correcting most covariates of interest, the dataset that, heretofore, had contained all observations for women, husbands, mothers-in-law, and co-wives was copied so that each group had their own respective data set for analysis. Within these new data sets, those subjects with missing observations for principle

covariates were summarily dropped, with few exceptions (described above). The data corrections outlined above regarding whether women were polygamous or not were conducted after the data sets had been replicated.

The subsequent sample size for women was 488; the sample size for husbands was 466; the sample size for mothers-in-law was 260; and the sample size for co-wives was 211.

3.6 Plan for Analysis

Using STATA 12, a descriptive analysis of the frequency and the mean and standard deviation for categorical and continuous variables was conducted. We then proceeded to evaluate the bivariate correlation between the two outcome variables and each covariate using linear regression. The p-values were reported, establishing statistical significance at the 95% confidence level.

The two associative models constructed for each respondent group included all principle covariates and were virtually identical, with subtle differences, noted in **Figure 2**. The women's observations for the key marital characteristics under consideration – parity, marital order, number of co-wives, arranged marriage, familial relation to husband, say in marriage, and intention to take another wife - were extrapolated to their respective husbands, co-wives, and mother-in-laws for each model, assuming that group did not have a separate variable for the question. For example, the co-wives also listed their marital order and number of co-wives, so their responses to these variables were used instead of the women's. Similarly, the husbands listed the number of co-wives they had taken, so this data was used in the husbands' analyses. As was earlier indicated, the

two regression models for women also included three relationship variables which measured women's perception of the degree of trust or respect that her husband, mother-in-law, and co-wife accorded her. The model for mothers-in-law also included the marital status of the mother-in-law – either married or widowed/single.

The aim of this thesis was not to create predictive models and, as such, no variables were deleted from the final models based on insignificance or through a selection processes. Subsequently, the beta coefficients and p-values for each regression model were reported and interpreted to determine the direction of the variable's influence.

Chapter 4: Results

4.1 Demographic Profile

Table 1 on the next page provides a demographic profile of the respondents surveyed, including information on age, ethnicity, education, employment, and parity. The respondents in the Projet Espoir Baseline Survey identified primarily as Dogon, Peuhl, or some other ethnicity and were almost universally Muslim (Stephenson 2011).

The 488 women in the final sample ranged in age from 14 to 55 and were distributed across all age groups. Just over 10% of women were 19 years old or younger; 17.01% were between 20-24; 15.78% were between 25-29; and 18.65% were 30 years or older. A majority of women, 38.32%, did not know their age at the time they were questioned. As a group, the 466 husbands included in the final sample were older than the women, spanning in age from 20 to 73, with 38.41% aged 30-39 years old and 36.48% aged 40 years and above. The age distribution of the 211 co-wives in the sample mirrored that of the women; 14.69% of co-wives were 20 years or younger, 22.27% were between 21-29, 19.91% were 30 years or older. A majority of the 260 mothers-in-law surveyed did not know their current age, though those who did ranged from 36 to 100 years old. Of this group, 28.85% were 51 years or older, and 7.69% were 50 years or younger. Across all respondent groups, a significant proportion of respondents were not able to recall their age.

A majority of all respondents were Dogon, with Peuhl respondents composing a significant minority. For example, 80.53% of women were Dogon, 11.89% were Peuhl, and the remaining 7.58% were composed of members from one of the other seven ethnic

Table 1: Background Characteristics of Respondents							
	Women (N = 488)		Husbands (N= 466)		Mothers-in-Law (N=260)		Co-wives (N= 211)
	n (%)		n (%)		n (%)		n (%)
Age of Respondent							
<19	50 (10.25%)	<29	70 (15.02%)	<50	20 (7.69%)	<20	31 (14.69%)
20-24	83 (17.01%)	30-39	179 (38.41%)	>51	75 (28.85%)	21-29	47 (22.27%)
25-29	77 (15.78%)	>40	170 (36.48%)	DK	165 (63.46%)	>30	42 (19.91%)
30+	91 (18.65%)	DK	47 (10.09%)			DK	91 (43.13%)
DK	187 (38.32%)						
Ethnicity							
Dogon	393 (80.53%)		379 (81.33%)		215 (82.69%)		183 (86.73%)
Peuhl	58 (11.89%)		58 (12.45%)		22 (8.46%)		13 (6.16%)
Other	37 (7.58%)		29 (6.22%)		23 (8.85%)		15 (7.11%)
Level of Education							
None	433 (88.73%)		397 (85.19%)		259 (99.62%)		194 (91.94%)
Parity							
1-2	148 (30.33%)		--		--		--
3-4	155 (31.76%)		--		--		--
5 or more	185 (37.91%)		--		--		--
Work Outside Home							
Yes	125 (25.61%)		221 (47.42%)		--		66 (31.28%)
Income in last month							
Mean	1,513.17		14,825.32		--		2,072.44
Below mean	407 (83.40%)		345 (74.03%)		--		172 (81.52%)

groups. This distribution was more or less mirrored in each of the other groups. At least 85% of all respondents across each of the sub-groups reported receiving no formal educational instruction. Husbands had more education than any other group, and mothers-in-law had the least with 99.62% of those mothers-in-law surveyed having received no formal instruction in their lifetime.

A higher proportion of husbands reported having worked outside the home in the past month compared to women and co-wives. Still, only 47.42% of husbands had been employed compared to 25.61% of women and 31.28% of co-wives. Mothers-in-law were not surveyed on their work history. Accordingly, the mean income for husbands in the past month was 14,825 CFA, which was much larger than the amounts recorded by women and co-wives. The sizable difference in income between husbands and other subgroups is likely a function of the women and co-wives who reported no income (0 CFA), thus lowering the mean income level for those groups. Subsequently, 83.4% and 81.5% of women and co-wives, respectively, fell below the mean average income for their respondent group. The mothers-in-law were not asked about their work history or income in the past month.

Women's parity was stratified into three levels – 1-2 children, 3-4 children, and 5 children or more – with women registering roughly equal numbers in each stratum. Just over 30% of women had 1-2 children; 31.76% had 3-4 children; and 37.91% had 5 children or more. As **Table 1** shows, there were slightly more women who reported having 5 children or more. This slightly higher proportion may be because more women aged 30 years and above were surveyed as part of the sample. No women reported less

than 1 child since the survey required that those interviewed have given birth in the past year.

4.2 Profile of Marital Characteristics

Table 2 on the next page highlights the distribution and frequency of certain marital characteristics across each of the four respondent groups.

Close to half of the women and husbands belonged in a polygamous marriage - 55.12% of women and 49.14% of husbands, respectively. The discrepancy between the two proportions is a result of inconsistencies in the data that could not be resolved without making assumptions.

Of those women in polygamous relationships, approximately 83.5% had one co-wife while the remainder had two or more co-wives. Just over 75% of the women reported that they were the first wives compared to 47.39% of the co-wives who said that they were the first to marry the husband. As to whether their husband intended to marry again, 68.44% of women said that they did not know their husband's intentions, 21.25% presumed that, yes, their husbands would take another wife, and the remaining 10% said that they did not expect their husband would marry again.

As with age at the time of interview, a significant proportion of respondents could not recall their age at marriage. Among the women and co-wives who did report an age at marriage, close to 50% of women and 46.45% of co-wives married when they were 19 years old or younger. Conversely, 73.61% of husbands married when they were 20 years of age or older. This suggests a clear difference in age at marriage between men and

Table 2: Marital Characteristics of Respondents				
	Women (N= 488)	Husbands (N= 466)	Mothers-in-Law (N= 260)	Co-wives (N= 211)
	n (%)	n (%)	n (%)	n (%)
Age at Marriage				
19 years and under	241 (49.39%)	45 (9.66%)	37 (14.23%)	98 (46.45%)
20 years and older	51 (10.45%)	343 (73.61%)	24 (9.23%)	23 (10.90%)
Don't Know	196 (40.16%)	78 (16.74%)	199 (76.54%)	90 (42.65%)
Polygamous				
Yes	269 (55.12%)	229 (49.14)	115 (44.23%)	211 (100%)
Number of Co-Wives				
0	223 (45.70%)	239 (51.29%)	--	--
1	223 (45.70%)	192 (41.20%)	--	175 (82.94%)
2 or more	42 (8.61%)	35 (7.51%)	--	36 (17.06%)
Order in Marriage- First Wife				
Yes	369 (75.61%)	--	--	100 (47.39%)
Intention to take another wife				
Yes	1065 (21.52%)	--	--	--
No	49 (10.04%)	--	--	--
Don't Know	334 (68.44%)	--	--	--
Arranged Marriage				
Yes	440 (90.16%)	--	--	--
Related				
Yes	385 (78.89%)	--	--	--
Say in Marriage				
Yes	265 (54.30%)	--	--	--
My husband trusts me				
Mean Response	8.16 (2.37 SD)	--	--	--
My mother-in-law respects me (n=423)				
Mean Score	7.82 (2.24 SD)	--	--	--
My co-wives respects me (n=294)				
Mean Score	5.46 (2.82 SD)	--	--	--
Marital Status of MIL (Married or Widowed)				

women, which may be attributable to normative gender expectations and inequity. Over three-quarters of mothers-in-law surveyed could not remember their age at marriage.

In addition to details on polygamous marriages and respondents' ages at marriage, the survey also collected information on women's role in their marriage and their relationships with their husbands, mothers-in-law, and co-wives at present. Among the women sampled, 90.16% reported that their marriage was arranged by their parents, 78.89% were related to their husband prior to marriage, and 54.30% said that they exercised some say in their marriage choice.

In evaluating the degree of trust that they believed their husbands had for them on a scale of one to ten, the mean score was 8.16 (SD 2.37) with 72.54% of women signifying that they felt very trusted by their husbands (any score between an 8 and 10). When similarly prompted to assess the degree of respect that their mothers-in-law and co-wives had for them (assuming the woman had a mother-in-law or co-wife), women reported a mean score of 7.82 (SD 2.24) and 5.46 (SD 2.82), respectively. Sixty-seven percent of women believed that their mothers-in-law had a high degree of respect for them whereas 48.46% women believed that their co-wives accorded them a *medium* degree of respect (any score between an 4 and a 7).

Mothers-in-law were purposefully asked about their present marital status in their questionnaire. Approximately two-thirds were still married, and none were single, had never married, or were divorced/separated.

4.3 Index Variables for Attitudes Towards IPV, Traditional Birth Practices, Household Autonomy, and Gender Equity

Tables 3, 4, and 5 on the following pages show the loading scores, Cronbach reliability scores, and average, minimum, and maximum values for all index variables used in the analyses, including outcome measures and covariates of interest.

