WOMEN'S DECISIONMAKING AND CHILD HEALTH: FAMILIAL AND SOCIAL HIERARCHIES

Sonalde Desai and Kiersten Johnson

1   INTRODUCTION

Ever since the advent of Women in Development literature in the 1970s, many researchers have argued that women's empowerment is closely linked to positive outcomes for families and societies (Presser and Sen, 2000). Nowhere has this argument been more important than in the literature on child health (Mason, 1986). While intuitively plausible, the empirical work on this topic has been limited. Two major factors account for this paucity in the literature: 1) conceptually, as we begin to use an increasingly sophisticated and nuanced conceptualization of empowerment, the way in which different dimensions of empowerment relate to each other has become increasingly problematic; and 2) data for empirical research on this topic have been limited at best.

In an attempt to address some of these deficiencies, this paper draws from two parallel developments. First, the theoretical literature has grown increasingly sophisticated in its understanding of women's empowerment—particularly distinguishing between the roles of families and communities. Second, in the past ten years, comparable cross-national studies in a large number of developing countries have been performed. These studies, known as Demographic and Health Surveys (DHS), contain large samples and make it possible to carry out an empirical examination of some of these arguments. Drawing on these two developments, this paper examines the impact of women's ability to make independent decisions on children's health outcomes—particularly vaccination status, nutritional status, and child mortality in 12 developing countries.

2   EMPOWERMENT: AGENCY AND STRUCTURE

As theoretical work on women's empowerment has evolved, the tension between structure and agency has also grown. While some of the early work on patriarchy was governed by a focus on social institutions and the role of systems of production and property ownership in shaping opportunities available to women (Agarwal, 1994; Leacock, 1978; O'Barr, 1982), more recent work has focused on women's agency and bottom-up empowerment. This latter approach has found favor with both academic researchers as well as social activists.

Activists have been particularly concerned about the overwhelming focus on structures of patriarchy that ignores ongoing changes at the grass roots level where much of the activism takes place. Focus on agency leads researchers to think of processes through which self efficacy emerges along with a better understanding of opportunities for change (Batliwala, 1994; Malhotra, Schuler, and Boender, 2002).

While at a conceptual level, these two approaches—one focusing on agency the other on structure—can be complementary (Kabeer, 1994), in practice it is often difficult to disentangle the two, particularly while operationalizing these for empirical research. One area in which these problems emerge in empirical research is in understanding the meaning of different dimensions of empowerment in a cross-cultural context. Veiling or purdah may hinder women's ability to participate in certain cultural settings, yet in other settings veiled women go about their business having offered a nod to the cultural dictates (MacLeod, 1992).

As Kabeer (2001) notes, while individual women may act in ways that are inconsistent with social norms, the impact of these actions tends to be limited. However, if a large number of women act to represent their gender interests, this can become an overwhelming force resulting in changes in social norms. Even when focusing on women's individual actions and agency, we need to root these in the context of the society and community they live in. In fact, the few empirical studies that have tried to examine the impact of community contexts on individual outcomes have found that the contextual factors are far more important than the individual factors (Jejeebhoy and Sathar, 2001; Kritz et al., 2000; Mason and Smith, 2003).

3   WOMEN'S EMPOWERMENT AND CHILD HEALTH

Hierarchies based on gender and generation determine the course of household decisionmaking in many societies. Visaria (1993) documents that women in her sample in Gujarat, a state located in western India, indicate a remarkable feeling of constraint regarding cash expenditure. About 50 percent of the women do not feel free to take a sick child to doctor without the approval of their husband or parent-in-law, and about 70 percent do not make decisions regarding the purchase of their own or their children's clothing. Similar findings have been obtained for many other parts of the world (Kishor, 2000; Kritz et al., 2000).

Constraints on women's physical mobility in many parts of the world further restrict their ability to make independent decisions. Women in countries such as India, Egypt, and Bangladesh are governed by social norms that restrict their physical mobility, referred to in the literature as female seclusion. This seclusion involves the veiling of head and face in some instances, as well as restrictions on unaccompanied travel to such places as shops, pharmacies, or hospitals, and limits on direct contact with unrelated males (Bruce, Lloyd, and Leonard, 1995). Thus, even in instances where women wish to make decisions regarding household consumption, expenditures, or health care, they may need help and agreement from other family members, particularly the husband or mother-in-law, in actually conducting these transactions.

