The Role of Information and Cash Transfers on Early Childhood Development: Short and Long Run Evidence from Nepal*

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Abstract

While substantial progress has been made in combating malnutrition at a global level, chronic maternal and child malnutrition remains a serious problem in many parts of the developing world. In this paper, using a randomized control trial design in Nepal, we evaluate a program that provided information on best practices regarding child care and cash to families in extremely poor areas with pregnant mothers and/or children below the age of 2. We find significant and sizable impacts of the information plus cash intervention on maternal knowledge, behavior, child development, and nutrition in the short run. In a long-run 2 year follow up survey, we find that the information plus cash group had retained significantly higher knowledge and implementation of best practices regarding early childhood health. However, there appear to be no sustained impacts on child development or anthropometrics in the follow up.

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1 Introduction

Health and human capital are important drivers of economic growth, and research from multiple disciplines has shown that health during infancy is critical in determining how children develop throughout their lives. Malnutrition is a key obstacle to achieving appropriate levels of early childhood development. While substantial progress has been made in combating malnutrition at a global level, chronic maternal and child malnutrition remains a serious problem in parts of the developing world. Even within developing countries, the rural poor disproportionately bear the burden of child malnutrition (World Development Report 2008), two important causes of which are a lack of information and a lack of income. In this paper, we evaluate a program that provided information on best practices regarding child care and cash to families in extremely poor areas with pregnant mothers and/or children below the age of 2.

The context of our study is Nepal, where maternal and child malnutrition remains a serious problem. Nepal has one of the highest malnutrition, stunting and wasting rates for children under the age of 5. According to the Nepal Living Standard Survey 2010/11, 46.7 percent of children under the age of 5 are stunted, 15.1 percent are wasted, and 36.3 percent are underweight. Moreover, pregnant mothers have sub-optimal weight gain during pregnancy. The consequences are significant and long-term, ranging from increased neonatal mortality and morbidity to irreversible adverse physical and cognitive outcomes that harm health, productivity and economic growth (Pelletier, Frongillo Jr, Schroeder, and Habicht, 1995; Strupp and Levitsky, 1995; Alderman, Hoddinott, and Kinsey, 2006). The economic costs of malnutrition are very high – an estimated 2-3 percent of GDP (US$250 to US$375 million) is lost every year in Nepal due to vitamin and mineral deficiencies alone (USAID 2014). While Nepal has made considerable progress in reducing maternal and child mortality, it has a long way to go in tackling malnutrition. Promotional campaigns aimed to raise awareness on the importance of balanced diet, proper sanitation and hygiene, breastfeeding, and other health matters have only produced mixed results, especially in the context of food insecure populations (Bhutta et al., 2008). While the lack of income may be a reason for households' inability to address malnutrition, it is unclear whether it is the lack of money or the behavior associated with cultural and social practices that have helped perpetuate malnutrition for so long in Nepal.

Using a randomized control trial design in rural areas in Nepal, we evaluate the effects of two different treatments on child development outcomes in the short and long run. One treatment arm was provided information on best practices regarding nutrition and child care for children below the age of two, and a second treatment arm received the same information and in addition, a conditional cash transfer. To receive the cash transfer, a woman simply had to attend the regular group meeting. A transfer of NPR 700 (USD 7) per month, equivalent to 8-20% of median monthly household income, was given over a period of five months. Given the short time frame of the cash treatment and the simple conditionality, this cash transfer can be viewed as a short term safety net. Information sessions started earlier and took place for nine months, and were identical across the treatment arms with and without a cash transfer. Importantly, our work utilized existing health and financial infrastructures (such as community health volunteers and group meetings organized by the Nepal Poverty Alleviation Fund) allowing for overall lower costs, easier replication, and potential scale up.

We find significant and sizable impacts on maternal knowledge regarding best practices of childcare in our treatment groups in the short and long run. Our information plus cash treatment group, for example, saw increases of nearly 1 standard deviation in maternal knowledge relative to the control group in the short run, and about 0.5 SD two years after the intervention ends; knowledge in the information only group also significantly increased relative to the control in the short and long run, but by significantly less than the information plus cash group (about half the size in each period).

Given improvements in knowledge, we then look to see if women are changing behaviors and incorporating the new knowledge into their daily lives. Households in the information and cash treatment group consumed approximately 100 more calories per day. They also improved various maternal behaviors such as breast feeding, vitamin A take up, prenatal check ups, etc. The effects on behavioral changes observed in the information only group were not significantly different even though their knowledge gains were half as large. This is surprising since one might have expected that cash would be more important in affecting behavior, such as increased regular feeding for young children, than in building new knowledge. In the two year follow up, we find that some of these best practice based behaviors persist for the information plus cash group, but the effects are not significant in the long run for the information only group.

Given that women did implement behavioral changes, we then study child outcomes to see if the improvements in behaviors are passed on to children. In the information plus cash group we find that child cognitive development, as measured by the Ages and Stages Questionnaire, improves by 0.1 SD in the short run. This is statistically significant and different from the essentially zero improvement in the information only group. While we find no increases in child anthropometrics in the treatment groups, we find significant anthropometric improvements among the *older siblings* of the treated children (these siblings were between 25-36 months at baseline) in the information plus cash intervention group. Hence, the intervention, and especially the provision of cash as a short term safety net, seems to have resulted in a marked improvement in maternal knowledge about best practices, maternal behaviors, child development, and nutrition. However, in the long run, we do not find significant improvements to be sustained in this area (child development or child anthropometrics) in either the information plus cash or the information only group.

This paper is related to existing research in epidemiology and economics focusing on the role of information campaigns and cash transfers to improve health outcomes (see Bhutta et al. (2013) for a review on interventions related to maternal undernutrition and Lagarde, Haines, and Palmer (2007) and Fiszbein, Schady, and Ferreira (2009) for a review on conditional cash transfers and take up of health interventions). Our results are a robust contribution to the literature specifically focusing the connection between social safety nets, nutrition, and early childhood development, which has shown inconclusive links (Ruel, Alderman, and Maternal and Child Nutrition Study Group, 2013). We also link our findings with the vast literature in medicine and economics which has identified the in utero phase and the first 2 years of life as the most critical in terms of determining future outcomes related to human capital (see Almond and Currie (2011) for a review). Therefore, measures aimed at tackling nutritional deficiencies in children must necessarily focus on this "critical window of opportunity" (popularly referred to as the first 1000 days of life). Our paper builds on this literature by focusing on the extent to which a shorter-term intervention can significantly impact outcomes in the short and long run. Our study is also notable for its focus on maternal knowledge improvements as a result of the information campaigns. Finally, the population we study in Nepal are an extremely poor and marginalized subset of the overall population. Improving early childhood health among the poorest of the poor in a post

conflict setting such as Nepal is an important policy goal and this paper provides crucial evidence towards this.

Our paper is most closely related to the recent work by Macours, Schady, and Vakis (2012), who study the impacts of cash transfers to households in Nicaragua under the *Atencion a Crisis* program on child development. They find that cash transfers improve overall child development and that the positive effects of the program last long after the transfers stop. This suggests that transfers can lead to long lasting changes in behavior. Our paper can directly test the value added of cash over and above information; we add an explicit information based intervention to a basic cash component, while the *Atencion a Crisis* program seems to have included a large number of programs as part of its treatment (including informational sessions). Importantly, we explicitly measure maternal knowledge about best practices regarding child care; hence, a key contribution here is whether maternal knowledge improves as a result of the intervention and whether knowledge is better put into practice when cash is additionally given.