Generally, the index variables for attitudes towards IPV and traditional birth practices across all groups had Cronbach alpha scores lower than the 0.70 cut off, suggesting poor internal validity for these covariates. None of the index variables for traditional birth practices registered an alpha score greater than 0.40. Likewise, the highest Cronbach score for the attitudes towards IPV index variables was 0.5906 (for co-wives); the Cronbach scores for the other groups' index variables ranged between 0.4422 and 0.5589.

The validity of the indices used as outcome measures was better across all respondent groups. The household autonomy index variable ranged in value from -3.1 to 1.8, and the gender equity variable ranged from -3.6 to 1.7. Higher values for household autonomy and gender equity signify negative perceptions of women's household autonomy and gender equity, and lower values for both indices imply the inverse. A table of the mean response for each question included in the outcome variables stratified by the age of the respondent is included in **Appendix A**.

The pairwise correlation coefficient test did not detect any multicollinearity between the different index variables created.

Table 3: Index Variables and Cronbach Scores for Measures of Value of Women					
Domain	Prompt	Loading	Cronbach	Mean	Range
Women					
Household Autonomy	Q.2 - Women have the least say in household decisions	0.8014			
	Q.3 - Women cannot make household decisions alone	0.7856	0.7726	2.56E-10	-2.57 - 1.64
Gender Equity	Q.1 - The health of the husband is more important than the health of the wife	0.8054			
	Q.4 - It is more important to have sons than daughters	0.7707	0.4627	3.46E-10	-3.56 - 1.66
Husbands					
Household Autonomy	Q.2 - Women have the least say in household decisions	0.699			
	Q.3 - Women cannot make household decisions alone	0.6571	0.6138	1.42E-09	-2.78 - 1.71
Gender Equity	Q.1 - The health of the husband is more important than the health of the wife	0.7293		-1.61E-10	
	Q.4 - It is more important to have sons than daughters	0.6922	0.4481		-3.07 - 1.74
Mothers-in-Law					
Household Autonomy	Q.2 - Women have the least say in household decisions	0.7622			
	Q.3 - Women cannot make household decisions alone	0.8068	0.7215	1.38E-09	-2.72 - 1.83
Gender Equity	Q.1 - The health of the husband is more important than the health of the wife	0.7474			
	Q.4 - It is more important to have sons than daughters	0.7935	0.5345	1.47E-09	-3.08 - 1.66
Co-wives					
Household Autonomy	Q.2 - Women have the least say in household decisions	0.7551			
	Q.3 - Women cannot make household decisions alone	0.7094	0.5819	4.02E-10	-3.10 - 1.78
Gender Equity	Q.1 - The health of the husband is more important than the health of the wife	0.7129			
	Q.4 - It is more important to have sons than daughters	0.654	0.4126	6.80E-10	-3.16 - 1.69

Table 4: Index Variables and Cronbach Scores for Measure of Traditional Birthing Practices					
Domain	**Prompt**	**Loading**	**Cronbach**	**Mean**	**Range**
Women					
Medical Practices	Q.2 - A woman can use traditional herbs as a enema during pregnancy to relieve constipation	0.5828	0.3873	-2.00E-09	-2.32 - 2.36
	Q.3 - The baby should not be breastfed until all of the colostrum has been removed	0.5885			
	Q.5 - A pregnant woman should not bathe after sunset	0.6543			
Husbands					
Medical Practices	Q.2 - A woman can use traditional herbs as a enema during pregnancy to relieve constipation	0.4848	0.3988	-1.13E-09	-2.22 - 2.11
	Q.3 - The baby should not be breastfed until all of the colostrum has been removed	0.517			
Mothers-in-Law					
Medical Practices	Q.2 - A woman can use traditional herbs as a enema during pregnancy to relieve constipation	0.72	0.3699	-8.31E-10	-2.95 - 1.89
	Q.3 - The baby should not be breastfed until all of the colostrum has been removed	0.4682			
	Q.5 - A pregnant woman should not bathe after sunset	0.642			
Co-wives					
Medical Practices	Q.2 - A woman can use traditional herbs as a enema during pregnancy to relieve constipation	0.6776	0.336	-8.17E-11	-2.55 - 2.13
	Q.3 - The baby should not be breastfed until all of the colostrum has been removed	0.6293			

Table 5: Index Variables and Cronbach Scores for Attitude Towards IPV					
Domain	**Prompt**	**Loading**	**Cronbach**	**Mean**	**Range**
Women					
Physical Abuse	Q.2 - A man can hit his wife is she refuses to have sex with him	0.8105	0.5152	-1.02E-10	-2.38 - 2.45
	Q.3 - A man can hit his wife if she refuges to have sex with him during pregnancy	0.6217			
Husbands					
Physical Abuse	Q.2 - A man can hit his wife is she refuses to have sex with him	0.7556	0.5589	4.34E-10	-1.89 - 2.10
	Q.3 - A man can hit his wife if she refuges to have sex with him during pregnancy	0.7297			
Mothers-in-Law					
Physical Abuse	Q.2 - A man can hit his wife is she refuses to have sex with him	0.767	0.4422	-2.56E-09	-2.85 - 2.30
	Q.3 - A man can hit his wife if she refuges to have sex with him during pregnancy	0.2904			
Co-wives					
Physical Abuse	Q.2 - A man can hit his wife is she refuses to have sex with him	0.7852	0.5906	8.19E-10	-1.88 - 2.13
	Q.3 - A man can hit his wife if she refuges to have sex with him during pregnancy	0.6828			

4.4 Bivariate and Regression Analyses for Household Autonomy

Table 4 on the next page displays the results of the bivariate analyses for both outcome measures – household autonomy and gender equity - across all respondent groups.

A bivariate analysis of the principle covariates revealed that Peuhl ethnicity, income earned in the past month, age at marriage, relation to husband, say in marriage, high degree of respect by co-wives, and women's attitudes towards intimate partner violence were significantly correlated with household autonomy at the 95% confidence level among women sampled. Of these variables, endogenous marriage and attitude towards IPV demonstrated very significant bivariate relationships with household autonomy, registering p-values <0.0001.

Compared to women, the data from the husbands surveyed yielded scant significant correlations with household autonomy in the bivariate analysis. Specifically, only endogenous marriage and the husband's attitudes towards IPV were significant. Similarly, no variables were significant in the bivariate analysis against household autonomy for mothers-in-law, and only Peuhl ethnicity (p-value = 0.035) and co-wives' attitudes towards IPV (p-value <0.0001) were significantly correlated with household autonomy among co-wives.

A linear regression analysis of the covariates revealed several which were significantly associated with household autonomy among women. In particular, women who were related to their husbands prior to marriage, women who believed that their husbands greatly trusted them, women who believed that their co-wives greatly respected

Table 6: Bivariate Analysis of Background and Marital Characteristics For Household Autonomy and Gender Equity

	Women			Husbands			Mothers-in-Law			Co-wives	
	Household Autonomy	Gender Equity		Household Autonomy	Gender Equity		Household Autonomy	Gender Equity		Household Autonomy	Gender Equity
Variable	p-value	p-value		p-value	p-value		p-value	p-value		p-value	p-value
Age of Respondent											
20-24	0.249	0.832	30-39	0.988	0.856	>51	0.174	0.596	21-29	0.546	0.837
25-29	0.538	0.111	>40	0.777	0.690	DK	0.833	0.731	>30	0.998	0.456
30+	0.722	0.544	DK	0.025	0.242	--	--	--	DK	0.419	0.853
DK	0.155	0.226	--	--	--	--	--	--	--	0.563	--
Ethnicity											
Peuhl	0.039	0.121		0.851	0.737		0.397	0.366		0.035	0.404
Other	0.999	0.424		0.879	0.252		0.97	0.157		0.946	0.706
Level of Education											
	0.7431	0.1433		0.7444	0.649		0.245	0.383		0.825	0.256
Parity											
3-4	0.266	0.188		0.3	0.96		0.774	0.884		0.82	0.031
5 or more	0.505	0.729		0.281	0.303		0.545	0.635		0.378	0.45
Work Outside Home											
	0.5484	0.3623		0.2663	0.622		--	--		0.066	0.508
Income in last month											
	0.0214	0.6571		0.867	0.246		--	--		0.534	0.466
Age at Marriage											
20 years +	0.048	0.593		0.856	0.18		0.105	0.449		0.897	0.916
DK	0.017	0.132		0.379	0.01		0.122	0.737		0.483	0.279
Polygamous											
	0.0619	0.0089		0.1313	0.3947		0.091	0.441		--	--
Number of Co-wives											
1	0.076	0.036		0.32	0.193		0.895	0.575		--	--
2 or more	0.291	0.083		0.122	0.247		0.192	0.999		0.377	0.391
Order in Marriage - First Wife											
	0.3433	0.0595		0.483	0.7141		0.686	0.202		0.96	0.402
Intention to take another wife											
Yes	0.874	0.197		0.114	0.909		0.829	0.578		0.816	0.48
DK	0.091	0.118		0.13	0.725		0.13	0.251		0.073	0.862
Arranged Marriage											
	0.6071	0.5045		0.0652	0.9159		0.449	0.972		0.077	0.663
Related											
	<.0001	0.0014		0.0551	0.0752		0.075	0.574		0.463	0.979
Say in Marriage											
	0.0007	0.1608		0.8409	0.351		0.667	0.472		0.279	0.379
My husband trusts me											
Medium	0.677	0.305		--	--		--	--		--	--
High	0.028	0.022		--	--		--	--		--	--
My mother-in-law respects me											
Medium	0.243	0.175		--	--		--	--		--	--
High	0.422	0.824		--	--		--	--		--	--
Missing	0.575	0.615		--	--		--	--		--	--
My co-wives respects me											
Medium	0.13	0.119		--	--		--	--		--	--
High	0.009	0.638		--	--		--	--		--	--
Missing	0.225	<.0001		--	--		--	--		--	--
Marital Status of MIL (Married or Widowed)											
	--	--		--	--		0.534	0.752		--	--
Attitude Towards Traditional Birth Practices											
	0.1596	0.0001		0.563	0.002		0.85	0.83		0.397	0.761
Attitude Towards IPV											
	<.0001	0.0077		<.0001	0.0511		0.668	0.044		<.0001	0.022

them, and women who agreed with statements justifying IPV perceived themselves as having less household autonomy. So, for example, women's perceived household autonomy increased by 0.34 for those women in endogenous marriages compared to those who were not (p-value 0.002). Similarly, women who believed that their husbands trusted them ($\beta = 0.34$, p-value = 0.058) and that their co-wives respected them ($\beta = 0.43$, p-value = 0.008) were less likely to score their household autonomy highly. Finally, women who justified IPV were less likely to perceive themselves as having high household autonomy ($\beta = 0.05$, p-value <0.0001).