It has often been argued that child health and investments in children are determined by intra-household resource allocation decisions, which are related to gender inequalities in the household. In families in which women play an important role in decisionmaking, the proportion of family resources devoted to children is greater than in families in which women play a less decisive role (Thomas, 1990; Duraisamy and Malathy, 1991; Bruce, Lloyd, and Leonard, 1995; Blumberg, 1991). This notion of "maternal altruism" assumes that power in the hands of women will lead to better child outcomes (Mason, 1986).

There are a number of ways by which women's decisionmaking power might come to be associated with improved child health outcomes.

1. **Day-to-day health enhancing behavior.** Many actions that lead to better health outcomes emerge from day-to-day health enhancing behaviors, such as better personal hygiene, regular access to preventive treatments such as timely vaccination, and devotion of time to slowly spoon-feeding toddlers instead of leaving them chewing on a biscuit or bread. Many of these actions occur unconsciously and are often related to fundamental rules that households live by, rather than conscious decisions regarding allocation of time and money. While many factors besides gender empowerment affect these behaviors—most notably household wealth and women's participation in the labor market—in situations where women have control over time and

money they may be able to make more efficient decisions leading to better health outcomes for children than when decisions are controlled by men who then delegate these tasks to women.

2. **Intrahousehold resource allocation.** At any given income level, households must choose where their resources will be spent. Even for poor households, some implicit tradeoffs occur between quality of housing, food expenditure, health and education expenditure, purchase of large consumer durables, and personal consumption items such as tobacco and alcohol. Small scale qualitative studies document that households in which women have more power devote a greater proportion of resources to child-centered expenditures (Dwyer and Bruce, 1988), although there is little quantitative validation of differential spending patterns.

3. **Access to emergency care.** When children are seriously ill, all family members—men or women—may recognize the need to obtain medical care and will do so if they can afford it and if care is available. However, if the primary caregiver—frequently the mother—needs to consult with husbands and family elders, it is possible that the child may not receive immediate care. For example, if a Nepali woman must wait for her husband to return home before she can take a child suffering from seizure to a doctor, the likelihood of child survival will be lower than if she can independently make decisions regarding health care and immediately take the child to a doctor.

While all of these mechanisms may be important for children's health, from a public policy perspective, some sense of the relative importance of these factors is particularly useful. In this study, we focus on three different markers, each of which addresses a different dimension of the relationship between women's decisionmaking power in the household and child health status.

With governments and nongovernmental organizations (NGOs) increasingly focusing on the distribution of low-cost or free vaccinations, whether a child receives a full set of immunizations or not is often a function of the day-to-day health-seeking behavior of the household—at least in communities where immunization facilities are available locally or close by. In contrast, holding income constant, children's nutritional status is a marker of long-term resource allocation decisions made by households. Access to emergency care is probably most accurately reflected by child mortality. In areas where epidemic diseases (such as AIDS) are not the primary cause of death, child mortality is largely a function of appropriate medical care for children suffering from fever, respiratory infections, and gastrointestinal infections. By focusing on the relative importance of women's empowerment in shaping positive outcomes with regard to vaccination, long-term nutritional status (measured by height-for-age), and child mortality, we can examine the impact of women's empowerment on child health.

4   WOMEN'S EMPOWERMENT: FAMILIAL AND SOCIAL CONTEXTS

The preceding discussion has relied on a somewhat loose definition of women's empowerment. While this concept is frequently used in the literature, perhaps the most widely employed operational definition comes of the works of Ruth Dixon-Mueller (1978) and Karen Mason (1986). While these scholars note that women's empowerment is an "elusive concept," they operationally define women's status as the degree of women's access to (and control over) material resources (including food, income, land, and other forms of wealth) and social resources (including knowledge, power, and prestige) within the family, in the community, and in the society at large.

We argue that women's authority over household decisionmaking embodies both of these concepts. Women who have significant input in such household decisions as major household purchases, their own health care, purchase of household daily necessities, and visits to family and friends have access to resources and the power to use them. Among an array of questions designed to measure women's empowerment, the DHS surveys asked women the following:

- Who in your family usually has the final say on the following decisions:

    Your own health care?
    Making large household purchases?
    Making household purchases for daily needs?
    Visits to family or relatives?
    What food should be cooked each day?

Women had the following response options: respondent, husband or partner, respondent and partner jointly, someone else, respondent and someone else jointly, and decision not made/applicable.