2 Experimental Design

2.1 Randomization

The intervention was implemented in four food insecure districts in Nepal (4 of 75 districts nationwide), through a Community Challenge Fund (CCF) administered by the Ministry of Federal Affairs and Local Development.[1] The CCF specifically targeted high risk communities within Community Organizations (COs) supported by the Nepal Poverty Alleviation Fund (PAF). PAF is a program created by the Government of Nepal that seeks to improve outcomes in poor, marginalized communities by community driven development. COs supported by PAF are designed to hold monthly meetings, facilitated by a local Social Mobilizer (SM), that bring together people from the community. PAF supports community infrastructure and income generating activities for poor and socially vulnerable households. These four districts supported by the CCF cover Nepal's diverse geography, from flat lying agricultural based areas to more mountainous regions.[2]

[1] Under a Social Safety Nets Project financed by the World Bank.

[2] The four districts are Sarlahi, Rautahat, Sindhuli, and Ramechaap. Sarlahi and Rautahat are in the terai, a low lying region that consists of marshy grasslands at the foot of the Himalayas. Sindhuli and Ramechaap are in the hills.

The intervention consisted of two treatment groups – one which received information only, and one which received information plus cash – and a control group. We implemented a stratified randomized cluster design; within each district, we randomly assigned each Village Development Committee[3] (VDC) to one of the three treatments. Henceforth, we will refer to VDC's as counties and COs as villages for ease of interpretation.[4] Within a county, we randomly selected up to four villages (out of about 30 villages within a county) to be in our sample. Every village in a county received the same treatment status. The total sample contains 184 counties across the four districts, with a total of 591 villages. Within a village, every household where a woman was either pregnant or had a child aged 2 years or under at baseline was surveyed and invited to participate in the intervention. Figure 1 shows the administrative levels and where randomization occurred.

The county was chosen as the unit of randomization for two primary reasons. First, randomizing at the village level would have led to potential for spillovers based on geographic proximity; counties are large enough units geographically that it is unlikely that a member of a village in a control county would have been able to attend or even know of the information treatment that occurred in a village of a neighboring county. Second, Social Mobilizers (SMs), who led the information sessions, are responsible for all villages within a county, including non-experimental villages. Asking an SM who had undergone training for the information arm of the intervention to withhold that information in some of her meetings would have both been unethical and led to a higher likelihood of contamination.[5]

Due to differential attrition in the first endline survey wave (end of the short run period), discussed in greater detail in section 3, our primary analysis only focuses on the 139 counties that were part of the second endline survey wave (in 2014), 45 of which are control counties, 48 of which are information only counties, and 46 of which are information plus cash counties. Table 1 shows the baseline means

[3]The VDC is an administrative unit below the district, and is similar to a municipality or county.

[4]VDC's are quite similar to counties in that both are administrative regions at a larger geographic entity than a village but a smaller geographic entity than a state. The CO and village comparison is slightly less apt. A Community Organization is created by PAF and is the specific group within a village that meets once a month. It is not itself an administrative unit. However, for the purposes of interpretation, this distinction is not important.

[5]Indeed, in discussions with local SM's, some noted that they found the information so helpful and valuable that they planned to implement it in *all* of the villages that they worked in. This reflects the potential benefits from scaling the intervention, in that there are economies of scale in having an SM implement the information in all 30 villages she is responsible for, as opposed to the maximum of 4 that took place in the evaluation. It additionally shows the importance of randomizing at the county level to minimize spillovers.

for all families, with the number in parentheses indicating the p-value for a test of equality of means between that experimental treatment arm and the control group. The groups are statistically indistinguishable across all variables. The table also indicates the relative lack of economic development among our sample – about one third of women never attended school, almost half of newborn infants were fed something other than breastmilk within three days of birth, and there are exceptionally high levels of malnutrition as evidenced by high rates of underweight, stunting, and wasting.

Finally, we also conducted a follow-up survey in the fall of 2016. This survey was mostly similar to the baseline and endline surveys conducted in 2013 and 2014, respectively. We removed several items to make the survey shorter, and added questions about the severity of the April 2015 earthquake in Nepal and home practices with children. The survey was conducted in all households that were part of the intervention, whether they were part of the wave 1 or wave 2 endline survey data collection.

2.2 The Intervention

We explore the importance of two primary barriers to achieving full nutrition – lack of information and lack of money. In order to address the lack of information, we added a module to the regular monthly PAF meeting focusing on maternal health and infant nutrition issues, led by local SMs and Female Community Health Volunteers (FCHVs), henceforth referred to collectively as local health workers.

To ensure that local health workers had appropriate levels of knowledge themselves to lead the information sessions, each local health worker underwent a weeklong training session that taught participants both the technical health issues and effective methods to engage local women and encourage behavioral change. The training sessions both taught the material to health workers and provided the opportunity for them to practice how they would lead their own meeting. All materials, such as cards and handouts to be used in the actual meetings, were provided and used during the training sessions.

Crucially, as part of the regular PAF meetings and basic health issues, local women were already familiar with their local health workers who led the intervention. Using the pre-existing social capital developed through local health workers builds on the premise that existing capacity and institutional structures should be used

to deliver impacts efficiently without needing to create new pathways to deliver the information and cash incentive treatments. Women were also presumably more likely to internalize and act upon new knowledge acquired as part of the intervention due to prior trusting relationships with local health workers.

The information session was added on to the end of the standard monthly meeting that already took place as part of PAF. The content of the information sessions promoted infant health and appropriate levels of development. This entailed some focus on nutrition for mothers in utero and best practices during pregancy, as well as practices with infants regarding breastfeeding, care when sick, and supplemental feeding when older. In the meeting, the health worker used cards portraying the issue at hand to lead a group wide discussion. For example, one card was a drawing of a woman breastfeeding, where the discussion might then revolve around issues related to frequency depending on age of the child, proper attachment, and ways to try to solve issues such as not creating enough milk. The overall curriculum was developed by Helen Keller International, based on World Health Organization standards. There was no psychosocial component of the intervention.

The cash transfer was set at NPR 700 per month (approximately $7 USD), which represents about 8-20% of median monthly income in our four districts. This figure is approximately in line with standard CCT's (Fiszbein, Schady, and Ferreira, 2009). The transfer was distributed to the eligible mother at the regular village meeting, meaning that there was a conditionality on the cash transfer that can additionally be viewed as an incentive to take up the information treatment. The transfer was "labeled" as for use on the child. Given that the conditionality is on simply going to collect the money, not on any type of behavior, as is standard in conditional cash transfer programs, and that the transfer was only distributed for five months, this should not be viewed as a standard CCT program. Rather, the cash provided a short term safety net, spurring the critical question of whether a shorter, cost effective intervention can have similar improvements in child outcomes as would a more elaborate, prolonged CCT program.