There were several variables in the women's model, which demonstrated a positive association with household autonomy such that women were more likely to perceive themselves as having a greater household autonomy. These include income earned in the past month and say in marriage. Specifically, for every additional 1 CFA earned in the past month, women's perceived household autonomy increased by 0.0000172 (p-value = 0.037). Likewise, women who had a say in their marriage reported higher perceived household autonomy than women who did not ($\beta = -0.33$, p-value <0.0001).

Fewer variables were significant in the husband's model for household autonomy. When men and women were in an arranged marriage, their husbands tended to accord them less household autonomy; this finding approached significance at the 95% confidence level ($\beta = 0.31$, p-value = 0.051). As in the women's model, husbands who conditionally approved of IPV were also less likely to perceived their wives as having high household autonomy ($\beta = 0.21$, p-value <0.0001).

While mothers-in-law are considered central figures in family networks, their regression analysis for household autonomy produced interesting, albeit limited results. Notably, mothers-in-law who were in a polygamous marriage were less likely to assign their daughters-in-law high household autonomy ($\beta = 0.67$, p-value = 0.005). Also, like their daughters-in-law, mother-in-law attributed lower autonomy to women who were related to their husbands prior to marriage ($\beta = 0.31$, p-value = 0.048). Finally, women who had 1 co-wife as opposed to no co-wives were perceived as having greater household autonomy according to mothers-in-law surveyed ($\beta = -0.44$, p-value = 0.047). This relationship was also observed for women with 2 or more wives in the mothers-in-law's model; however this association was not significant ($\beta = -0.16$, p-value = 0.626). Oddly enough, mothers-in-law were the only respondent group for whom attitude towards IPV was not significantly associated with women's perceived household autonomy ($\beta = 0.13$, p-value = 0.551).

Among co-wives, arranged marriage and attitude towards IPV were the only two variables significantly associated with women's household autonomy. Like those husbands surveyed, co-wives did not perceive arranged marriage favorably in terms of women's household autonomy. Co-wives were less likely to ascribe autonomy to women when they were in an arranged marriage ($\beta = 0.47$, p-value = 0.053). Co-wives who agreed with statements justifying IPV were also less likely to perceive women's household autonomy highly ($\beta = 0.29$, p-value <0.0001).

Results of the regression analyses for each respondent group with regard to household autonomy are shown in **Table 7** on the next page.

Table 7: Results of Regression Analyses for Household Autonomy											
	Women			Husbands			Mothers-in-Law			Co-wives	
	β	p-value		β	p-value		β	p-value		β	p-value
Age of Respondent											
20-24	-0.28	0.120	30-39	-0.09	0.545	>51	0.4	0.119	21-29	-0.17	0.481
25-29	-0.16	0.405	>40	-0.11	0.509	DK	0.22	0.392	>30	-0.04	0.895
30+	0.08	0.694	DK	-0.50	0.019	--	--	--	DK	-0.24	0.334
DK	-0.16	0.411	--	--	--	--	--	--	--	--	--
Ethnicity											
Peuhl	0.21	0.118		0.09	0.498		0.21	0.361		0.48	0.092
Other	-0.08	0.617		-0.0046	0.981		0.12	0.583		-0.05	0.847
Level of Education											
	0.02	0.871		-0.02	0.891		0.68	0.505		-0.07	0.777
Parity											
3-4	0.1	0.397		-0.15	0.232		0.06	0.725		-0.16	0.395
5 or more	0.03	0.787		-0.06	0.611		0.11	0.5		0.2	0.269
Work Outside Home											
	0.15	0.188		0.12	0.234		--	--		0.29	0.079
Income in last month											
	-1.72E-05	0.037		0	0.945		--	--		<.0001	0.72
Age at Marriage											
20 years +	-0.19	0.213		0.14	0.372		0.4	0.126		0.08	0.742
DK	-0.11	0.405		0.13	0.524		-0.3	0.12		0.06	0.746
Polygamous											
	0.09	0.854		0.32	0.311		0.67	0.005		--	--
Number of Co-wives											
1	-0.18	0.706		-0.19	0.544		-0.44	0.047		--	--
2 or more	-0.15	0.767		0.03	0.935		-0.15	0.626		-0.06	0.746
Order in Marriage - First Wife											
Yes	0.01	0.966		-0.05	0.701		0.01	0.945		0.02	0.914
Intention to take another wife											
Yes	-0.17	0.309		0.24	0.169		-0.0018	0.994		-0.11	0.64
DK	-0.24	0.098		-0.23	0.128		-0.32	0.146		-0.37	0.066
Arranged Marriage											
	-0.24	0.121		0.31	0.051		0.13	0.551		0.47	0.053
Related											
	0.34	0.002		0.14	0.213		0.31	0.048		-0.05	0.753
Say in Marriage											
	-0.33	<.0001		0.07	0.425		-0.01	0.918		-0.14	0.325
My husband trusts me											
Medium	0.16	0.434		--	--		--	--		--	--
High	0.34	0.058		--	--		--	--		--	--
My mother-in-law respects me											
Medium	-0.15	0.521		--	--		--	--		--	--
High	0.1	0.632		--	--		--	--		--	--
Missing	0.02	0.935		--	--		--	--		--	--
My co-wives respects me											
Medium	-0.09	0.534		--	--		--	--		--	--
High	0.43	0.008		--	--		--	--		--	--
Missing	0.02	0.414		--	--		--	--		--	--
Marital Status of MIL (Married or Widowed)											
	--	--		--	--		-0.003	0.984		--	--
Attitude Towards Traditional Birth Practices											
	0.02	0.588		0.01	0.796		0.02	0.745		-0.06	0.373
Attitude Towards IPV											
	0.05	<.0001		0.21	<.0001		0.06	0.394		0.29	<.0001

4. 5 Bivariate and Regression Analyses for Gender Equity

A bivariate analysis of the principle covariates correlation with gender equity yielded more significant associations in the women dataset than any other respondent group. Among the significant findings were whether the marriage was polygamous, number of co-wives, relation to husband, perceived trust by husband, and women's attitudes towards IPV and traditional birth practices. Of these variables, relation to husband and attitude towards IPV and birth practices, respectively, were very significantly correlated with p-values < 0.01.

Attitude towards IPV was significant in the bivariate analyses with gender equity across all four respondent groups. Among husbands, attitudes towards traditional birth practices and not knowing age at marriage were also significantly associated (p-value = 0.002 and 0.01, respectively). Other than attitudes towards IPV, the only other variable that was significantly associated with gender equity in the bivariate analyses was having 3-4 children in the co-wives' analysis.

Table 8 on the following page shares the results of the linear regression analyses for gender equity for each respondent group. Among the significant variables in the women's analysis were ethnicity, number of co-wives, relation to husband, respect and trust between family members, and attitudes towards IPV and traditional birth practices.

Women who believed that their husbands trusted them (both moderately and highly) ($\beta = 0.45$, p-value = 0.021), women who approved of traditional birth practices ($\beta = 0.17$, p-value < 0.0001), and women who justified IPV ($\beta = 0.13$, p-value = 0.005) were more likely to elevate men's inherent value over women, thus reifying gender inequity.

Table 8: Results of Regression Analyses for Gender Equity											
	Women			Husbands			Mothers-in-Law			Co-wives	
	β	p-value		β	p-value		β	p-value		β	p-value
Age of Respondent											
20-24	-0.13	0.481	30-39	-0.19	0.218	>51	0.09	0.729	21-29	0.02	0.921
25-29	-0.26	0.183	>40	-0.26	0.128	DK	-0.06	0.820	>30	-0.14	0.624
30+	-0.22	0.288	DK	-0.23	0.300	--	--	--	DK	0.16	0.537
DK	-0.16	0.439	--	--	--	--	--	--	--	--	--
Ethnicity											
Peuhl	-0.14	0.322		-0.03	0.834		0.12	0.609		0.12	0.686
Other	-0.37	0.03		-0.35	0.075		-0.37	0.117		-0.21	0.47
Level of Education											
	0.15	0.291		0.14	0.312		-0.88	0.413		0.37	0.179
Parity											
3-4	-0.1	0.4		0.05	0.676		0.05	0.773		-0.33	0.097
5 or more	-0.01	0.949		0.28	0.034		0.04	0.81		-0.02	0.899
Work Outside Home											
	0.17	0.142		-0.12	0.231		--	--		-0.02	0.893
Income in last month											
	-0.000014	0.097		0	0.134		--	--		<.0001	0.532
Age at Marriage											
20 years +	0.11	0.482		-0.2	0.209		-0.16	0.565		0.1	0.687
DK	-0.13	0.334		-0.42	0.041		0.08	0.686		-0.27	0.153
Polygamous											
	0.81	0.098		0.09	0.77		-0.12	0.615		--	--
Number of Co-wives											
1	-1.04	0.034		0.01	0.978		0.17	0.461		--	--
2 or more	-1.03	0.046		-0.35	0.345		0.21	0.531		-0.08	0.678
Order in Marriage - First Wife											
	-0.03	0.833		-0.08	0.556		0.24	0.218		0.19	0.237
Intention to take another wife											
Yes	-0.14	0.408		0.01	0.972		0.15	0.552		-0.32	0.215
DK	-0.18	0.225		0.1	0.53		0.28	0.232		-0.1	0.631
Arranged Marriage											
	0.13	0.419		-0.05	0.753		-0.04	0.871		0.04	0.883
Related											
	-0.48	<.0001		0.23	0.052		0.03	0.85		-0.02	0.933
Say in Marriage											
	0.09	0.345		0.08	0.424		0.06	0.687		0.07	0.626
My husband trusts me											
Medium	0.41	0.049		--	--		--	--		--	--
High	0.45	0.021		--	--		--	--		--	--
My mother-in-law respects me											
Medium	-0.26	0.265		--	--		--	--		--	--
High	-0.02	0.933		--	--		--	--		--	--
Missing	-0.11	0.649		--	--		--	--		--	--
My co-wives respects me											
Medium	-0.29	0.046		--	--		--	--		--	--
High	-0.22	0.193		--	--		--	--		--	--
Missing	-0.71	<.0001		--	--		--	--		--	--
Marital Status of MIL (Married or Widowed)											
	--	--		--	--		0.08	0.586		--	--
Attitude Towards Traditional Birth Practices											
	0.17	<.0001		0.15	0.002		0.04	0.563		0.02	0.757
Attitude Towards IPV											
	0.13	0.005		0.11	0.022		0.13	0.064		0.14	0.059

So, for example, women who conditionally approved of IPV were more likely to believe men were inherently superior to women.