Since cooking is generally regarded as one of women's essential responsibilities within the household, we excluded this type of decisionmaking and created a dummy variable that reflects whether women have a final say in any of the other four decisions (their own health care, large household purchases, household purchases for daily needs, and visits to family or relatives).[1]

Apart from selecting good indicators of women's empowerment, the most important challenge has been to distinguish between empowerment as a characteristic of individuals and empowerment as a trait of community participation (Mason and Smith, 2003). Such a perspective allows for interesting distinctions. Women often face a double challenge in their efforts to gain a degree of authority that will permit independent decisionmaking. First, they must overcome internal resistance and family opposition; and then they must deal with social constraints. Independent women in highly patriarchal societies are often subject to strong patriarchal controls outside of the immediate family and are unable to fully implement their preferences in ways that benefit their families and children. In contrast, women who live in societies that are more tolerant of independent behavior are less likely to face these barriers.

Social controls find expression in many ways. In societies with strong patriarchal structures, even if a mother makes the decision to take her seriously ill child for treatment, the service provider may hesitate to accept her decision regarding emergency treatment as final. It is not unknown in countries like India for doctors to want a father's signature on a consent form before performing serious procedures on a child or even the woman herself.[2] In contrast, in a less patriarchal society a

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[1] We had the option of focusing on final decisionmaking in at least one domain versus participation in decisionmaking even if the woman is not the final decisionmaker. We chose to focus on final decisionmaking because we felt that when decisions are made jointly, it is difficult to distinguish between the woman being a junior partner in the process or being an equal partner. Empowerment means women being able to make final decisions regarding their own health care or visiting their friends and relatives. When similar analyses with any involvement in decisionmaking were carried out, the conclusions were similar.

[2] This is reflected in many domains of life. Often doctors will not perform an abortion or sterilization without a husband's consent. Women might not be able to borrow money without family consent and their signature on legal contracts might not be considered valid. While doctors might be quite willing to treat children in non-life-threatening situations without paternal consent, in situations where serious choices need to be made or large expenditure incurred, they might wait for the father's presence and participation.

woman who would not normally make serious decisions herself may find herself able to emulate other independent women in emergencies. Thus, any study focusing on women's empowerment must distinguish between empowerment and independence at an individual and at a societal level.

We try to distinguish between the two by calculating cluster-specific measures of women's ability to make independent decisions. Within each sampling cluster, we calculate the proportion of women with children who say they have the final decisionmaking authority in at least one of the domains listed above.

5   DATA

The data used in this study come from the DHS surveys. These nationally and regionally representative surveys have been carried out since 1984 in more than 70 less-developed countries, with many countries having had periodic DHS surveys. The surveys are based on scientifically selected samples of households and inquire about household and household members' characteristics, including in some countries questions on women's decisionmaking responsibilities in the household. Basic characteristics of all members and overnight guests are collected in a schedule format, similar to that of a census, with information provided by any adult member of the household. Individual women of reproductive age (15-49) are interviewed individually in face-to-face interviews on their background characteristics, work status, fertility levels and desires, contraceptive use, and use of maternal and child health services. Infant and child mortality data are obtained through a birth history, while nutritional status of children and women is determined through anthropometry.

The DHS surveys interview between 3,500 and 90,000 households, with 5,000 to 8,000 being typical. Approximately one woman per household is found to be of reproductive age, though all such women are interviewed.

We analyzed data from 12 countries, all of which have implemented a special module in which women are asked questions regarding the degree of say in decisionmaking they have in the household, as well as the degree to which women agree or disagree with negative gender norms. A variety of questions regarding women's empowerment have been included in different formats in a large number of DHS countries. However, for cross-country comparability, the sample is restricted to countries where similar questions were administered to all women. The countries selected for this study include the following: Benin, Malawi, Mali, Uganda, and Zimbabwe in sub-Saharan Africa; Egypt, India, and Nepal in Asia; and Haiti, Colombia, Nicaragua, and Peru in the Latin America/Caribbean region.

Our three main dependent variables include the following:

- Number of vaccinations children age 13-60 months have received (includes three doses of polio, three rounds of DPT, and BCG and measles vaccines)

- Children's height-for-age standardized score (multiplied by 100) for children age 13-36 months

- Likelihood of dying between 13 and 60 months of age for children born 60-120 months before the survey.