3 Data

To estimate the impacts of the intervention, we gathered detailed data on eligible households in each experimental village. A household was deemed eligible if there was a woman present who was either pregnant or had a child younger than two

years old. Baseline data collection occurred in August-October 2013, prior to the start of the intervention. In order to better measure effects of how the cash was used, and because effects of cash have been shown to fade very quickly after the cash is no longer being distributed (Baird, McIntosh, and Ozler, 2016), we conducted a midline and endline survey. One fourth of counties were randomly assigned to be surveyed at midline in August-September 2014, with the remaining three-fourths surveyed at endline in November-December 2014. Two years after the end of the intervention, we conducted a long-run follow up of all counties in November-December 2016.

A total of 4,228 women and 3,695 children under two years old were surveyed at baseline. Of these, 3,152 women and 2,783 children were in the counties surveyed at endline, which will be primarily used in the analysis. After attrition and trimming outliers, the primary women sample consists of 2,361 women. For children, attrition and trimming outliers leaves 1,953 children who were interviewed at both baseline and endline. The final child sample also includes 1,001 children surveyed at endline who were in households that were interviewed at baseline, including some newly born infants and some youth who had missing data at baseline. The final child sample thus consists of 2,954 children.

The baseline, midline, and endline surveys were nearly identical, and each included three separate modules to measure information on the household, the eligible mother, and the eligible infant. The household component of the survey was intended to be answered by either the household head or eligible mother, and measured a household's composition, assets, annual income, monthly expenditures, and daily food intake. The mother then answered questions about herself and her children, which measured her knowledge of maternal health and nutritional best practices and her actual behaviors with her youngest child while pregnant and breastfeeding. The survey concluded with anthropometric measurements of the child and a measure of cognitive development as measured by the Ages and Stages Questionnaire (ASQ).

The ASQ is a screening mechanism that asks a mother if her child can perform a specific task in one of five skill categories – communication, gross motor, fine motor, problem solving, and personal social. These questions are age specific, and can be asked of children ranging from 1-60 months old.[6] Each of the five modules consists of six yes or no questions. For example, one of the gross motor questions

[6]The age intervals of the questions are 2 months for children under 2 years old, 3 months for children from 2-3 years old, and then 6 months for children over 3 years old.

for children ages 11-12 months old is "When you hold one hand just to balance your baby, does she take several steps forward?" The raw score on each module is simply the number of "yes" answers. For ease of interpretation, within each age cohort, we standardize an individual's score so that the total population has a mean of 0 and a standard deviation of 1 on each module.

In the first survey wave, there was statistically significant differential attrition across treatment groups, with only 8% of women interviewed at baseline in the info plus cash group not found at endline, and 15% of the control group not found at endline. These data were collected during the final two months of the intervention to capture the contemporaneous effects of the cash transfer on household expenditures, given that these effects might quickly fade after the cash transfer stopped. However, conditionality of the cash transfer (needing to attend the meeting) may have led some individuals from the cash group to be found who would not have been in the absence of the cash transfer, which may bias results. Individuals who remain have significantly lower monthly expenditures at baseline (results not shown).

The primary analysis therefore focuses on the endline survey, conducted entirely after the intervention ended in November-December 2014. Attrition did not differ by assigned group, nor was attrition selective by particular characteristics. The raw levels of attrition, similar to the control group from the midline survey, indicate that the difference observed in the first wave was driven by particularly low attrition in the cash group. This is consistent with the conditionality of the cash transfer driving the low level of attrition. The 2,855 households interviewed at baseline that were interviewed again at endline make up our main sample.

The baseline data indicate that the women and households in our sample are particularly disadvantaged. More than 70% of women interviewed never attended any type of formal school, and about the same number are illiterate. This is somewhat different from data from the 2011 Nepal DHS, where only 44% of women in rural areas who would be considered eligible (by nature of being pregnant or having a child under 24 months old) never attended any school, and only 38% are illiterate. PAF targets poor areas with little economic development, likely driving the difference between women in our sample and women in rural areas from the nationally representative DHS survey.

The level of knowledge among eligible women at baseline indicates that there is substantial room for improvement from the information intervention. The aver-

age score on the knowledge index is only around 5 questions right (out of 10). Only about half of women indicated that a newborn infant should be fed breast milk exclusively for exactly six months, and about half answered that a pregnant woman should eat more food compared to before getting pregnant. Out of the total respondents, 40% responded that a baby should be breastfed more than usual during an episode of diarrhea, and 40% knew that a recently delivered woman should begin vitamin A supplementation within 45 days of delivery. This relative lack of knowledge on several crucial health issues means that the information component of the intervention has the potential for large gains, which could hopefully lead to improved developmental outcomes.

For the two year follow up, there were 4,714 women and 6,190 children surveyed. Many of these women and children come from households that were not interviewed in previous survey waves – when we restrict the sample to those who are in households that were interviewed at baseline (though excluding those interviewed as part of the midline survey to keep the samples comparable between endline and follow-up), there are 2,652 women and 4,421 children.

4 Empirical Strategy

Because we randomly assign counties to each of the two treatment arms and control group, women and children should have comparable outcomes at baseline, and should be expected to continue to have comparable outcomes in the absence of any intervention. Table 1 showed the three groups were all statistically indistinguishable at baseline. Thus, any differences after the intervention can be attributed to be the causal effect of the intervention itself. Such an estimating equation is given by:

$$y_i = \alpha + \beta_1 \text{INFO}_i + \beta_2 \text{CASH}_i + \gamma \mathbf{X}_i + \varepsilon_i$$

y_i refers to an outcome for person i, where the individual could be the mother or her child. The coefficient β_1 captures the causal impact of the information only treatment, and β_2 captures the causal impact of the information plus cash treatment. We also use an F-test to test for a statistical difference between the information only and information plus cash groups. Our empirical strategy is similar both for the short run impacts immediately following the intervention and the longer-term impacts two years after the intervention ended.

We should not need to include any controls in $\mathbf{X}_i$ because the groups are comparable at baseline. However, in order to improve precision of our estimates, we include basic control variables that depend on if the outcome variable is for the household, mother, or child, such as household composition, age, mother's schooling, whether the child was stunted, overweight, or wasted at baseline, and whether the child was surveyed at baseline.[7] We estimate specifications both using no controls and using basic controls, and the results are similar. Due to the increase in precision, we report the specifications that include basic controls. Results using no controls are available upon request.

In estimating the effects on a child's cognitive development, we add an enumerator fixed effect. The answer to these screening questions reflects the mother's subjective assessment of if a child can or cannot do something. The mother may be more or less willing to answer these questions honestly depending on the rapport established between the enumerator and the woman. Therefore, we use an enumerator fixed effect so that any effects we find are entirely identified by variation in treatment status for each individual enumerator.[8]

We also use item response theory to estimate an "ability" parameter for each of the five cognitive screening modules as well as an overall ability parameter for cognitive development. Some of the questions reveal more information about a child's true ability, and so item response theory is a way of giving additional weight to questions that are particularly informative. However, the results using these methods and using the standardized score on each module yield very similar results, so for simplicity we report only the latter method.

