MATERNAL AND CHILD HEALTH IN DEVELOPING COUNTRIES‡

Mothers Care More, But Fathers Decide: Educating Parents about Child Health in Uganda†

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Research on intrahousehold decision making often finds that fathers have more decision-making power than mothers, but mothers put more weight on children's well-being. One policy response has been to try to shift decision-making power toward mothers, for example by making mothers the recipient of transfers aimed at improving children's welfare (Lundberg, Pollak, and Wales 1997).

However, changing decision making in the family is not always feasible or advisable. In such cases, the divergent preferences and decision making of parents suggest a trade-off when targeting policies to improve children's well-being. On the one hand, fathers have more power to change household behavior in ways that help children. On the other hand, mothers might have a stronger desire to do so. This trade-off might be especially stark in developing countries where women have especially low bargaining power (Jayachandran 2015).

We study this trade-off in the context of classes that teach parents low-cost ways to improve child health. Our setting is Uganda. Many simple, inexpensive behaviors that promote child health such as boiling drinking water, exclusively breastfeeding newborns, spacing births, and using antimalarial bed nets have low take-up, and increasing their adoption could reduce child malnutrition and mortality (Bhutta et al. 2013). We compare village-level parenting classes for mothers, which were held over the course of a year and encouraged these health-promoting behaviors, to similar classes for fathers. For the reasons discussed above, it is ambiguous whether targeting the classes to mothers or fathers will be more effective.

In addition to contributing to the literature on intrahousehold decision making, this paper is one of the first to rigorously study whether mothers' and fathers' knowledge have different impacts on child health.

I. Study Design

The study took place in the southwest region of Uganda between 2012 and 2014. The interventions we examine are village-level health and nutrition classes that provided parents of young children with knowledge to improve their children's health. In addition to the two interventions discussed in this article—women's health and nutrition classes (WHN) and men's health and nutrition classes (MHN)—the study included a third arm that paired women's health and nutrition classes with communication skills and empowerment training. Björkman Nyqvist and Jayachandran (2017) report the impacts of all three treatments and examine a larger set of outcomes, including infant mortality, child anthropometrics, and maternal anthropometrics.

The intervention consisted of 19 classes that were one hour each in duration. The sessions were held biweekly over 10 months. Individuals with a background in public health were recruited to be the teachers and received extensive training on the curriculum prior to the start of the intervention.

WHN classes were taught by female teachers, while MHN classes were taught by male teachers. Both interventions followed the same curriculum. The topics included prenatal nutrition, safe water and sanitation practices, and preventative health care for infants, among others. Class size varied from 5 to 16 invited participants. The classes were held at a central location in the village, often at the local primary school, at a day and time decided upon by the group. Participants were given a small monetary incentive for participation; males received 1,000 UGX (approximately $0.40) and female participants received 500 UGX per class attended.[1]

We assess the impact of the interventions via a randomized controlled trial. The unit of randomization was the village. The study sample consists of 105 WHN villages, 105 MHN villages, and 104 villages in the control group; the control group received no intervention. A total of 4,248 households in these 314 villages comprise the sample. The criteria for selecting villages for the study is discussed in detail in Björkman Nyqvist and Jayachandran (2017).

The study enrolled married or cohabiting couples who had a young child (under age two years at the time of the household listing) or were expecting a child. Such parents were the target audience for the intervention—classes teaching how to improve young children's health. Another criterion was that both members of the couple resided full-time in the village; part-time residents or non-residents would be unlikely to attend the parenting classes regularly. Household eligibility for the study was determined through a listing exercise conducted in each study village prior to the baseline survey. A brief questionnaire was administered to the village head to obtain a list of households that met the eligibility criteria. When there were more than 18 eligible households in a village, we randomly selected those to enroll in the study.

After the listing, we conducted the baseline survey. Eligibility was verified with the household before enrolling them in the study. Next, we randomly assigned villages to study arms, stratifying along two baseline sample characteristics: average women's decision-making power and average child and maternal health in the village. Villages were grouped into four strata defined by being above or below the sample median for each of the two characteristics.

The intervention began in early 2013. In WHN villages, mothers in study households were invited to attend the parenting classes, and in MHN villages, fathers were invited. Classes were successfully held in all villages that were assigned to receive them, and no classes were held in control villages. After the intervention ended, we conducted endline data collection. We collected endline data for 98 percent of the original sample.

II. Data

The data collection at both baseline and endline included a survey administered to the woman in the eligible household, a shorter survey focused on knowledge and gender norms administered to the man, and anthropometric measurements (height, weight, middle upper arm circumference, and blood hemoglobin level) of women and children. We also use data on class attendance, which was recorded by the teachers.