Whereas the two primary independent variables of interest are the following:

• A dummy variable reflecting whether the mother of the index child has responded that she had the final say in decisions regarding four domains of household life (making large household purchases, making day-to-day household purchases, health care for herself, and visits to family and friends).

• A continuous variable ranging from 0 to 1 reflecting the proportion of women in the sampling cluster who have final say in making any of the above mentioned household decisions. To avoid multicollinearity between the individual and community measures, the community measures are calculated using all women who have had at least one birth, whether they have a child in the selected age range or not.

There is a time disparity between measures of women's empowerment and child health outcomes. Health outcomes cover a span of 10 years, while the empowerment measures are collected at the time of the survey. While there are some couple- and family-specific behavioral traits that remain constant over time, many may change as women age and household structure changes. Including historical period of birth in the analysis is an attempt to control for some of this distance. Comparison between community and individual decisionmaking responsibility presented in Table 1 provides a marker for the role of age and family change in decisionmaking ability. The last two columns of Table 1 compare proportions of all women age 15-49 (with a child) who have primary responsibility for one of the household decisions with the mean for index women with children born in past 10 years. These are younger women, and the community mean in all countries is higher than the individual mean and is moderately large for Egypt, India, Nepal, Nicaragua, and Peru.

Table 1 Sample size and descriptive statistics for the three dependent variables and decisionmaking

Country	Total clusters	Immunization		Height-for-age		Child mortality		Mean decisionmaking power	
		Number	Mean	Number	Mean	Number	Mean	Community	Individual
Benin	246	3,583	6.23	2,781	-164.05	5,069	0.065	0.59	0.58
Colombia	972	3,541	6.74	3,228	-94.70	4,715	0.003	0.82	0.81
Egypt	991	8,398	7.71	8,050	-93.75	11,266	0.011	0.59	0.55
Haiti	317	4,735	5.27	4,255	-123.40	6,050	0.047	0.38	0.38
India	333	19,559	5.45	15,940	-216.83	62,456	0.023	0.33	0.30
Malawi	559	7,868	7.30	6,859	-215.67	9,973	0.069	0.46	0.45
Mali	402	8,200	4.45	6,882	-183.29	12,850	0.089	0.34	0.34
Nepal	251	5,061	6.87	4,876	-223.66	7,075	0.030	0.38	0.34
Nicaragua	609	5,367	7.18	4,678	-117.19	7,938	0.007	0.56	0.52
Peru	1,410	10,487	6.95	9,271	-146.21	15,288	0.016	0.78	0.72
Uganda	296	4,854	5.96	3,919	-179.97	6,048	0.056	0.65	0.63
Zimbabwe	230	2,617	6.75	2,042	-129.33	3,281	0.020	0.80	0.79

Women's decisionmaking authority is often correlated with a number of factors, including their education and household income. Hence, one portion of the analysis is controlled for women's education (divided into three categories, no education, primary education, secondary education) and her partner's education (same three categories), and a measure of household wealth (described below). We also control for the historical period of birth (measured by century month) of the index child because both vaccination coverage and child survival have been improving over time. At the community level, we also control for urban residence.

Controlling for household wealth is particularly necessary in this analysis. Women's decisionmaking authority is often associated with social class and her education. While education is easy to measure, surveys have historically found it difficult to measure income, particularly in agrarian populations. Recent innovations in the use of survey-based household asset data allow researchers to evaluate the distribution of poverty in populations (Filmer and Pritchett, 2001). The wealth index used here is one developed and tested in a large number of countries in relation to inequities in household income, use of health services, and health outcomes (Rutstein, Johnson, and Gwatkin, 2000). It is an indicator of wealth that has shown itself to be consistent with expenditure and income measures (Rutstein, 1999).

The wealth index was constructed using household asset data (including country-specific assets) and principle components analysis. The asset information was collected through the DHS household questionnaire, and concerns household ownership of a number of consumer items and amenities ranging from a television or radio to a bicycle or car, as well as dwelling characteristics, such as type of drinking water available, sanitation facilities used, roofing and flooring, and availability of electricity.

6 STATISTICAL METHODS

To measure the impact of women's decisionmaking authority on child health, while distinguishing between individual and community influences, we have analyzed these data using hierarchical linear models (Bryk and Raudenbush, 1992), using HLM software. Hierarchical linear models allow us to distinguish between the individual- and community-level effects of women's decisionmaking authority. We estimate two equations for each country, one at the individual and one at the cluster level.