Conversely, several variables were negatively associated with the outcome measure, so that women were more likely to embrace gender equity with their presence. Specifically, women who were members of an ethnic minority in the region ($\beta = -0.37$, p-value = 0.03), women who had at least one co-wife (or 2 plus) ($\beta = -1.04$, p-value = 0.034), women who were related to their husbands prior to marriage ($\beta = -0.48$, p-value < 0.0001), and women who believed that their co-wives moderately respected them were more likely to rank male value lower and embrace gender equity ($\beta = -0.29$, p-value = 0.046). Being related to one's husband was also significant in the women's model for household autonomy, though it portended a negative effect for that outcome index in contrast its positive effect on women's perceptions of gender equity.

The husbands' model gauged men's perceptions of gender equity and male superiority in relation to the covariates. Within the model, having 5 children or more ($\beta = 0.28$, p-value = 0.034), not knowing their age at marriage ($\beta = -0.42$, p-value = 0.041), endogenous marriage ($\beta = 0.23$, p-value = 0.052), and the husband's attitudes towards traditional birth practices ($\beta = 0.15$, p-value = 0.002) and IPV ($\beta = 0.11$, p-value = 0.022) proved to be significantly associated with or approach significance for gender equity. With the exception of not knowing their age at marriage, all significant variables were correlated so that husbands were less likely to attribute equal value to women.

Specifically, men were less likely to embrace gender equity when women had given birth to five or more children. Also, in keeping with the results of the household autonomy regression analyses, husbands who justified IPV were more likely to value

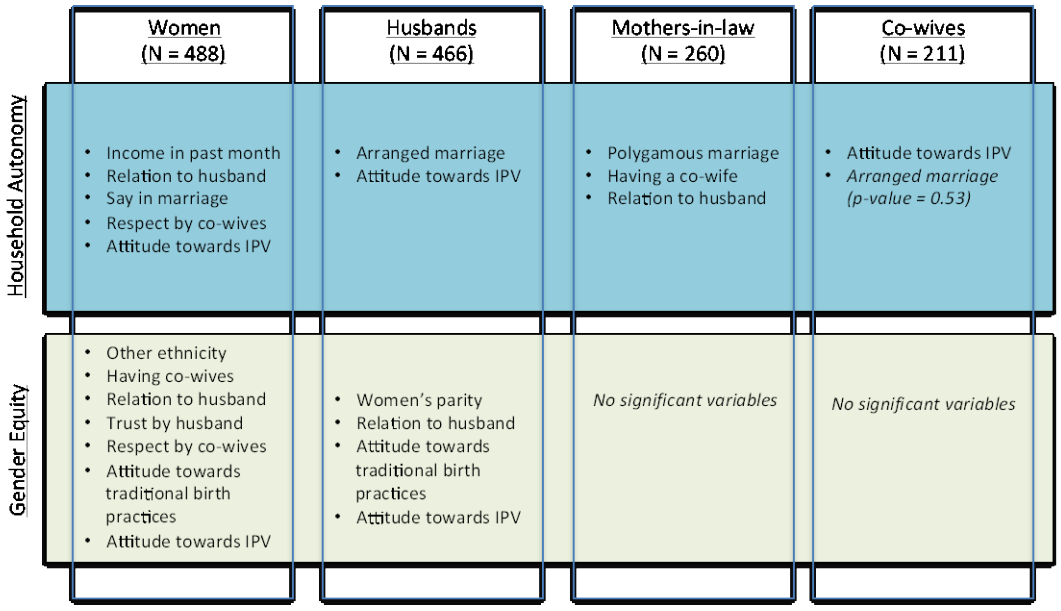
men over women. Finally, it is important to note that endogenous marriage was not strictly significant at the 95% confidence level, but approached significance.

There were no significant variables in either analysis for mothers-in-law or co-wives, though attitude towards IPV was close to significant in the models for both groups.

4.6 Summary

Figure 4 below presents a visual summary of those variables, which were significantly associated with either household autonomy or gender equity in the linear regression analyses for the four respondent groups.

Figure 4: Significant Variables in Regression Models for Household Autonomy and Male Value



Chapter 5: Discussion

Endogenous marriage, arranged marriage, and women's say in their decision to marry are significant determinants of the perceived value of women. Respect among co-wives and trust between wives and their husbands also influence women's perceived autonomy and gender equity. These findings both confirm and raise additional questions about associations with women's autonomy established in previous studies. This thesis also found that income functionally increases women's household autonomy; that those who justify IPV are less likely to embrace gender equity; and that women with greater parity are limited in their ability to seek greater autonomy.

Beyond these findings, few consistent results emerged from the women, husbands, mothers-in-law, and co-wives surveyed. However, this research addresses a significant gap in existing literature by examining each of these sub-groups and their respective understandings of women's value.

In this thesis, the value of women was measured using two indices – one for household autonomy and another for gender equity. We define women's household autonomy as the ability to independently make decisions on matters pertinent to the woman and gender equity as equality of and between all individuals.

5.1 The Influence of Women's Choice and Arranged Marriage on Women's Perceived Autonomy

As anticipated, women who had a say in their marriage reported higher perceived autonomy than women who did not ($\beta = -0.33$, p-value < 0.0001). This finding is somewhat intuitive in that if women participate in the decision-making process at a time

when, according to Das Gupta, they arguably have little authority, then it stands to reason that they will continue to exercise this agency in their marriage (Das Gupta 1995). These results seem to confirm this hypothesis, suggesting that what happens at the time of marriage may set the tone for how women are perceived throughout the remainder of their marriage. These results also confirm those of Kritz and Makinwa-Adebusoye who found that women in Nigeria who helped choose their husband also registered higher levels of autonomy (Kritz and Makinwa-Adebusoye 1999).

Absent this choice, both husbands ($\beta = 0.31$, p-value = 0.051) and co-wives ($\beta = 0.47$, p-value = 0.053) ascribed less autonomy to women who had arranged marriages than women who did not. While both of these associations approached significance, they still substantiate the above rationale that women who do not exercise a say in their marriage may be less likely to demonstrate autonomy moving forward in the relationship. Furthermore, as Boye et al.'s ethnographic study of marriage in the Sahel explained, arranged marriages often reify traditional roles within the family like that of the father and may thus limit women's ability or inclination to contribute to decisions in her own marriage (Boye, Hill et al. 1991).

5.2 The Influence of Endogenous Marriage on Perceptions of Autonomy and Value

Women who were biologically related to their husbands prior to marriage were more likely to poorly esteem their own autonomy ($\beta = 0.34$, p-value = 0.002), but embrace gender equity ($\beta = -0.48$, p-value <0.0001), though not necessarily in tandem with each other. The negative association between endogenous marriage and women's autonomy confirms the critical influence of family on women's autonomy. Bloom et

al.'s research in India established that frequent contact with natal kin actually increases women's functional autonomy (Bloom, Wypij et al. 2001). However, our results to the contrary indicate that instead of feeling empowered by frequent contact with natal kin, women who are biologically related to their husband may feel less able to move beyond circumscribed roles in the family, thus inhibiting their autonomy.

Results from the mother-in-law's analyses further confirm this relationship. Mothers-in-law attributed lower autonomy to women who were related to their husbands prior to the marriage compared to women who were not ($\beta = 0.31$, p-value = 0.048). We assume that the explanation for this association is the same as it is for women's - namely that women may be handicapped in their pursuit of other roles and greater autonomy when they marry within the family.

Literature specific to endogenous marriage and its influence on gender equity is comparatively sparse, making it difficult to interpret women's support for greater gender equity in consanguineous marriages. One might theorize though that women who marry within their family subsequently perceive their husbands with a degree of familiarity and assume known roles in the relationship, which might functionally nullify any value women would otherwise ascribe to men. Interestingly, the opposite association was observed among husbands. When men were related to their wives prior to marriage, they were more likely to reify gender inequity by valuing men over women ($\beta = 0.23$, p-value = 0.052). This association approached significance at the 95% confidence level, and, as with women and equity, no readily apparent explanation exist for this association other than that men's familiarity with their wives might make them less observant of women's contributions and equal value.

5.3 The Influence of Attitudes Towards IPV On Perceptions of Autonomy and Value

Several studies have demonstrated a strong link between women's autonomy and the experience of IPV, and the results of this thesis' analysis confirm these previous findings (Leach 2003; Lawoko, Dalal et al. 2007; Antai 2011). Notably, women who agreed with statements justifying IPV were more likely to report lower perceived household autonomy ($\beta = 0.05$, p-value <0.0001) and gender equity ($\beta = 0.13$, p-value = 0.005). The same relationship was observed in both the husbands' and co-wives' responses. Husbands who conditionally approved of IPV were less likely to rank women's autonomy highly ($\beta = 0.21$, p-value <0.0001) and to perceive men and women equitably ($\beta = 0.11$, p-value = 0.022). Co-wives who deemed IPV permissible correspondingly ascribed women less household autonomy ($\beta = 0.29$, p-value <0.0001).

These findings align with previous research, which found significant associations between autonomy and either the experience or acceptance of sexual violence (Antai 2011). This relationship may be explained in several ways. First, women who justify IPV and see themselves as having lower autonomy and gender equity may be adhering to established gender norms in the community in so doing. As Leach observed in her study of South African youth, young women are often socialized to tolerate and accept violence and, subsequently, may not advocate for themselves (Leach 2003). Conversely, this association may indicate a different normative pathway in that those respondents who justified IPV may be living in households in which IPV is experienced or considered a threat. This, in turn, might constrict the functional autonomy and equity as women.

As Koenig et al. discuss in their research on domestic violence in India, husbands' predisposition to condone IPV is influenced by several factors – among them, level of

education, socioeconomic status, and childlessness. In addition to these factors, they also suggest that husbands may feel a sense of entitlement and ownership over their wives, which would then bias them against women's equity and autonomy (Koenig January 2006). This theory would explain the relationship between increased acceptance of IPV and decreased gender equity among husbands surveyed.