Besides attendance, the outcomes in this paper are health knowledge and household behaviors related to maternal and child health. For a parent's knowledge, we create a single index that is a weighted average of several questions we asked that gauge health and nutrition knowledge. The survey tested knowledge for each parent about child health, such as whether colostrum was healthy for a newborn; maternal health, such as the nutritional needs of pregnant women; and general health knowledge, such as how long water needs to be boiled so that it is safe to drink. The index is constructed using variance-based weights and is normalized to have a standard deviation of 1 for the sample. The same weights are used to construct the knowledge index for women and men so that the variables are directly comparable.

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[1] The rationale for the gender difference in incentives was that, in the absence of financial incentives, men were less likely to participate than women when we piloted the intervention.

Table 1—Baseline Characteristics

	Women	Men
Health knowledge	0.114	−0.118
	(0.968)	(1.018)
Decision-making power	0.295	0.441
	(0.194)	(0.209)

Note: Sample means, with standard deviations in parentheses, are reported for the combined WHN, MHN, and control groups.

For health behavior, we similarly construct a weighted average of several health behaviors including prenatal care visits, exclusive breastfeeding, and feeding of colostrum to a newborn. The health behaviors index is constructed at the household rather than parent level. We also use baseline variables, such as the woman's decision-making power in the household, for heterogeneity analyses.

Table 1 reports baseline knowledge and decision making for women and men, pooling the WHN, MHN, and control groups. Women's health and nutrition knowledge is higher than men's knowledge by about 0.2 standard deviations. This pattern suggests an additional reason that classes for men might be more valuable than classes for women: men start with less knowledge about maternal and child health.

Men report having more say in household decisions than women do. Decision-making power is the proportion of household decisions, across several domains, that the respondent reports making herself or himself. The reported values are based on women's responses about women's decision making and men's responses about men's decision making. Men and women were also asked about their spouse's decision-making power; both genders agree that men make more decisions than women on average.

III. Empirical Strategy

The main outcome variables are class attendance, health knowledge, and health behaviors. We estimate the following equation:

$$(1) \quad Y_{ijk} = \alpha + \beta_1 WHN_k + \beta_2 MHN_k$$
$$+ \gamma Y_{ijk}^0 + \delta X_{ijk} + \varepsilon_{ijk}.$$

The outcome Y is measured for parent i in household j in village k for the case of attendance and knowledge; health behavior is measured at the household level. We control for the baseline value of the outcome, or an analog of it, denoted Y^0, as well as other baseline covariates X such as the stratification variables. When the outcome is the parent's knowledge, we include two observations per control-group household, one for the woman and one for the man, and control for a dummy variable for the respondent's gender. When the outcome is attendance, we include one observation per control group household, as attendance identically equals zero for both women and men in the control group. Throughout, we cluster standard errors at the village level.

IV. Results

The hypothesis is that eligible participants will attend the health classes, learn about health and nutrition, and adopt the recommended health-promoting behaviors. It is ambiguous, at each step, whether the effects will be larger when mothers are the students or when fathers are.

Table 2, column 1, shows the first step in this causal chain: class attendance. Attendance is measured as the proportion of the 19 sessions that the individual attended. In the women's intervention, attendance is 76 percent, while in the men's intervention it is 58 percent. The difference is statistically significant.

The higher attendance of women could reflect greater demand from mothers to learn the material covered or simply more available time and flexibility to attend the classes. Insofar as women's attendance reflects their greater desire to attend, higher take-up could be an important part of why focusing on mothers might lead to larger impacts. However, if the gender gap in attendance reflects men's more constrained schedules, then alternative ways to deliver the information (e.g., through radio or television programs, or in the evening when men have finished work) might lead to similar take-up for men and women. In any case, as shown below, the gender gap in attendance, while noteworthy, does not appear to explain why classes for mothers have larger impacts on household behavior than classes for fathers do.

Column 2 of Table 2 examines how much participants learned from the classes. The point

Table 2—Impacts of Health Classes on Attendance and Knowledge

	Attendance	Participant's health knowledge	Spouse's health knowledge
WHN classes	0.756 (0.012)	0.289 (0.039)	0.018 (0.042)
MHN classes	0.577 (0.016)	0.220 (0.045)	0.081 (0.040)
p-value	0.000	0.222	0.243
Observations	4,182	5,258	5,279

Notes: OLS coefficients are reported with standard errors, clustered at the village level, shown in parentheses. The *p*-value reported is for a test of equality between the WHN and MHN coefficients. All regressions include stratum and district fixed effects, and baseline maternal health index, gender norms index, and log HH income. Columns 2 and 3 also control for the baseline knowledge of the participant and spouse, and the respondent's gender. When a control variable has a missing value, we impute with the village mean; flags for missing values for each variable are included as control variables. The standard deviation of attendance in the control group is 0.0; the standard deviations of participant's and spouse's behavior are both 1.0.