Because we analyze many outcomes, it is likely that some will be statistically significant purely by chance. In order to deal with multiple hypotheses, we construct indices to aggregate many outcomes into a single index measure. For women's knowledge, we score a mother's answers to 10 separate questions as right or wrong, and then sum up the total score on this 10-question "test". For all other areas, we follow the methods in Anderson (2008) and used in Attanasio, Oppedisano, and Vera-Hernández (2015).[9] For example, we construct a behavior index that

[7] Because the sample includes some children who were not measured at baseline, both because they were not born yet or because they were not present when the household was surveyed, the omitted group is those who were not present at baseline.

[8] Though there could be potential measurement issues with small infants, including a similar enumerator fixed effect does not change our anthropometric results. We only report the results on anthropometrics not including the enumerator fixed effect.

[9] We also construct a knowledge index using the same ten variables using the Anderson (2008) method that is used for other key outcomes. The results are similar. For ease of interpretation,

aggregates all of the measures of a woman's behavior during pregnancy and with a newborn infant into one measure. We first pick the variables in our survey that are closely related. We then normalize each of the variables to have a mean of zero and a standard deviation of one, redefine all variables to have a positive interpretation,[10] and then take a weighted average of the normalized outcomes. The weights are taken from the variance covariance matrix of all the outcomes considered, with higher weight placed on items that contain unique information and lower weight placed on those that are highly correlated with other variables in the index.

5 Results - Short Run

Table 2 shows the intermediate impacts of the information intervention on women's knowledge. Women in both the information only and information plus cash group do significantly better at endline, suggesting that the information sessions led to improved knowledge. The knowledge index (column 5), which counts the number of correct answers to 10 questions regarding maternal health and nutritional issues, indicates that women in the information plus cash intervention on average answer 0.9 more questions correctly than women in the control group. Relative to the control group mean, this is an improvement of 17%. The impact is also significantly higher than that of women in the information only group. The index is our preferred measure of knowledge because it aggregates across many related outcomes. Without any type of correction we would likely find statistically significant improvements on some outcomes purely by statistical chance. Levels of knowledge in the control group are still low at endline, as there has been essentially no change from the baseline level of the knowledge index. The impacts on the other individual outcomes considered in the table are consistent with the information intervention improving knowledge, particularly so for women in the information plus cash group.

It is somewhat surprising that women who participate in the same session on information experience different gains in knowledge. It is possible that women who also receive cash are more invested in the sessions as they believe cash is important to

we report the simple sum of the knowledge index in the text and in tables, though the results with the alternative index are available upon request.

[10] For example, one question we ask is "In the first three days after delivery, was your child given anything to drink other than breastmilk?". We invert this outcome so it is an indicator for if a child is fed only breastmilk within 3 days of delivery.

making some of the behavioral changes, such as appropriate supplemental feeding for young children. Alternatively, it is possible that women in the information plus cash group simply participate more in the information sessions, especially since receiving the cash transfer was conditional on attending the meeting. Column 4 of table 3 shows that women in the information plus cash group are significantly more likely to have attended a village meeting in the last month than women in both the control group and the information only group, though the reference window for the question is after the intervention ended. [11] However, this finding is consistent with women who also received cash more regularly attending meetings while the intervention was ongoing and then continuing to do so afterwards.

Column 1 of table 3 shows that expenditures in the past month were statistically indistinguishable across all groups, though in column 3 we see that there is higher caloric intake in the past 24 hours among the information plus cash group. It is unclear if this is a reallocation of income to spend more on food and less elsewhere, or an increase in particularly high-caloric foods given the knowledge gained from the information aspect of the intervention. Either way, we cannot rule out that the cash transfer simply acts as an incentive to take up the information side of the intervention, which is important in interpreting the meaning of the results.

Table 4 shows the impacts of the intervention on behavioral practices, only including women who had a new child since the baseline survey, including first time mothers. Women in the information plus cash group exhibit more "good" behavioral practices than those in either the control group or the information only group, as shown by the behavioral index in column 8. This index aggregates the first six outcomes in the table into one summary variable. The women thus seem to act upon the increased knowledge found in table 2 and adjust behaviors, particularly so for those women in the information plus cash group who had the biggest gains in knowledge. Children in treatment groups are also fed more diverse diets as is shown in column 7 – among all children aged six months and older, children ate from more food groups[12], though the difference is only significant from the control group in the information only group. A similar pattern emerges when considering an increased likelihood of eating protein, which is the food group most important for better health and growth in young children.

[11] At the midline survey, when the question refers to a month during which the intervention is taking place, there is no statistical difference in attendance across treatment groups. However, issues of attrition during the midline survey mean that this finding is not completely reliable.

[12] The food groups considered are dairy, grains, vitamin A rich vegetables, other vegetables, eggs, proteins, and nuts.

Though women increase knowledge and improve their behavior, particularly for the information plus cash group, we do not find evidence that the improvements are passed down to children in better overall outcomes. Table 5 shows cognitive outcomes and table 6 shows anthropometric outcomes for children who were aged two years or younger at baseline, including those who were not yet born. By pooling together newborn children and infants who were already alive, we are able to fully capture effects on children most likely to be affected by the intervention. Though children in the information plus cash group have similar scores of cognitive development as the control group, they perform significantly better than children in the information only group. The increase of nearly 0.1 standard deviations in the cognitive index, shown in column 6, is in line with the gains found in Macours, Schady, and Vakis (2012). These gains relative to the information group are partially driven by improvements in gross motor skills (column 2), which are likely to be particularly hindered by malnutrition (Engle, Black, Behrman, De Mello, Gertler, Kapiriri, Martorell, Young, Group, et al., 2007). Anthropometric outcomes are statistically similar across all groups, indicating the intervention had no impact on these measures. Prior interventions have tended to find the strongest gains to alleviating malnutrition in reduced levels of stunting (e.g., Fernald, Gertler, and Neufeld (2009); Rivera, Sotres-Alvarez, Habicht, Shamah, and Villalpando (2004); Maluccio and Flores (2005)). We also find no differential impacts on anthropometric and cognitive outcomes by gender (not shown).

This analysis has focused only on participants in the endline survey. The midline survey results are not shown because of issues with attrition discussed in section 3. However, we follow the procedure in Lee (2009) to estimate upper and lower bounds to correct for the sample selection issues stemming from attrition. Table A1 estimates the upper and lower bounds on the treatment effects for the indices reported in the main tables. Estimates are reported separately for the information only versus control group and the information plus cash versus control group. The bounds for the most part cannot rule out the findings from the endline, which implies that the two survey waves can be consistent with each other.[13]

The cash transfer is "labeled" as being targeted at the youngest child, but a parent could allocate the additional cash to another child in the household. Though much of the information is specific to infants, issues like nutritional diversity apply to

[13]Specific tables that mimic the exact main results for the midline survey waves are available on request, but are left out to save space.

all children. The final column of table 6 shows that anthropometric outcomes of older siblings are significantly higher for the information plus cash group than the information only group. These are the siblings of children in tables 5 and 6 who were aged 25-36 months at baseline, and are thus not technically eligible for the intervention. These improvements are driven by a lower likelihood of being underweight, and a lower likelihood of being sick in the past 30 days.