5.4 The Role of Income in Positively Shaping Women's Perceived Autonomy

Women's income was also found to be significantly associated with autonomy, so that as women's monthly earnings increased so too did perceptions of their own autonomy and decision-making power in the household (β = -0.0000172 p-value = 0.037). Previous studies have similarly found that employment outside the home increases women's autonomy in relation to certain liberties they enjoy and greater freedom of movement (Moursund and Kravdal 2003; Becker, Fonseca-Becker et al. 2006). These studies have been primarily concentrated in India, though other studies conducted in Mexico found similar results. The latter studies reasoned that employment functions to increase autonomy in a number of ways, but most notably by providing women with a source of income independent their spouse, exposing them to new ideas that may affirm or contradict their understanding of their role in society, and providing them with a potential sense of purpose and thus psychosocial benefit (Caldwell 1979; Garcia and de Oliveira 1994).

Interestingly, it was not employment outside the home, which significantly increased women's perceived household autonomy, but the actual income earned by the women. This distinction is important because it confirms Moursund and Kravdal's

argument that whatever the consequence of women's employment, it is less likely to have an effect if women's income is small (Moursund and Kravdal 2003). Income may function to increase women's perceptions of their own autonomy by not only equipping them with some modicum of bargaining power, but also, as Casique notes, justifying their ability to use their economic contributions as leverage with others. She writes that, "For many of them, particularly in the case of urban and better educated women, their work has meant a widening in the number of issues on which they express their opinion. Their [women's] economic contribution to the household makes more evident for themselves and for their husbands that they should have a say in how money is spent" (Casique 2000). Casique's study raises another interesting question of whether income in this situation is really a proxy for economic status and thus a potential confounding factor in this thesis' analysis.

It is important to note that this thesis used each subgroup's respective income in modeling perceptions of women's autonomy and gender equity. Consequently, we cannot extrapolate from the results of the husbands, mothers-in-law, and co-wives regression analyses to determine whether women's income level similarly influences other family member's perceptions of her value; we can only state that each group's own income level was not significantly associated with the outcome measures. However, other studies have examined the influence of women's increased financial autonomy on other household members.

Specifically, several studies have shown that increased financial autonomy may also contribute to an increased risk of IPV between women and their partners. These studies argue that economic empowerment may challenge gender norms and upset power

balances between women and their partners, prodding husbands to use violence as a means of controlling their wives. These studies are couched in the Social Exchange Theory, though they have been critiqued by gender resource theorists (Goode 1971). A systematic review of published studies that examined the risks of IPV posed by economic empowerment in low and middle-income countries produced mixed results. Vyas et al. found five studies in which increased financial autonomy demonstrated a protective effect and six studies, which showed the opposite association, that economic empowerment placed women at greater risk for IPV. Eventually, they concluded that context specific factors govern whether women's increased earning status is protective or associated with increased risk (Vyas and Watts 2009).

5.5 Respect Among Co-Wives As An Impetus for Increased Gender Equity and Intra-Household Cooperation

Differences in women's perception of their own autonomy and gender equity also varied with the degree of respect which women thought that their co-wives accorded them. Specifically, when women believed that their co-wives respected them, they were more likely to negatively perceive their own autonomy ($\beta = 0.43$, p-value = 0.008), but less likely to value men over women ($\beta = -0.29$, p-value = 0.046).

As previous studies of intra-household relationships in Africa have noted, "women in polygnous households often form cooperative rather than competitive relationships with each other and exchange labor in order to distribute child rearing and productive work more efficiently" (Oppong and Abu 1987; Callaway and Creevy 1994). If this characterization is true of relationships in Mali as well, then women who are respected by their co-wives do not necessarily *need* greater autonomy because decision-

making is shared amongst them. In other words, co-wives often share responsibilities and knowledge, and this interdependence may function to increase the respect between them while decreasing their individual autonomy.

This cooperation and interdependence may also explain why women perceive themselves as having greater equity with men when they believe their co-wives respect them. Their intimate understanding of their shared labors as females may lead them to evaluate men's and women's contributions and value more equitably. The association between having co-wives and increasing perceptions of gender equity was further confirmed among those women with both 1 co-wife (β = -1.04, p-value = 0.034) and 2 or more co-wives (β = -1.03, p-value = 0.046) compared to women with no co-wives.

5.6 Perceived Trust by Husband As A Limiting Factor for Autonomy and Equity

Unlike women's relationship with their co-wives, perceived trust between women and their husbands did not correspond to increased gender equity. Women who believed their husbands had either medium (β = 0.41, p-value = 0.049) or high (β = 0.45, p-value = 0.021) degrees of trust in them were more likely to value men over women. Though not significant, women who believed that their husbands trusted them also perceived themselves as having less household autonomy (β = 0.34, p-value = 0.058).

In her study of the influence of relationship quality in India, Allendorf establishes that "family-relationship quality is also a source of women's agency. Women who have higher-quality family relationships also exercise greater choice than other women in household spending and in their own mobility" (Allendorf 2009). Since trust did not equate with either higher autonomy or equity in our analysis, these findings would appear

to contradict Allendorf's conclusions, assuming trust is an important aspect of high-quality relationships. One could also adopt much more charitable interpretations of this relationship that women who believe their husband's trust them are, in turn, more likely to value their husbands for this confidence or believe that their shared responsibilities bind them together. However, both of these interpretations ignore the explicit wording in the statements, which compose this index that value men much higher than women.

5.7 The Influence of Parity and Traditional Birth Practices on Perceptions of Equity

Women's parity and support for traditional birth practices were also significant indicators of husbands' support for gender equity. Specifically, husbands were less likely to embrace gender equity when women had given birth to 5 children or more ($\beta = 0.28$, p-value = 0.034). Previous studies, such as Al Riyami et al.'s examination of autonomy and contraceptive use in Oman, have found that women with greater autonomy were better able to control their fertility and subsequently had fewer children (Al Riyami, Afifi et al. 2004). Using this same rationale, women in Mali with many children may have lower functional autonomy, and the underlying gender norms and gender inequity in the country both contribute to this lower autonomy and reify the perception of women as less important among men.

Husbands who approved of certain traditional birth practices in pregnancy and delivery were also less likely to support gender equity ($\beta = 0.15$, p-value = 0.002). These findings were replicated in the women's model as well ($\beta = 0.17$, p-value <0.0001). Together, these results suggest that households, which do not value gender equity, do

value traditional birth practices, so that gender inequity might be judged "traditional" by association.

5.8 Recommendations

5.8.1 Further Research

The Projet Espoir Baseline Survey is unique for its inclusion of individuals who influence women's health and well-being, including husbands, mothers-in-law, and co-wives. In analyzing the opinions of these figures, this thesis was able to create a more robust picture of the pathways and associations by which marriage affects women's autonomy and gender equity. Future research should continue to explore these connections, not only as a means of triangulating data, but also to probe for more information and depth.

Specifically, qualitative research methods might be used to explore how women support each other in polygamous households, the influence of these other women on the health of the individual, and what possibilities exist for capitalizing on these existing networks among women for programmatic purposes. In answering this research question, participatory learning activities might be used to encourage inter- and intra-household discussion about autonomy and equity. In the same vein, little research has explored if and how husbands' perceptions of women change over the course of their marriage and how this may subsequently affect relationship quality and the health of women. These questions would also be best addressed through qualitative research.

As this thesis and previous literature have confirmed, women who have a say in their marriage perceive themselves as having greater autonomy. Though increased

empowerment is the goal of many a program, the specific means by which women gain greater autonomy – in this case, participating in marriage decisions - remain obscured. Qualitative research might be used to address this question of why some women participate in their marriage decisions and other women do not.

Finally, associations with women's value and power have been established, but explanatory research is needed to mete out how factors like parity, arranged marriage, endogenous marriage, and income, among other variables, function to influence women's autonomy and perceived gender equity. These questions might be addressed through both more qualitative research and a larger, more representative survey, like the DHS. The last DHS survey conducted in Mali in 2006 included some questions about decision-making and gender attitudes, but these sections might be expanded to include questions on marriage formation and those questions which compose the two outcome indices. Furthermore, additional information on women's financial autonomy, like income and type of employment, might be collected to tease out the positive and negative repercussions of women's work, if any.

5.8.2 For Development Partners in Mali

Beyond incorporating these findings so that CARE Mali can better partner with individuals, organizations, and the government to create successful, sustainable initiatives, this thesis also recommends that CARE Mali continue to focus on gender empowerment as a strategic objective. Increasing gender equity is acknowledged as key way to improve the health and well-being of communities.

1. Within this objective, our results indicate that enabling women to access independent sources of income and manage these funds may be one of the best ways to increase her functional autonomy. This is also supported by other case studies, which show that women's access to additional funds and employment increases domestic decision-making power and control over resources (Acharya, Bell et al. 2010). CARE's savings-led approach, called Village Savings and Loan Associations (VSLA), offers a familiar and proven approach for accomplishing this objective.

   The VSLA framework builds on existing models like savings and loans associations (SLA), rotating savings and credit associations (ROSCA), and accumulating savings and credit associations (ASCA), taking the best practices from each to create a sustainable and flexible institution that reaches more needy segments of the population. Its basic structure organizes groups of people, often women, who regularly contribute to a pool of funds and are permitted to request loans from the group to be repaid with interest. All members receive intensive training in money management as part of their participation in the group.

   CARE reports that, "When VSLA members have stabilized their household cash flow and are meeting basic needs, they are then prepared to take small loans from the VSLA to finance small business or income generating activities (IGA)… Quarterly analysis of VSLA programs shows that loan repayment rates exceed 99 percent." Evaluations of CARE's previous VSLA programs in Zanzibar and Mali

further demonstrate the durability of the institutions once initiated and the high degree of participation by women and rural populations (Allen 2002; Anyango, Esipisu et al. 2007). CARE has twenty years of experience working with the VSLA approach and has even implemented VSLAs previously in Mali with great success. This precedent justifies the potential expansion of VSLAs into the Bankasse and Bandiagara districts.

2. Beyond encouraging greater financial autonomy, the study results also indicate the need to consider the important figures in women's lives when designing messaging and the need to capitalize on these relationships, especially between women, to increase dialogue on issues of interest.

   Programs like The Grandmother Project (GMP) in Senegal have received positive feedback for its inclusion of grandmothers in dialogues to end female genital cutting in the country. This program was developed on the premise that it is important to involve elders given their valuable culturally designated roles in communities and their potential role as barriers to change (Aubel 2010). As geographically close as Senegal and Mali are and given the results of this thesis substantiating elderly women's importance, CARE Mali and other partners in country should consider intentionally involving mothers-in-law in program planning and messaging considerations moving forward.