6.1 Individual-Level Equation

$$Y_{ij} = \beta_{0j} + \beta_{1j}(X_{i1}) + \beta_{kj}(X_{ikj}) + r_{ij}$$

where:

Y_{ij} is health outcome for child i in cluster j;

β_{0j} is the intercept for individual-level model (average health outcome in cluster j);

β_{1j} is the coefficient for the effect of having a mother with decisionmaking authority in cluster j;

X_{i1} is the dummy variable, coded 1 if mother has decisionmaking authority;

X_{ikj} are individual-level control variables, primary and secondary education for mother and her partner, century month of birth, and household wealth index;

β_{kj} are the coefficients for the individual-level control variables; r_{ij} are the error terms for the individual-level model.

6.2   Cluster-Level Equations

At the cluster-level, we examine the effects of community-level decisionmaking (while controlling for urban residence) on the intercept of the individual-level model, that is, the average health outcome for children in cluster j. The equations for the cluster-level models are

$$0j = 00 + 0m\ Zjm + u0j$$

$$kj = k0$$

where:

00 is the intercept for the cluster-level model;

Zjm is the cluster-level average for women's decisionmaking authority;

$0m$ is the coefficient for cluster-level decisionmaking;

$u0j$ are the error terms at the country level; and

$k0$ are the constant coefficients kj across all clusters.

There is a difference between the hierarchical models we estimate and a regression model that contains community-level variables as control variables. A hierarchical model consists of a fixed and a random portion. The differences between communities (clusters) is a function of the type of residence and mean decisionmaking power for the community. However, the effect of individual variables is measured within communities as deviations from the community mean.

7   RESULTS

Descriptive statistics for this analysis are presented in Table 1. Tables 2 through 4 present results from three multi-level models, each for the three dependent variables. The two continuous variables, number of vaccinations (ranging from 0 to 8) and height-for-age (mostly ranging from -500 to +500) are estimated using linear models, whereas child mortality, a categorical variable, is estimated using a logistic regression model. In each of the tables, Model 1 reflects the impact of cluster-level decisionmaking on the average health outcome in that cluster. In this model, differences between clusters are explained with only the average decisionmaking authority of women in each cluster and whether the cluster is urban or rural. Model 2 adds individual-level control variables, woman's and her partner's education, period of birth for the child, and the household wealth index. The third model also adds woman's own decisionmaking authority in the household, thereby partitioning the effect of women's decisionmaking authority into inter- and intracluster variation, while controlling for the variables included in Model 2.

Table 2 Effect of women's decisionmaking power on children's immunization status				
	Model 1	Model 2	Model 3	
Country	Community decisionmaking responsibility	Community decisionmaking responsibility	Community decisionmaking responsibility	Individual decisionmaking responsibility
Benin	0.87	0.29	0.42	-0.04
Colombia	0.35*	-0.02	0.01	0.09
Egypt	0.21***	0.08	0.07	0.00
Haiti	-0.18	-0.24	-0.25	-0.01
India	2.49***	0.94**	0.83*	0.13***
Malawi	0.39**	0.21	0.21	0.07
Mali	0.42	0.36	0.24	0.12
Nepal	2.39***	0.74***	0.82***	-0.06
Nicaragua	0.41*	0.07	0.04	0.01
Peru	0.44***	0.24*	0.18	0.10*
Uganda	-0.75*	-0.99**	-1.01***	-1.01
Zimbabwe	2.54***	2.48***	2.19***	0.16
Average	0.80	0.35	0.31	-0.03

Model 1 includes only the effect of average decisionmaking responsibility in the community on intercluster intercept.
Model 2 adds controls for mother's and father's education, age and wealth index at the household level.
Model 3 also adds decision making power of the mother at household level.
* P ≤ 0.1
** P ≤ 0.05
*** P ≤ 0.01

With few exceptions, living in communities where women have great decisionmaking authority improves child health for all three outcomes studied and this effect is frequently statistically significant. In Model 1, for all three measures, child health outcomes are better for clusters where women have more decisionmaking authority than those where women have less decisionmaking authority. These differences are statistically significant in 8 out of 12 countries for vaccination, 9 out of 12 countries for height-for-age, and 5 out of 12 countries for child mortality. The results show that in Benin (as in other countries), the improvement in child health outcomes between communities where no woman has independent decisionmaking authority and those where all women have such authority is substantial. Going from 0 to 1 on this scale results in an improvement of 0.87 for number of vaccinations received (range being 0 to 8); an improvement of 56 in height-for-age (i.e., an improvement of about half a standard deviation on a standardized scale: the mean for a well-fed population is 0 and standard deviation is 100); and a decline in child mortality of about 40 percent (i.e., 1- exp -0.51). In the case of Benin, effects for child mortality and height-for-age are significant at 0.1 level or better and that for immunization is significant at 0.11 level.