6 Mechanisms

The overall theory of change presented so far has demonstrated that the information sessions improved knowledge, particularly in the cash group; gains in knowledge lead to changes in behavioral practices; and behavioral improvements in turn may spur some child development. In this section, we further probe each aspect of this chain to demonstrate the link between knowledge and behavior, and to posit why there may be a lack of results on anthropometrics.

Many of the questions about knowledge translate directly into practices that we surveyed the women about.[14] For example, one knowledge item asks a mother how long she should exclusively breastfeed her newborn infant. The associated practice assesses how long she actually exclusively breastfed her newborn infant. We can assess if knowledge of the issue corresponds with actually implementing it.

Table 7 shows that having knowledge regarding a behavior significantly increases the likelihood of implementing that behavior. Each column shows the results of regressing having knowledge of an item on actually having done it. With the exception of the first column, the coefficient on "knowledge" can be interpreted as the additional probability of taking an action if you know it – for example, women who know a newborn infant should be exclusively breastfed for six months are 9.4 percentage points more likely to exclusively breastfeed their child for six months. This regression does not incorporate treatment status in any way, but rather is suggestive by providing the correlation between knowing something and the likelihood of practicing that behavior. As in table 4, we focus on the subset

[14] A knowledge item that does not directly correspond to an action is if a pregnant woman should eat more, less, or the same as before she became pregnant. Asking a woman about her eating practices while pregnant would be too broad of a question without using definitive numbers. This would more likely produce inaccurate responses so we did not ask such a question.

of women who had a new child after the baseline survey so that the behavioral practice questions correspond to when new knowledge could have been acted upon.

Women who know that the first milk should be given to the baby are 27 percentage points more likely to first breastfeed the baby within one hour of birth. This is a 110% increase over the 25 percent of women who first breastfeed their baby within one hour despite not knowing that the first milk should be given to the baby. Though not causal, there is a clear correlation between knowledge and action. The other columns indicate similar patterns.

Knowing the correct timing for implementing practices is particularly predictive of compliance with the recommended best practice. Column 5 shows that there is a 30 percentage point (or 177%) increase in taking iron tablets for the suggested amount of time if a woman knows the correct recommendation. The correlation between this knowledge and taking iron tablets at all is still significant, but the magnitude is much smaller; knowledge of the correct timing to take iron tablets is associated with a 14 percentage point (or 18%) increase in the likelihood of ever taking iron tablets during pregnancy. This provides further suggestive evidence that knowledge directly leads to action.

Behavior changes should likely lead to improvements in child outcomes; these practices are WHO suggestions precisely because they are scientifically shown to improve outcomes. However, our results on this front are somewhat mixed. We do see cognitive gains among children aged between 0 and 2 years old at baseline, though only relative to the information only group. However, there are no corresponding changes in anthropometrics.

Several potential factors might explain this phenomenon. First, time has been too short to accurately measure any differences. The information sessions lasted for nine months, and the cash transfer was only provided for five months. Additionally, by measuring children immediately following the completion of the intervention, there may not have been enough time for the behavioral changes to be fully reflected in the child's outcomes. However, as discussed in the next section on long run impacts, we similarly find no cognitive or anthropometric gains two years after the end of the intervention.

Another potential explanation is that the general level of poverty may be so high that even behavioral changes might not be sufficient to overcome the barrier associated with achieving proper development. For example, if households cannot access clean drinking water or mother's experience severe micronutrient deficien-

cies, the adverse effects of these prevailing conditions may be such that improving targeted practices might not help children. As suggestive evidence, we find a clear correlation between having a toilet and access to good drinking water on general anthropometric outcomes. Impacts on anthropometric and cognitive development do not differ significantly for those with and without a toilet or access to good drinking water.[15]

7 Results - Long Run Follow Up

Table 8 shows the primary effects on indices measuring maternal knowledge of best practices, behavior of mothers with new children, and child cognitive and anthropometric development two years after the intervention (surveys conducted in November and December of 2016). The samples analyzed include mothers and children surveyed at the follow-up who were in families who were also surveyed at baseline and who lived in counties that were part of the endline sample[16]; people can be included even if they were not present at the endline survey, either due to non-response or because a child was not yet born. We find that mothers in the information plus cash group answer an additional half question correctly out of 10 questions about maternal health and infant nutrition best practices. This is statistically significant, though not significantly different from the 0.4 increase in the information only group. Immediately following the intervention, the estimated gain in knowledge was higher (almost 1 question more answered correctly) and statistically significantly higher than the information only group. Some of this change may be that the control group mean increased from 5.3 to 5.8.

The results on behavior in Column (2) display a somewhat similar pattern; there is still a statistically significant estimated impact of the intervention on behavioral practices with newborn children among women in the information plus cash group, however the estimated impact is somewhat smaller than what was found at endline.

Though the gains we found in knowledge and behavior persist two years later, we do not find similar long term gains in child anthropometric or cognitive outcomes. Columns (3) and (4) show that there are no statistically significant differences between groups on the ASQ or anthropometric index. In addition to being sta-

[15] These two sets of regressions are not reported, but are available on request from the authors.

[16] If we include the full sample of counties, including those that were not surveyed at endline, we would find similar results. To make the endline and follow-up results most comparable, we focus on only those counties that make up the endline sample.

tistically insignificant, the estimated coefficients are also small in magnitude and often negative.

As in the analysis of outcomes focusing only on those at endline, the analytic sample included in the follow-up analysis displays few and small differences at baseline (Table A2). This table is measured using only those individuals that are part of the analysis in table 8. Since the groups were similar at baseline, and the only difference that affects particular households is their treatment assignment, we believe that the estimates from table 8 are the long-run causal impact of the intervention.

In the results immediately following completion of the intervention, we found positive impacts on cognitive development in the information plus cash group relative to the information only group. There was little understanding as to the precise mechanism that drove this finding. In order to better understand the reasons for improvement in cognitive development, we added several questions to the survey about practices with children. These include things like if a child has at least three books or at least one toy, and if parents often talk to their child or eat meals together as a family. Table 9 shows the results of estimating the impact of the intervention on these child practice outcomes. The regressions are estimated for similar households as the primary follow-up results, and include the same basic control. All measures are structured so that positive coefficients imply better practices. The intervention did not have a statistically significant positive impact on any of these measures, and may even have slightly reduced the number of children in the information only group who eat meals with their family.

8 Conclusion

In this paper, we evaluate the effects on early childhood development of providing information on best practices regarding nutrition and child care for children below the age of two, and the same information component with a cash transfer, using a randomized control trial in Nepal. We find that there were significant increases in knowledge for women in both the information and information plus cash groups, though the increase in knowledge was approximately twice as large in the group that also received the cash transfer. Women in the information plus cash group, who had the biggest gains in knowledge, also improved in maternal health and early childhood best practices, indicating that the intervention was

successful at not just increasing knowledge but also creating behavioral change. However, only children in the information plus cash group experienced improved childhood development, relative to the information only group, with cumulative child development as measured by the Ages and Stages Questionnaire improving by 0.1 standard deviations. Hence, the intervention, and especially the provision of cash seems to have resulted in a marked improvement in maternal knowledge about best practices, maternal behaviors, child development, and nutrition.