More generally, the results also indicate the positive influence of co-wives in women's lives. While being respected by co-wives was associated with decreased autonomy, women who had co-wives also embraced greater gender equity. These unique relationships present programs with the opportunity to advocate for increased dialogue on issues of interests in intimate, potentially more influential settings.

It is difficult to advocate for any particular programming for husbands from the results of this analysis alone, but previous research in tandem with this thesis reinforce the need for male involvement in gender programming. Specifically, there is a continuing need to sensitize men on the subject of gender equity, so that they can work at the grassroots level to cultivate support for women and against harmful practices like IPV.

3. Finally, the study results also suggest the need to address community attitudes surrounding acceptability of IPV. Non-governmental organizations (NGO), human rights organizations, community-based organizations (CBO), religious leaders, and civil society, among others, might be engaged to encourage gender education and consciousness-raising in communities, which would help decrease the acceptability of IPV. Advocacy for increased girls education and improved legal advocacy and law enforcement for women who have experienced IPV present two additional means of decreasing the likelihood that women experience IPV and supporting them once they have. Regardless of the means, it is assured

that programming on IPV must be tailored to the community. By decreasing the acceptability IPV, programs may tangentially increase women's autonomy and value in society.

5.8.3 For Government Stakeholders

Government support is critical if women's empowerment is to be embraced in thought and action by Malians. Strategies like promoting women's increased participation in social institutions and financial activities demand little to no revenue, merely regular, enthusiastic support by officials. Also, while providing adequate law enforcement to enforce local marriage laws may require some additional investment by the government, such actions will help enforce the minimum age of marriage law and will demonstrate the government's serious support for women's rights.

The government should also allocate a greater portion of its budget for girl's education and should partner with the MOH to further integrate health education and gender and women's rights education into the national curriculum. Though this strategy demands increased spending, improving girl's education remains one of the most powerful and enduring means of empowering women. It contributes to a woman's network, bargaining power, and ability to navigate her social position in life.

In each of the aforementioned strategies, the government should be mindful of its assets – namely, its relationships with reputed international and local development organizations and foreign governments. Difficult though it may be to empower women, the government should continue to collaborate closely with partner organizations and

governments to build a culture of support for women and thus improve the health and economic prospects of all Malians.

5.9 Limitations

The internal and external validity of this thesis' analysis are principally limited by the small sample size of each subgroup. This small sample size may have affected the significance of certain variables like age at marriage and marriage order in the regression analyses. Given the wealth of literature on the subject of early marriage's negative influence on women's autonomy (Jensen and Thornton 2003; Santhya, Ram et al. 2010), this thesis expected that lower age at marriage would be significantly associated with poorer autonomy and gender equity; however, this association was not established in any of the models. Furthermore, small sample size likely affected the Cronbach internal reliability scores for the IPV and traditional birth practices indices as well as for the two outcome measures. As a result, several of the index variables did not meet the 0.70 cutoff score for each subgroup.

There were also several variables, which were either not collected or analyzed, but retrospectively should have been. These include the age gap between wives and husbands, type of work, women's degree of mobility, and certain aggregate village level characteristics, within which one might situate significant associations and norms.

Finally, the Projet Espoir survey attempted to control for random measurement error by interviewing respondents separately to reduce social pressure, by piloting the survey to make questions more culturally appropriate, and by standardizing data collection, entry, and analyses; however, there may be some residual measurement error.

Chapter 6: Conclusion

This thesis reinforces the connection between marriage and its influence on the perceived value of women. Differential analyses of women's household autonomy and gender equity by women, their husbands, mothers-in-law, and co-wives corroborated previous findings and introduced exciting new information into the discourse about endogenous and arranged marriages, women's say in marriage, and how women relate to each other within households. As an event, social institution, and journey, marriage presents a unique opportunity for academics and public health professionals alike to improve the value attributed to women and thus their health and well-being.

Appendix A

Table 9: Mean Response To Value Questions Stratefied by Respondent Group and Age									
Age	n (%)	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Value 8
Women									
Overall Mean	n = 488	8.01	6.97	6.92	6.62	6.9	5.51	6.02	7.16
<19	50 (10.25%)	8.4	7.3	7	6.88	6.84	5.56	5.94	7.96
20-24	83 (17.01%)	7.92	6.88	6.71	7.22	6.73	5.52	6.17	6.69
25-29	77 (15.78%)	7.84	7.08	7.03	6.16	6.77	5.12	5.97	7.27
30+	91 (18.65%)	8.09	7.49	7.14	6.6	7.22	6.52	5.98	7.41
DK	187 (38.32%)	7.97	6.62	6.85	6.48	6.88	5.16	6.02	7
Husbands									
Overall Mean	n = 466	7.93	7.07	7.11	6.8	6.88	5.94	5.74	7.26
<29	70 (15.02%)	7.81	7.01	7.53	7.27	6.83	5.24	6.14	7.31
30-39	179 (38.41%)	8.03	7.17	7.16	6.54	7.24	5.97	5.78	7.58
>40	170 (36.48%)	7.78	7.26	7.01	7.08	6.76	6.38	5.55	7.1
DK	47 (10.09%)	8.26	6.04	6.64	6.13	5.96	5.26	5.68	6.57
Co-wives									
Overall Mean	n = 211	7.69	7.15	7.22	6.84	6.86	5.88	5.98	7.44
<20	31 (14.69%)	7.9	7.23	6.9	6.84	7.19	6.58	5.45	8.58
21-29	47 (22.27%)	7.77	6.85	7.45	6.51	7.32	5.45	5.51	7.74
>30	42 (19.91%)	7.24	7.81	7.38	6.71	6.62	5.5	6.9	6.93
DK	91 (43.13%)	7.79	6.97	7.13	7.07	6.62	6.04	5.97	7.12
Mothers-in-Law									
Overall Mean	n = 260	7.58	6.9	6.69	6.88	7.05	5.93	5.98	7.61
<50	20 (7.69%)	7.35	6.2	6.95	7	6.35	5	6.65	7.5
>51	75 (28.85%)	7.57	7.48	7.12	6.8	7.6	6.43	5.93	7.83
DK	165 (63.46%)	7.62	6.72	6.47	6.9	6.88	5.82	5.93	7.52

References

Acharya, D. R., J. S. Bell, et al. (2010). "Women's autonomy in householddecision-making: a demographic study in Nepal." Reproductive Health **7**: 15-26.

Background: How socio-demographic factors influence women's autonomy in decision making on health care including purchasing goods and visiting family and relatives are very poorly studied in Nepal. This study aims to explore the links between women's household position and their autonomy in decision making. Methods: We used Nepal Demographic Health Survey (NDHS) 2006, which provided data on ever married women aged 15-49 years (n = 8257). The data consists of women's four types of household decision making; own health care, making major household purchases, making purchase for daily household needs and visits to her family or relatives. A number of socio-demographic variables were used in multivariable logistic regression to examine the relationship of these variables to all four types of decision making. Results: Women's autonomy in decision making is positively associated with their age, employment and number of living children. Women from rural area and Terai region have less autonomy in decision making in all four types of outcome measure. There is a mixed variation in women's autonomy in the development region across all outcome measures. Western women are more likely to make decision in own health care (1.2-1.6), while they are less likely to purchase daily household needs (0.6-0.9). Women's increased education is positively associated with autonomy in own health care decision making ($p < 0.01$), however their more schooling (SLC and above) shows non-significance with other outcome measures. Interestingly, rich women are less likely to have autonomy to make decision in own healthcare. Conclusions: Women from rural area and Terai region needs specific empowerment programme to enable them to be more autonomous in the household decision making. Women's autonomy by education, wealth quintile and development region needs a further social science investigation to observe the variations within each stratum. A more comprehensive strategy can enable women to access community resources, to challenge traditional norms and to access economic resources. This will lead the women to be more autonomous in decision making in the due course.

Adeyinka, D., O. Oladimeji, et al. (2010). "Outcome of adolescent pregnancies in southwestern Nigeria: A case-control study." Journal of Maternal Fetal and Neonatal Medicine **23**(8): 785-789.

Akpan, E.-O. (2003). "Early Marriage in Eastern Nigeria and the Health Consequences of Vesico-Vaginal Fistulae (VVF) among Young Mothers." Gender and Development **11**(2): 70-76.

Al Riyami, A., M. Afifi, et al. (2004). "Women's Autonomy, Education and Employment in Oman and their Influence on Contraceptive Use." Reproductive Health Matters **12**(23): 144-154.

Allen, H. (2002). CARE International's Village Savings & Loan Programmes in Africa: Micro Finance for the Rural Poor that Works. CARE. Atlanta.

Allendorf, K. (2009). The Quality of Family Relationships, Women's Agency, and Maternal and Child Health in India. Department of Sociology. Madison, Unversity of Wisconsin.

Allendorf, K. (2010). "The Quality of Family Relationships and Use of Maternal Health-care Services in India." Studies in Family Planning **41**(4): 263-276.

Antai, D. (2011). "Controlling behavior, power relations within intimate relationships and intimate partner physical and sexual violence against women in Nigeria." BMC Public Health **11**: 511.

BACKGROUND: Controlling behavior is more common and can be equally or more threatening than physical or sexual violence. This study sought to determine the role of husband/partner controlling behavior and power relations within intimate relationships in the lifetime risk of physical and sexual violence in Nigeria. METHODS: This study used secondary data from a cross-sectional nationally-representative survey collected by face-to-face interviews from women aged 15 - 49 years in the 2008 Nigeria Demographic and Health Survey. Utilizing a stratified two-stage cluster sample design, data was collected frrm 19 216 eligible with the DHS domestic violence module, which is based on the Conflict Tactics Scale (CTS). Multivariate logistic regression analysis was used to determine the role of husband/partner controlling behavior in the risk of ever experiencing physical and sexual violence among 2877 women aged 15 - 49 years who were currently or formerly married or cohabiting with a male partner. RESULTS: Women who reported controlling behavior by husband/partner had a higher likelihood of experiencing physical violence (RR = 3.04; 95% CI: 2.50 - 3.69), and women resident in rural areas and working in low status occupations had increased likelihood of experiencing physical IPV. Controlling behavior by husband/partner was associated with higher likelihood of experiencing physical violence (RR = 4.01; 95% CI: 2.54 - 6.34). In addition, women who justified wife beating and earned more than their husband/partner were at higher likelihood of experiencing physical and sexual violence. In contrast, women who had decision-making autonomy had lower likelihood of experiencing physical and sexual violence. CONCLUSION: Controlling behavior by husband/partner significantly increases the likelihood of physical and sexual IPV, thus acting as a precursor to violence. Findings emphasize the need to adopt a proactive integrated approach to controlling behavior and intimate partner violence within the society.