Model 2 adds individual-level control variables: mother's and her partner's education (primary and secondary education), household-level wealth index raw score, and month of birth as proxy for age/historical period. The addition of individual factors reduces the size of the community effect: for vaccination in Benin, the community coefficient drops from 0.87 to 0.29; however, it is not statistically significant in either model. In many other countries, community decisionmaking remains important and statistically significant, although the size of the coefficient declines substantially. This suggests that at least some of the intercluster differences associated with women's decisionmaking authority are due to higher education and better economic status. However,

women's decisionmaking authority remains an important predictor of intercluster differences in health outcomes for many countries.

	Model 1	Model 2	Model 3	
Country	Community decisionmaking responsibility	Community decisionmaking responsibility	Community decisionmaking responsibility	Individual decisionmaking responsiblity
Benin	56.48***	42.58***	40.04**	2.37
Colombia	49.46***	22.61*	17.78	4.74
Egypt	48.34***	38.37***	38.53***	-0.21
Haiti	24.64	1.59	4.18	-8.06*
India	122.05***	64.47***	57.47**	9.27***
Malawi	46.58***	31.88***	43.14***	-10.91***
Mali	11.22	7.10	1.88	7.64*
Nepal	92.93***	45.55***	38.40**	6.40
Nicaragua	32.12*	-7.18	-0.76	-6.23
Peru	99.91***	39.20***	40.64***	-1.59
Uganda	-2.16	-2.66	-5.24	1.97
Zimbabwe	12.00	8.77	-0.43	8.96
Average	49.46	24.36	22.97	1.19

Table 3 Effect of women's decision making power on children's height-for-age

Model 1 includes only the effect of average decisionmaking responsibility in the community on intercluster intercept.
Model 2 adds controls for mother's and father's education, age and wealth index at the household level.
Model 3 also adds decisionmaking power of the mother at household level.
* P ≤ 0.1
** P ≤ 0.05
*** P ≤ 0.01

In examining the change in community coefficient across Models 1 and 2, we see a differential pattern for the three outcomes. For vaccination status, after controlling for individual wealth and education, women's decisionmaking authority has a statistically significant positive effect on intercluster vaccination differences in only five countries. For two other countries, Haiti and Uganda, the sign of the coefficient is negative (insignificant for Haiti, barely significant for Uganda). The average size of the coefficient declines by about 66 percent. This suggests that nearly 66 percent of the variation between clusters associated with women's decisionmaking authority is due to its association with wealth and education. The effect for height-for-age remains somewhat larger. The community-level measure for women's decisionmaking authority remains statistically significant in 7 out of 12 countries, although the average size of the coefficients declines by about 50 percent. For child mortality, even after controlling for education and wealth at the individual level, women's decisionmaking authority remains statistically significant in 4 out of 10 countries and the decline in the size of the coefficient is about 33 percent on a logarithmic scale and about 56 percent on an arithmetic scale.

Model 3 further distinguishes between women's decisionmaking authority at the cluster level and at the individual level, because we added the decisionmaking variable to the individual-level model while retaining controls for education and wealth. The column for the community decisionmaking variable shows differences between cluster averages (i.e., the intercept across clusters) and the individual decisionmaking variable reflects intracluster differences (i.e., the coefficient from intracluster fixed level analysis). While not strictly mathematically identical, the sum of the cluster-

level coefficient and the individual-level coefficient in Model 3 reflects the coefficient from Model 2. Results show that for each outcome, the size of the intercluster coefficient is substantially higher than the size of the intracluster coefficient. This suggests that living in an area where many women have greater decisionmaking authority is far better for a child than living in an area where only one's own mother has greater decisionmaking authority.