Table 3—Impacts on Household Health Behaviors

	Health behaviors	Health behaviors
WHN classes	0.243 (0.062)	
MHN classes	0.088 (0.064)	
WHN attendance		0.321 (0.081)
MHN attendance		0.151 (0.110)
p-value	0.009	0.068
Observations	3,735	3,735

Notes: Standard errors are clustered at the village level. Column 1 is an OLS model. Column 2 is an instrumental variables model; WHN and MHN attendance are instrumented by two indicators for whether the village was assigned to WHN classes and for whether it was assigned MHN classes. The *p*-value reported is for a test of equality between the WHN and MHN (or WHN and MHN attendance) coefficients. The control variables included are the same as column 1 of Table 2, plus the household's baseline behavior. The standard deviation of the outcome in the control group is 1.0.

estimate for knowledge gained by participants in WHN villages is larger than the point estimate for MHN villages. Column 3 examines spillovers to the spouse's knowledge. Interestingly, men attending the classes increases women's knowledge, but there are no spillovers to men from women attending classes. This asymmetry might reflect gender norms whereby women are receptive to learning from their husbands, but not vice versa. Alternatively, women might have a greater demand to learn the lessons about child health that their spouse was taught. The differences in the impacts of the WHN and MHN interventions on knowledge are not statistically significant, however.

We next examine household health behaviors. Classes for mothers lead to an increase in households' health-promoting behaviors (Table 3, column 1). In contrast, there is no detectable improvement caused by classes for fathers. The difference in the treatment effects of WHN and MHN classes is about 0.2 standard deviations and is statistically significant.

The results discussed thus far indicate that women attend sessions more, and the women's classes lead to more positive behavior change. We next test whether women's higher attendance quantitatively explains the larger impacts

on household behavior. To do so, we estimate an instrumental variables model in which there are two endogenous regressors, the mother's attendance at WHN classes and the father's attendance at MHN classes. The two treatment indicators for WHN villages and MHN villages are the instruments. The gender gap in attendance does not explain the gap in household behavior; per session attended, women's participation has a larger effect on household behavior than men's participation does (Table 3, column 2). This finding suggests that the differential impact on behavior is due to mothers putting into practice more of what they learned compared to fathers.

Table 3 examined household-level health behaviors such as how long the couple's most recently born child was breastfed. We also have data on individual-level behaviors for each parent such as whether he or she was tested for HIV. We find, in results not shown, that both WHN and MHN classes improve these individual-level behaviors for the participant and also for the spouse. In contrast to the knowledge spillovers, we find symmetric spillovers from WHN classes onto men's behavior and MHN classes onto women's behavior.

V. Discussion

We hypothesized that parenting classes for fathers might work better because women lack power in the household to implement what they learn, while parenting classes for mothers might work better because fathers are often not as engaged with child health as mothers are. To test the decision-making mechanism, we estimated heterogeneous effects based on baseline decision making of mothers and based on the mother's relative earnings. To test the second mechanism, we examined heterogeneity by a baseline measure of the father's engagement level with his children's health. In results not shown, we do not find evidence of the predicted heterogeneous impacts. Another factor that might differ between parents is their available time to implement what they learn, and we find some suggestive evidence that the fact that women work less and have more flexible hours explains some but not all of the differential impacts of WHN and MHN classes.

To summarize, overall, classes for mothers have larger impacts than classes for fathers in this context. Not only do they attend the classes more regularly, but they are more likely to put into practice what they learn. These findings are suggestive that, when targeting health education to mothers or fathers, the fact that mothers are more engaged with child health seems to dominate the fact that they have low bargaining power. It is important to note that this need not reflect a stronger preference on the part of mothers that their children be healthy, but simply norms about whose domain child health is.

This study compared classes that were exclusively for mothers or for fathers. Some ways of conveying knowledge, such as radio programs, are non-rival, in which case policymakers do not in fact face a choice of whether to target mothers or fathers. However, for in-person classes, whom to target is a relevant policy decision. A large class size could hinder learning. Similarly, classes need not be single-sex; the couple could be allowed to choose which parent participates. Alternatively, if mothers' and fathers' knowledge are complements in the child health production function, then educating both the mother and father could be desirable. Testing these other configurations, further understanding why classes for mothers have larger effects, and exploring the mediating factors through which educating one parent has spillovers to his or her spouse are promising directions for further research.

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