Anyango, E., E. Esipisu, et al. (2007). "Village Savings and Loan Associations - Experience from Zanzibar." Small Enterprise Development **18**(1): 11-24.

The continuing failure of MFIs to reach remote and rural areas, especially in Africa, has renewed interest in finding alternative models of service delivery that can achieve this goal. The Village Saving and Loan Association model promoted by CARE is an accumulating savings and credit association that is timebound, with a periodic action audit at which all the funds are paid out. The approach was implemented in Zanzibar in 2001-2002 and CARE then left the area. This article reports findings from a follow-up study to assess the performance of the groups. The number of groups had grown and overall outreach had expanded to some 4,500 members. The financial performance of the groups was strong with returns on savings of 53 per cent. The context for this strong performance is a relatively well-off and well-educated population that is likely to have favoured strong group governance.

Aubel, J. (2010). Dialogue to Promote Change from Within: A Grandmother-inclusive & Intergenerational Approach to Promote Girls' Health and Well-Being and to Eliminate FGM. Rome, World Vision/Canada, The Grandmother Project, and USAID.

Becker, S., F. Fonseca-Becker, et al. (2006). "Husbands,Äô and wives,Äô reports of women's decision-making power in Western Guatemala and their effects on preventive health behaviors." Social Science & Medicine **62**(9): 2313-2326.

Bloom, S., D. Wypij, et al. (2001). "Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city." Demography **38**(1): 67-78.

The dimensions of women's autonomy and their relationship to maternal health care utilization were investigated in a probability sample of 300 women in Varanasi, India. We examined the determinants of women's autonomy in three areas: control over finances, decision-making power, and freedom of movement. After we control for age, education, household structure, and other factors, women with closer ties to natal kin were more likely to have greater autonomy in each of these three areas. Further analyses demonstrated that women with greater freedom of movement obtained higher levels of antenatal care and were more likely to use safe delivery care. The influence of women's autonomy on the use of health care appears to be as important as other known determinants such as education.

Boserup, E. (1970). Women's Role in Economic Development. London, George Allen & Unwin.

Boye, A.-e. K., K. Hill, et al. (1991). "Marriage Law and Practice in the Sahel." Studies in Family Planning **22**(6): 343-349.

Braveman, P., S. Egerter, et al. (2011). "The Social Determinants of Health: Coming of Age." Annual Review of Public Health **32**(3).

Caldwell, J. C. (1979). "Education as a Factor in Mortality Decline An Examination of Nigerian Data." Population Studies **33**(3): 395-413.

The debate between those who see economic development and those who regard advances in medical technology as bearing major responsibility for mortality decline usually gives little attention to different stages of social change when economic or medical conditions are fixed. However, Nigerian statistics analyzed here show that very different levels of child survivorship result from different levels of maternal education in an otherwise similar socio-economic context and when there is equal access to the use of medical facilities. Indeed, maternal education in Nigeria appears to be the single most powerful determinant of the level of child mortality. The statistics come from two surveys undertaken in 1973: one of 6,606 women in Ibadan city, and the other of 1,499 women in a large area of south-west Nigeria. Proportions of children surviving are compounded into an index of child mortality to increase the frequencies in individual cells and standardize maternal age when child survivorship is correlated with a range of factors, and two component indices are also constructed to detect change over time. It is concluded that women's education in societies like that of the Yoruba in Nigeria can produce profound changes in family structure and relationships, which in their turn may influence both mortality and fertility levels. Education may well play a major role in the demographic transition and this role may help to explain the close timing of mortality and fertility transitions.

Callaway, B. and L. Creevy (1994). The Heritage of Islam: Women, Religion and Politics in West Africa. Boulder, CO, Lynne Rienner Publishers.

Casique, I. (2000). Mexican Married Women's Autonomy and Power within the Household. XXII International Congress of the Latin American Studies Association (LASA(C. R. d. I. M. (CRIM). Miami, Florida.

Das Gupta, M. (1995). "Life Course Perspectives on Women's Autonomy and Health Outcomes." American Anthropologist **97**(3): 481-491.

Gender inequality leads to negative demographic consequences in many societies. Patterns of household formation and inheritance strongly influence these consequences. Peasant societies of preindustrial northern Europe emphasized the conjugal bond, while intergenerational bonds were weak. The reverse is true in contemporary northern India. As a result, greater potential exists there for marginalizing women. The convergence of low autonomy due to youth as well as gender means that women's autonomy is at its lowest point during the peak of childbearing years. This has considerable implications for demographic and health outcomes in terms of poorer child survival, slower fertility decline, and poorer reproductive health.

Dixon, R. B. (1978). Rural Women at Work: Strategies for Development in South Asia. Baltimore.

Dowd, R. A. and M. Driessen (2008). "Ethnically Dominated Party Systems and the Quality of Democracy: Evidence from Sub-Saharan Africa." Working Paper.

Dyson, T. and M. Moore (1983). "On Kinship Structure, Female Autonomy, and Demographic Behavior in India." Population and Development Review **9**(1): 35-60.

The main states of India are broadly grouped into two demographic regimes. In contrast to states in the north, southern states are characterized by lower marital fertility, later age at marriage, lower infant and child mortality, and comparatively low ratios of female to male infant and child mortality. The division between the two regimes broadly coincides with the division between areas of northern kinship/low female autonomy and southern kinship/high female autonomy. The analysis suggests that female social status is probably the most important element in comprehending India's demographic situation. Women in the south tend to be more active in the labor force, are more likely to take innovative action in adopting fertility control, and are more apt to utilize health services for themselves and their children.

Fapohunda, E. R. and M. P. Todaro (1988). ""Family Structure, implicit contracts, and the demand for children in Southern Nigeria."." Population and Development Review **14**(4): 571-594.

Furuta, M. and S. Salway (2006). "Women's Position within the Household as a Determinant of Maternal Health Care Use in Nepal." International Family Planning Perspectives **32**(1): 17-27.

Context: Although gender inequality is often cited as a barrier to improving maternal health in Nepal, little attention has been directed at understanding how sociocultural factors may influence the use of health care. In particular, how a woman's position within her household may affect the receipt of health care deserves further investigation. Methods: Data on ever-married women aged 15-49 from the 2001 Nepal Demographic and Health Survey were analyzed to explore three dimensions of women's position within their household-decision making, employment and influence over earnings, and spousal discussion of family planning. Logistic regression models assessed the relationship of these variables to receipt of skilled antenatal and delivery care. Results: Few women reported participation in household decision making, and even fewer had any control over their own earnings. However, more than half reported discussing family planning with their husbands, and there were significant differences among subgroups in these indicators of women's position. Though associations were not consistent across all indicators, spousal discussion of family planning was linked to an increased likelihood of receiving skilled antenatal and delivery care (odds ratios, 1.4

and 1.3, respectively). Women's secondary education was also strongly associated with the greater use of health care (5.1-5.6). Conclusions: Gender inequality constrains women's access to skilled health care in Nepal. Interventions to improve communication and strengthen women's influence deserve continued support. The strong association of women's education with health care use highlights the need for efforts to increase girls'schooling and alter perceptions of the value of skilled maternal health care.

Gage, A. J. (2007). "Barriers to the utilization of maternal health care in rural Mali." Social Science & Medicine **65**(8): 1666-1682.

Garcia, B. and O. de Oliveira (1994). Trabajo Femenino y Vida Familia Mexico. Mexico D.F., El Colegio de Mexico.

Ghuman, S. J., H. J. Lee, et al. (2006). "Measurement of women,Äôs autonomy according to women and their husbands: Results from five Asian countries." Social Science Research **35**(1): 1-28.

Goode, W. (1971). "Force and Violence in the Family." Journal of Marriage and the Family **33**(624-636).

Goody, J. (1976). Production and Reproduction: A Comparitive Study of the Domestic Domain. New York, Cambridge University Press.

Hindin, M. J. (2000). "Women's autonomy, women's status and fertility-related behavior in Zimbabwe." Population Research and Policy Review **19**(3): 255-282.

Hogan, D. P., B. Berhanu, et al. (1999). "Household Organization, Women's Autonomy, and Contraceptive Behavior in Southern Ethiopia." Studies in Family Planning **30**(4): 302-314.

Jeffery, R. and P. Jeffery (1993). A Woman Belongs to Her Husband: Female Autonomy, Women's Work and Childbearing in Bijnor. Delhi and London, Oxford Univeristy Press.

Jejeebhoy, S. J. (1995). Women's Education, Autonomy, and Reproductive Behaviour: Experience from Developing Countries. Oxford, Oxford University Press.

Jejeebhoy, S. J. (2000). Women's Autonomy in Rural India: Its Dimensions, Determinants, and the Influence of Context. Oxford, Oxford University Press.

Jejeebhoy, S. J. (2002). "Convergence and Divergence in Spouses' Perspectives on Women's Autonomy in Rural India." Studies in Family Planning **33**(4): 299-308.

Jejeebhoy, S. J. and Z. A. Sathar (2001). "Women's Autonomy in India and Pakistan: The Influence of Religion and Region." Population and Development Review **27**(4): 687-712.

Jensen, R. and R. Thornton (2003). "Early Female Marriage in the Developing World." Gender and Development **11**(2): 9-19.

Koenig, M. A. S., Rob; Ahmed, Saifuddin; Jejeebhoy, Shireen J.; Campbell, Jacquelyn (January 2006). "Individual and Contextual Determinants of Domestic Violence in North India." American Journal of Public Health **96**(1): 132-138.

Kritz, M. M. and P. Makinwa-Adebusoye (1999). "Determinants of Women's Decision-Making Authority in Nigeria: The Ethnic Dimension." Sociological Forum **14**(3): 399-424.

Langford, C. P. H., J. Bowsher, et al. (1997). "Social support: a conceptual analysis." Journal of Advanced Nursing **25**: 95-100.

Lardoux, S. (2004). "Marital Changes and Fertility Differences Among Women and Men in Urban and Rural Mli." African Population Studies **19**(2).

Lawoko, S., K. Dalal, et al. (2007). "Social Inequalities in Intimate Partner Violence: A Study of Women in Kenya." Violence & Victims **22**(6): 773-784.