It is of note that we see significant improvements in child outcomes in the information plus cash group despite the temporary nature of the short term safety net provided by the cash transfer. The design of the intervention also builds on existing investments in training and community participation and should be another factor of interest for policy makers. This is especially important when policymakers consider the types of practical, cost-effective tools at their disposal for fighting malnutrition.

We also conducted a follow-up survey after the intervention ended to assess long run impacts. We find that two years after the intervention ends there is still a higher level of knowledge and better behavioral practices in areas that received information and cash. However, these improvements did not manifest in higher levels of cognitive and anthropometric development in children.

Moving forward, it would also be useful to study the role of the individual health workers, and how their effectiveness as leaders and prior relationships with community members impacted the information intervention. One thing that makes the information intervention unique is its use of local Social Mobilizers and Female Community Health Volunteers, who were already familiar to the community. Using these existing systems likely improved the effectiveness of the intervention given that women would be more likely to implement behavioral changes when taught by someone they trusted in a cultural context they understood, rather than someone unfamiliar simply teaching something as the "best" way of doing it. The local health workers are particularly important when considering scaling up this experiment given that they were only asked to add the information to at most four of the approximately thirty villages in which they operate. Thus, if factors like the communication skills, knowledge, gender, or any observable characteristic of the local health worker play an important role in the effectiveness of the information component of the intervention, any positive effects would be even more pronounced when scaled up. It would be imperative to understand this, and make

future decisions about where to best focus resources based on this. We leave such a study to future work.

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FIGURE 1: Randomization and Sample Selection Protocol

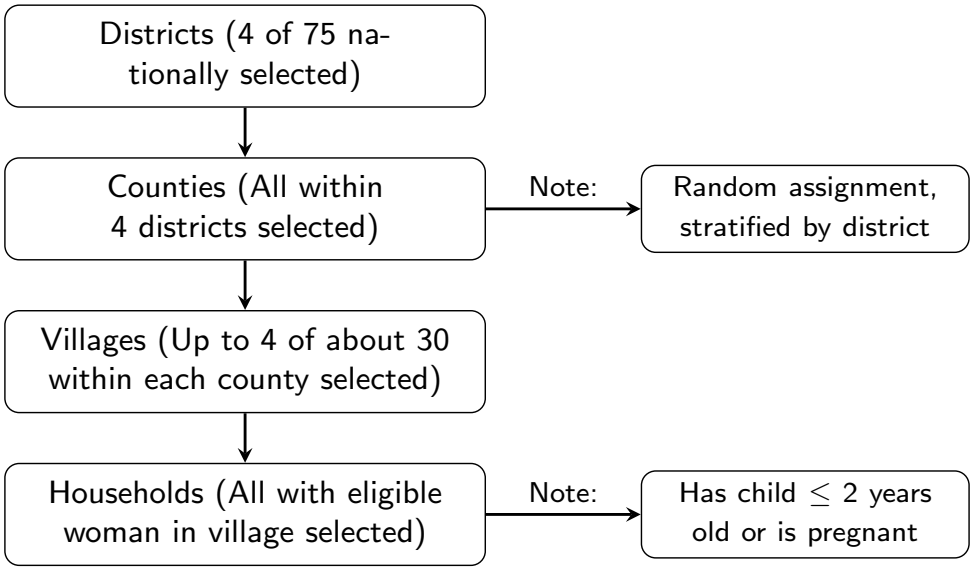

TABLE 1: Baseline Balance

	Control	Info Only	Info + Cash
Mother Age	25.91	26.44	26.48
		(0.35)	(0.33)
Mother Attended School	0.30	0.25	0.22
		(0.34)	(0.08)
Knowledge Index	5.13	5.23	4.84
		(0.73)	(0.27)
Fed non-breastmilk w-in 3 days	0.48	0.44	0.45
		(0.54)	(0.65)
Child Age	1.09	1.04	1.05
		(0.12)	(0.28)
Child Underweight	0.36	0.32	0.35
		(0.44)	(0.94)
Child Stunted	0.41	0.41	0.39
		(0.90)	(0.60)
Child Wasted	0.25	0.21	0.25
		(0.33)	(0.96)
Number Household Members	7.92	7.78	7.60
		(0.55)	(0.16)
Household Head Male	0.76	0.77	0.78
		(0.79)	(0.65)
Has Electricity	0.69	0.62	0.67
		(0.29)	(0.78)
Stone Roofing Material	0.68	0.67	0.67
		(0.96)	(0.93)
Annual Income	116,697	106,019	120,215
		(0.26)	(0.69)
Monthly Expenditures	7,319	7,094	6,257
		(0.82)	(0.20)

NOTE: Each row presents the mean within each treatment group. The values in parentheses in columns (2) and (3) represent the p-value for a test of equality of means between that group and the control group, clustering standard errors at the VDC level. The sample sizes are 757 eligible women/635 eligible children in 724 eligible households in the control group; 802 eligible women/684 eligible children in 775 eligible households in the info only group; and 802 eligible women/674 eligible children in 775 eligible households in the info plus cash group.

TABLE 2: Woman Knowledge

	(1) Breastfeed For Excl. 6 Months	(2) Eat More During Pregnancy	(3) Breastfeed More Diarrhea	(4) Number of Food Items Mentioned for Kids	(5) Knowledge Index
Info Only	0.040	0.062	0.144***	0.353*	0.493**
	(0.044)	(0.049)	(0.050)	(0.180)	(0.208)
Info + Cash	0.125***	0.108**	0.084*	0.444**	0.910***
	(0.040)	(0.049)	(0.048)	(0.173)	(0.219)
Difference	0.086**	0.046	-0.060	0.090	0.417**
	(0.043)	(0.053)	(0.054)	(0.178)	(0.205)
Control Mean	0.574	0.609	0.441	4.156	5.324
Observations	2,361	2,361	2,361	2,361	2,361
R^2	0.030	0.020	0.039	0.032	0.084

NOTE: The dependent variable in columns (1)-(3) is an indicator variable signifying if the woman responded affirmatively that the item was true. For example, a question asked "In your opinion, for how long should a newborn infant be given nothing but breastmilk?", with options of less than, more than, or exactly equal to 6 months. The dependent variable in column (1) is the share of respondents answering exactly 6 months. The knowledge index in column (5) is the number of questions answered correctly out of 10 general knowledge questions, including those in columns (1)-(3). Basic controls includes dummies for age cohorts of the female respondent, as well as individual level controls (if the woman ever went to school, and baseline weight and height) and household level controls (age and gender of household head, and number of household members).

TABLE 3: Household Characteristics

	(1) Monthly Expenditures	(2) Annual Income	(3) Calories Per Person	(4) Attend CO Meeting	(5) Has/Expects New Child
Info Only	-0.069	-0.087	42.469	0.022	-0.049
	(0.099)	(0.068)	(55.661)	(0.049)	(0.030)
Info + Cash	-0.082	0.032	94.585*	0.117**	-0.019
	(0.124)	(0.073)	(54.523)	(0.048)	(0.036)
Difference	-0.013	0.118	52.116	0.095**	0.029
	(0.116)	(0.077)	(54.604)	(0.047)	(0.031)
Control Mean	8.409	11.436	2206.473	0.342	0.437
Observations	2,211	2,211	2,211	2,361	2,361
R^2	0.057	0.062	0.014	0.115	0.062

NOTE: Income and expenditures are in logs. Basic controls includes the number of household members for columns (1)-(3) and dummies for age of the female respondent for columns (4)-(5), household level controls (age and gender of household head, number of household members) in all columns, as well as asset indicators for electricity, a stone roof, and a separate kitchen for columns (1)-(3), and the female respondent's weight, height, and if she ever attended school in columns (4)-(5).