Table 4 Effect of women's decisionmaking power on child mortality				
	Model 1	Model 2	Model 3	
Country	Community decisionmaking responsibility	Community decisionmaking responsibility	Community decisionmaking responsibility	Individual decisionmaking responsibility
Benin	-0.51*	-0.35**	-0.31**	-0.04
Colombia	u	u	u	u
Egypt	-0.32	0.03	0.03	0.04**
Haiti	-0.70	-0.36	-0.28	0.01
India	-1.38***	-0.90***	-0.70***	-0.09***
Malawi	-0.71***	-0.51***	-0.74***	-0.19
Mali	-0.25	-0.13	-0.05	-0.12***
Nepal	-0.90**	-0.13	-0.12	0.17***
Nicaragua	u	u	u	u
Peru	0.74**	0.42***	1.07**	0.23
Uganda	-0.44	-0.14	-0.33	0.11
Zimbabwe	-0.56	-0.17	-0.11	-0.02
Average	-0.50	-0.22	-0.15	0.01

Note: There were only 56 cases of child mortality in Colombia and 16 in Nicaragua. Hence these countries are not included in the child mortality analysis. Model 1 includes only the effect of average decisionmaking responsibility in the community on intercluster intercept. Model 2 adds controls for mother's and father's education, age, and wealth index at the household level.
Model 3 adds decisionmaking power of the mother at household level.
* $P \leq 0.1$
** $P \leq 0.05$
*** $P \leq 0.01$
u = Unknown (not available)

8   DISCUSSION

The impact of women's empowerment on health outcomes differs by the type of outcome, and the effect is greater for height-for-age than for either child mortality or vaccination status. Height-for-age is a measure of long-term nutritional status and is affected by children's exposure to gastrointestinal diseases as well as food intake. While malnutrition may lead to increased child mortality, access to health care is an important determinant of mortality. It may be that women's decisionmaking authority most directly translates into day-to-day behavior of the household, and while decisionmaking authority also increases use of emergency care or preventive care, this effect is smaller. While mothers—as primary caretakers—are more aware of children's health needs, in many countries even women who have little authority may be able to work through other family members. Day-to-day resource allocation issues, such as buying special foods for infants, may be more susceptible to women's authority within the household.

Our research shows that while women's decisionmaking authority does not affect health outcomes in all settings, it has a positive impact on health outcomes in a large number of the

countries included in this study. As Model 2 in Tables 3 and 4 indicates, in two Asian countries (Nepal and India), women's decisionmaking authority improves height-for-age and reduces child mortality, even after controlling for education and wealth. Effects are the weakest in sub-Saharan Africa, with Latin America and the Caribbean falling in between. This suggests that more nuanced research on gender inequalities would incorporate historical and cultural factors that influence gender systems in different settings. Women in Asia and the Middle East are restricted by patriarchal controls that limit their physical mobility and ability to make independent decisions to a far greater degree than women in other cultures (Smith et al., 2003). Our results are consistent with these findings.

The magnitude of community effects far outweigh the magnitude of individual effects. More than three-fourths of the effect of women's decisionmaking is concentrated at the community level; the coefficients for individual effects are relatively small. Two potential explanations account for these results. The first explanation suggests that even highly empowered women, when living in a community where women have little say in decisionmaking, may find their power diminished. For example, in highly patriarchal areas, doctors may refuse to carry out emergency treatment at the mother's sole discretion. The second explanation suggests that community attitudes and norms are far more important in determining health outcomes than individual attitudes. For example, when a woman is dealing with a sick child, and her husband is not present, the neighbors might encourage her to make an independent decision to take the child for treatment. Thus, a community that views women as capable of making independent decisions might positively influence a woman who has little power in her day-to-day life.

While our measure of community behavior is an aggregate reflecting what women in a given society generally do, it seems to be far more important in determining child outcomes than what the individual mother does. This finding agrees with Kabeer's (2001) argument that while women may act to challenge the existing normative structures, their individual challenge often has a limited impact. However, while these innovators don't always manage to improve their own life situations, their behavior has a larger social component, and as more and more women begin to assert their control over their own lives, this collective behavior reaches a point at which it begins to influence the opportunities available to all women, not just the innovator herself.

From a public policy perspective, it is this nexus between individual (agency) and community (structure) behavior that needs to be better understood. Many activist groups focus on organizing women in collective action that empowers whole communities of women rather than just the participants. Our empirical results suggest that focusing on communities and community norms has a spillover effect that benefits all women.

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