This study examines social inequalities in intimate partner violence (IPV) among women of reproductive age in Kenya. A sample comprising 3,696 women was retrieved from the Kenyan Demographic and Health Survey of 2003. The study design was cross-sectional. Chi-square tests and logistic regression were used to analyze the data. Results indicated that while high education among women reduced the risk of IPV exposure, both being employed and having a higher education/occupational status than her partner increased a woman's vulnerability to IPV. Age differences between the partners, illiteracy, and lack of autonomy and access to information increased the likelihood of IPV. Finally, being in polygamous relationships was associated with IPV exposure. The findings indicate demographic, social, and structural differences in exposure to IPV with important implications for interventions.

Leach, F. (2003). "Learning to be Violent: the role of the school in developing adolescent gendered behaviour." Compare: A Journal of Comparative Education **33**(3): 385.

Examines the role of the school and the peer group culture in constructing male and female identity among adolescents within the context of high levels of gender violence. Abuse of girls in schools in three African countries; Incidents of male teachers and older male pupils aggressively propositioning female pupils for sex.

Lloyd, C. and B. Mensch (2006). Marriage and childbirth as factors in school exit: an analysis of DHS data from Sub-Saharan Africa. Policy Research Division Working Paper. P. Council. New York. **No. 219**.

Mensch, B., J. Bruce, et al. (1998). The Uncharted Passage: Girls' Adolescence in the Developing World. P. Council. New York, Population Council.

Mistry, R., O. Galal, et al. (2009). ",ÄúWomen's autonomy and pregnancy care in rural India: A contextual analysis,Äù." Social Science & Medicine **69**(6): 926-933.

Moursund, A. and ò. Kravdal (2003). "Individual and Community Effects of Women's Education and Autonomy on Contraceptive Use in India." Population Studies **57**(3): 285-301.

This study makes use of the National Family Health Survey of 1998-99 to investigate whether differences in women's autonomy can explain much of the relationship between education and contraceptive use among married Indian women with at least one child. The analyses show that a woman's education does not influence her contraceptive use through a strengthening of her position in relation to that of men, but that the inclusion of a simple indicator of her general knowledge reduces education effects appreciably. Further, the average educational level of other women in the census-enumeration area has an effect on a woman's contraceptive use above and beyond that of her own education. This effect cannot be explained by the specific indicators of autonomy, but can to some extent be explained by the son preference of the community. The latter is a more general autonomy indicator that may also pick up other contextual factors.

Mumtaz, Z. and S. Salway (2009). "Understanding gendered influences on women's reproductive health in Pakistan: Moving beyond the autonomy paradigm." Social Science & Medicine **68**(7): 1349-1356.

Niraula, B. B. and S. P. Morgan (1996). "Marriage Formation, Post-Marital Contact with Natal Kin and Autonomy of Women: Evidence from Two Nepali Settings." Population Studies **50**(1): 35-50.

We have conducted surveys specifically designed to study the autonomy/power of women in two Nepali settings. Setting I is in the hills, 75 kilometers southwest of Kathmandu; Setting II is in the tarai (plains) a few kilometers from the border with India. Previously the authors have shown that women in the hill setting have much more autonomy/power than women in the tarai setting. In this paper we focus on aspects of marriage formation and post-marital kin contact and their possible effects on women's autonomy/power. Specifically, we measure women's autonomy/power with indicators of women's freedom of movement and power in making household decisions. We assess whether these indicators are influenced by aspects of mate selection and kinship, including patrilocal post-marital

residence, arranged marriages, emphasis on the virginity of brides, village exogamy, dowry, and contact with natal kin. We show that marriage regimes differ substantially in the two settings. While marriages in both settings are usually arranged, some love marriages are reported in Setting I. Furthermore, the mean age at ceremonial marriage in the tarai (Setting II) is about 11.5 years compared with 14.5 in the hills (Setting I). In some cases, we find that individual-level indicators of mate selection or kinship are associated with individual-level measures of women's autonomy. But these associations cannot account for the dramatically different degrees of autonomy in these settings. Such findings do not imply that kin relations and marriage formation are irrelevant for women's autonomy/power. But they do challenge the version of these arguments that isolates marriage/kinship effects at the individual level. Autonomy, while measurable at the individual level, is determined primarily by broad-based institutional arrangements and associated community social control.

Nyblade, L. and J. Menken (1993). "Husband-wife communication: Mediating the relationship of polygyny through contraceptive attitudes and use.". Proceedings of the IUSSP General Conference. Montreal, International Union of Scientific Studies for Population (IUSSP). **1:** 109-120.

Oppong, C. and K. Abu (1987). Seven Roles of Women: Impact of Education, Migration and Employment on Ghanaian Mothers. W. International Labour's Office, Work, and Development. Geneva. **13**.

Otoo-Oyortey, N. and S. Pobi (2003). "Early Marriage and Poverty: Exploring Links and Key Policy Issues." Gender and Development **11**(2): 42-51.

Rahman, M., M. A. Hoque, et al. (2011). "Association Between Adolescent Marriage and Intimate Partner Violence: A Study of Young Adult Women in Bangladesh." Asia-Pacific journal of public health / Asia-Pacific Academic Consortium for Public Health.

This study explores the association between adolescent marriage and intimate partner violence (IPV) among young adult women using 2007 Bangladesh Demographic Health Survey data. The analyses are restricted to young women 20 to 24 years old. Logistic regression analyses are constructed to estimate the odds ratios and 95% confidence intervals for the association between adolescent marriage and IPV in the past year. RESULTS: show that there is a strong significant relationship between adolescent marriage and experience of physical IPV in the past year among this population. Association between sexual IPV and adolescent marriage is insignificant. Adolescent marriage puts women at increased risk of physical IPV into their young adult period. Government agencies need to enforce existing law on the minimum age at marriage to reduce IPV among adolescent and young adult girls.

Raj, A., N. Saggurti, et al. (2010). "Association between adolescent marriage and marital violence among young adult women in India." International Journal of Gynecologic Obstetrics **110**: 35-39.

Santhya, K. G. (2011). "Early marriage and sexual and reproductive health vulnerabilities of young women: a synthesis of recent evidence from developing countries." Current Opinion in Obstetrics & Gynecology **23**(5): 334-339.

Santhya, K. G. and S. J. Jejeebhoy (2007). "Early marriage and HIV/AIDS: risk factors among young women in India." The Economic and Political Weekly **42**: 1291.

Santhya, K. G., U. Ram, et al. (2010). "Associations Between Early Marriage and Young Women's Marital and Reproductive Health Outcomes: Evidence from India." International Perspectives on Sexual and Reproductive Health **36**(3): 132-139.

CONTEXT: Little evidence from India is available regarding the ways in which early marriage may compromise young women's lives and their reproductive health and choices. METHODS: Data from 8,314 married women aged 20-24 living in five Indian states, obtained from a subnationally representative study of transitions experienced by youth, were used to compare marital, reproductive and other outcomes between young women who had married before age 18 and those who had married later. Logistic regression analyses were conducted to identify associations between timing of marriage and the outcomes of interest. RESULTS: Young women who had married at age 18 or older were more likely than those who had married before age 18 to have been involved in planning their marriage (odds ratio, 1.4), to reject wife beating (1.2), to have used contraceptives to delay their first pregnancy (1.4) and to have had their first birth in a health facility (1.4). They were less likely than women who had married early to have experienced physical violence (0.6) or sexual violence (0.7) in their marriage or to have had a miscarriage or stillbirth (0.6). CONCLUSIONS: Findings underscore the need to build support among youth and their families for delaying marriage, to enforce existing laws on the minimum age at marriage and to encourage school, health and other authorities to support young women in negotiating with their parents to delay marriage.

Santrock, J. W. (2008). A Topical Approach to Lifespan Development New York, NY, McGraw-Hill Companies, Inc.

Sathar, Z. A. and K. Shahnaz (2000). "Women's autonomy in the context of rural Pakistan." The Pakistan Development Review **39**: 89-110.

Schultz, A. and M. E. Northridge (2004). "Social Determinants of Health: Implications for Environmental Health Promotion." Health Education Behavior **31**(4).

Singh, S. and R. Samara (1996). "Early Marriage Among Women in Developing Countries." International Family Planning Perspectives **22**(4): 148-175.

A study using data from 40 Demographic and Health Surveys shows that a substantial proportion of women in developing countries continue to marry as adolescents. Overall, 20-50% of women marry or enter a union by age 18, and 40-70% do so by their 20th birthday. Early marriage is most prevalent in Sub-Saharan Africa and in South Asia, and least common in North Africa, the Middle East and Southeast Asia. Women aged 20-24 are less likely to have married by age 20 than are women aged 40-44; the differential is at least 10 percentage points in most countries and reaches 30-40 percentage points in some countries. Education and age at first marriage are strongly associated both at the individual level and at the societal level: A woman who has attended secondary school is considerably less likely to marry during adolescence, and in countries with a higher proportion of women with a secondary education, the proportion of women who marry as adolescents is lower.

Speizer, I. and E. Pearson (2011). "Association between early marriage and intimate partner violence in India: a focus on youth from Bihar and Rajasthan." Journal of Interpersonal Violence **26**: 1963-1981.

Stephenson, R. (2011). Projet Espoir: Baseline Report. Atlanta, GA, Emory University.

Taylor, S. E. (2011). Social support: A Review. New York, NY, Oxford University Press.

van Beek, W. E. A. (1992). History and Culture: Essays on the work of Eric R. Wolf. Amsterdam, Het Spinhuis Publishers.

Visaria, L. (1993). Female Autonomy and Fertility Behavior: An Explanation of Gujarat Data. Meeting of the International Union for the Scientific Study of Population. Montreal: Liège.

Vyas, S. and C. Watts (2009). "How does economic empowerment affect women's risk of intimate partner violence in low and middle income countries? A systematic review of published evidence." Journal of International Development **21**(5): 577-602.

Objectives To identify whether individual and household economic empowerment is associated with lower intimate partner violence in low and middle income country settings. Methods Systematic PubMed and internet searches. Results Published data from 41 sites were reviewed. Household assets and women's higher education were generally protective. Evidence about women's involvement in income generation and experience of past year violence was mixed, with five finding a protective association and six documenting a risk association. Conclusion At an individual and household

level, economic development and poverty reduction may have protective impacts on IPV. Context specific factors influence whether financial autonomy is protective or associated with increased risk. Copyright ¬© 2008 John Wiley & Sons, Ltd. This article was published online on 6 October 2008. Errors were subsequently identified. This notice is included in the online and print versions to indicate that both have been corrected [17 April 2009].