TABLE 4: Health Practices with New Child

	(1) Number of Antenatal Visits	(2) Vitamin A Within 42 Days	(3) Fed Non-Breastmilk Within 3 Days	(4) Iron Tablets For 5-6 Months	(5) First Breastfed Within 1 Hour	(6) Deworming Pills	(7) Food Groups	(8) Behavior Index
Info Only	-0.101	0.082	-0.140**	0.035	0.006	-0.035	0.237*	0.015
	(0.246)	(0.062)	(0.060)	(0.052)	(0.068)	(0.054)	(0.130)	(0.020)
Info + Cash	0.478**	0.190***	-0.140***	0.137**	0.067	-0.064	0.137	0.058***
	(0.234)	(0.062)	(0.053)	(0.054)	(0.066)	(0.051)	(0.117)	(0.021)
Difference	0.579**	0.108	0.000	0.102*	0.060	-0.029	-0.100	0.042**
	(0.271)	(0.070)	(0.053)	(0.055)	(0.068)	(0.056)	(0.107)	(0.020)
Control Mean	3.095	0.461	0.344	0.290	0.465	1.274	2.391	0.752
Observations	685	685	685	685	685	685	1,169	685
R^2	0.060	0.058	0.050	0.041	0.025	0.031	0.047	0.030

NOTE: The sample now consists only of women who had a new child between baseline and endline, including first time mothers. The dependent variable refers to her practices both during and after pregnancy. Food groups are the number of key food groups (dairy, grains, vitamin A rich vegetables, other vegetables, eggs, meat, and nuts) that the child ate from in the past 24 hours. No controls includes only dummies age cohorts of the female respondent. The behavior index is created by taking a weighted sum of the first six demeaned variables by using the method described in Anderson (2008). Basic controls includes dummies for age cohorts of the female respondent, as well as individual level controls (if the woman ever went to school, baseline weight and height) and household level controls (age and gender of household head, and number of household members).

TABLE 5: Cognitive Scores

	(1) Communication	(2) Gross Motor	(3) Fine Motor	(4) Personal Social	(5) Problem Solving	(6) Cognitive Index
Info Only	-0.030	-0.054	0.002	-0.108**	-0.043	-0.047
	(0.046)	(0.053)	(0.046)	(0.052)	(0.048)	(0.037)
Info + Cash	0.009	0.053	0.050	0.013	-0.019	0.025
	(0.045)	(0.057)	(0.045)	(0.055)	(0.046)	(0.038)
Difference	0.039	0.107**	0.047	0.121**	0.024	0.072*
	(0.048)	(0.054)	(0.048)	(0.053)	(0.052)	(0.038)
Control Mean	-0.046	-0.059	-0.039	-0.018	-0.027	-0.040
Observations	2,614	2,614	2,614	2,614	2,614	2,614
R^2	0.263	0.244	0.330	0.304	0.412	0.413

NOTE: All outcomes are expressed in standardized Z-scores for each 6-question module. The cognitive index is created by taking a weighted sum of the five demeaned scores by using the method described in Anderson (2008). Basic controls includes dummies for gender and age cohorts taking each separate ASQ module, as well as individual level controls (if mother ever went to school and indicators for whether the child was stunted, underweight or wasted at baseline or did not have baseline data) and household level controls (age and gender of household head, and number of household members). Also includes a fixed effect for which enumerator conducted the endline survey.

TABLE 6: Anthropometric Measures

	(1) Underweight	(2) Stunted	(3) Wasted	(4) Weight-for-Age	(5) Height-for-Age	(6) Weight-for-Length	(7) Sick Past 30 Days	(8) Anthropometric Index	(9) Anthropometric Index (Older Siblings)
Info Only	0.026	0.023	-0.019	-0.057	-0.101	-0.020	-0.021	0.012	-0.029
	(0.024)	(0.026)	(0.019)	(0.078)	(0.095)	(0.105)	(0.034)	(0.032)	(0.073)
Info + Cash	0.001	0.034	-0.015	-0.032	-0.191*	0.096	-0.033	0.012	0.108
	(0.024)	(0.026)	(0.020)	(0.074)	(0.104)	(0.112)	(0.028)	(0.030)	(0.074)
Difference	-0.025	0.011	0.004	0.025	-0.090	0.116	-0.012	0.000	0.138**
	(0.023)	(0.027)	(0.021)	(0.070)	(0.101)	(0.106)	(0.032)	(0.031)	(0.063)
Control Mean	0.304	0.514	0.146	-1.403	-1.971	-0.396	0.438	-0.017	0.149
Observations	2,954	2,954	2,954	2,954	2,954	2,954	2,954	2,954	266
R^2	0.139	0.117	0.033	0.190	0.132	0.070	0.038	0.100	0.229

NOTE: The anthropometric index creates an index of the four health indicator variables for if a child is underweight, stunted, wasted, or has been sick in the past 30 days by using the method described in Anderson (2008). Basic controls includes dummies for gender and age cohorts taking each separate ASQ module, as well as individual level controls (if mother ever went to school and indicators for whether the child was stunted, underweight or wasted at baseline or did not have baseline data) and household level controls (age and gender of household head, and number of household members). The final column includes siblings of children in eligible households (same as the rest of the table) who were aged between 25 and 36 months at baseline.

TABLE 7: Connection Between Knowledge and Practice

	(1) Antenatal Visits	(2) Exclusive Breastfeed Six Months	(3) First Breastfed w/in 1 hour	(4) Only Breastmilk w/in 3 days	(5) Took Iron Pills For 5-6 months	(6) Took De-Worming Pills	(7) Vitamin A W/in 45 days
Knowledge	0.656***	0.094**	0.271***	0.230***	0.303***	0.228***	0.411***
	(0.163)	(0.039)	(0.064)	(0.056)	(0.035)	(0.034)	(0.035)
Constant	2.911***	0.531***	0.246***	0.538***	0.171***	0.600***	0.332***
	(0.110)	(0.031)	(0.061)	(0.053)	(0.027)	(0.028)	(0.025)
Observations	678	678	678	678	678	678	678
R^2	0.023	0.009	0.025	0.024	0.099	0.061	0.170

NOTE: Runs a simple OLS regression between if a woman correctly answers a question in the knowledge portion of the survey and her reported practice with her youngest newborn child. For example, column (1) regresses if a woman knows the appropriate number of antenatal care visits is 4 on the number of reported antenatal care visits. No control variables are used, and the treatment status is not included in any fashion. The sample consists of women who had a new baby since the baseline survey, as in table 4.

TABLE 8: Long Run Follow Up Results

	(1) Knowledge Index	(2) Behavior Index	(3) ASQ Index	(4) Anthropometric Index
Info Only	0.422*	0.031	0.021	-0.030
	(0.223)	(0.019)	(0.045)	(0.041)
Info + Cash	0.487**	0.034*	-0.017	-0.045
	(0.229)	(0.018)	(0.044)	(0.035)
Difference	0.065	0.002	-0.038	-0.014
	(0.226)	(0.019)	(0.052)	(0.041)
Control Mean	5.754	0.768	-0.075	0.014
Observations	2,340	1,100	3,213	3,373
R^2	0.081	0.034	0.358	0.008

NOTE: The knowledge index is created by summing the score of correct questions out of 10 general knowledge questions. All other indices are created by taking a weighted sum several relevant demeaned scores by using the method described in Anderson (2008). All regressions include several basic controls, and the ASQ index in Column (3) also includes a fixed effect for which enumerator conducted the follow-up survey.

TABLE 9: Child Practices (Impact regressions)

	(1) Has at least 3 books	(2) Has at least 1 toy	(3) Believe Parents Should Teach Kids	(4) Eat Meals With Family	(5) Often talk to Child
Info Only	-0.014	-0.017	-0.017	-0.098**	0.005
	(0.015)	(0.066)	(0.015)	(0.046)	(0.016)
Info + Cash	0.007	0.087	-0.019	-0.034	0.011
	(0.018)	(0.063)	(0.017)	(0.048)	(0.017)
Difference	0.021	0.105	-0.002	0.064	0.006
	(0.016)	(0.064)	(0.018)	(0.049)	(0.014)
Control Mean	0.042	0.535	0.984	0.768	0.968
Observations	974	974	974	974	974
R^2	0.039	0.026	0.010	0.017	0.005

NOTE: The dependent variable in all columns is an indicator variable. All questions are newly asked in the follow-up survey.

TABLE 10: Earthquake Severity Impacts

	(1) Had Property Damage	(2) Home Destroyed	(3) Displaced	(4) Days Displaced	(5) Water Impacted	(6) Received Assistance	(7) Received Remittance	(8) Remittance Amount
ASQ Index								
Coefficient (Control group)	-0.066	-0.026	-0.031	-0.000	-0.030	-0.123	0.045	0.000
	(0.041)	(0.053)	(0.053)	(0.000)	(0.042)	(0.077)	(0.034)	(0.000)
Interacted with information only group	0.101*	0.141**	0.139**	0.000	-0.030	0.077	0.042	0.000
	(0.059)	(0.068)	(0.065)	(0.000)	(0.065)	(0.057)	(0.052)	(0.000)
Interacted with cash group	0.078	0.076	0.101	0.000	0.044	0.102*	-0.006	0.000
	(0.048)	(0.063)	(0.062)	(0.000)	(0.059)	(0.053)	(0.045)	(0.000)
Observations	6,352	6,352	6,352	6,352	6,352	6,352	6,352	6,352
R^2	0.251	0.252	0.252	0.251	0.251	0.251	0.252	0.252
Anthropometric Index								
Coefficient (Control group)	0.076**	0.077**	0.078**	0.000*	0.109***	0.200***	-0.004	0.000
	(0.033)	(0.037)	(0.035)	(0.000)	(0.040)	(0.036)	(0.034)	(0.000)
Interacted with information only group	-0.008	0.023	0.067	0.000	-0.015	-0.030	0.058	-0.000
	(0.049)	(0.052)	(0.050)	(0.000)	(0.060)	(0.052)	(0.050)	(0.000)
Interacted with cash group	-0.011	0.013	0.064	0.000	-0.009	-0.025	0.031	-0.000
	(0.047)	(0.051)	(0.053)	(0.000)	(0.073)	(0.051)	(0.044)	(0.000)
Observations	6,254	6,254	6,254	6,254	6,254	6,254	6,254	6,254
R^2	0.027	0.027	0.030	0.027	0.028	0.040	0.025	0.025

NOTE: The value reported is the coefficient of running a regression of several standard control variables and the variable indicated in the column title measuring earthquake severity on either the ASQ index or anthropometric index, interacted with treatment group status. Also controls for the main effects of the treatment group. The ASQ index results include enumerator fixed effects. Runs the regression on all children.

TABLE A1: Midline Outcomes, Lee Bounds

	(1) Knowledge Index	(2) Behavior Index	(3) Cognitive Index	(4) Anthropometric Index
		Information Only		
Lower Bound	-0.129	-0.011	0.004	-0.065
	(0.205)	(0.042)	(0.078)	(0.063)
Upper Bound	0.048	0.046	0.174**	-0.039
	(0.220)	(0.042)	(0.087)	(0.065)
(Endline Estimate)	0.493**	0.015	-0.047	0.012
Observations	714	201	603	603
		Information Plus Cash		
Lower Bound	0.096	0.100***	-0.102	-0.068
	(0.178)	(0.037)	(0.069)	(0.065)
Upper Bound	0.694***	0.153***	0.104	0.033
	(0.183)	(0.038)	(0.071)	(0.067)
(Endline Estimate)	0.910***	0.058***	0.025	0.012
Observations	688	187	598	598

NOTE: All outcomes are indices, created by taking a weighted sum of raw item scores by using the method described in Anderson (2008). The upper and lower bounds from estimating Lee bounds are reported, using data from the midline survey and correcting for attrition. No control variables are used in estimating Lee bounds. The endline estimate can be found in the corresponding table from the main text.

TABLE A2: Baseline Balance - Follow Up

	Control	Info Only	Info + Cash
Mother Age	26.04	26.41	26.57
		(0.47)	(0.36)
Mother Attended School	0.30	0.25	0.21
		(0.29)	(0.09)
Knowledge Index	5.12	5.20	4.89
		(0.78)	(0.40)
Fed non-breastmilk w-in 3 days	0.48	0.44	0.43
		(0.60)	(0.53)
Child Age	1.08	1.04	1.05
		(0.18)	(0.50)
Child Underweight	0.35	0.32	0.33
		(0.44)	(0.68)
Child Stunted	0.39	0.42	0.38
		(0.50)	(0.79)
Child Wasted	0.26	0.20	0.25
		(0.17)	(0.81)
Number Household Members	7.90	7.67	7.62
		(0.30)	(0.20)
Household Head Male	0.77	0.78	0.77
		(0.77)	(0.82)
Has Electricity	0.69	0.62	0.67
		(0.35)	(0.82)
Stone Roofing Material	0.66	0.67	0.67
		(0.88)	(0.96)
Annual Income	117,064	104,595	117,540
		(0.14)	(0.96)
Monthly Expenditures	7,096	6,884	6,290
		(0.80)	(0.30)

NOTE: Each row presents the mean within each treatment group. The values in parentheses in columns (2) and (3) represent the p-value for a test of equality of means between that group and the control group, clustering standard errors at the VDC level. The sample sizes are 757 eligible women/651 eligible children in 723 eligible households in the control group; 782 eligible women/672 eligible children in 998 eligible households in the info only group; and 801 eligible women/692 eligible children in 776 eligible households in the info plus cash group.

TABLE A3: Child Practices (Regression on ASQ and Anthropomteric Index)

	(1) Has at least 3 books	(2) Has at least 1 toy	(3) Believe Parents Should Teach Kids	(4) Eat Meals With Family	(5) Often talk to Child
			ASQ Index		
Coefficient	0.238***	0.108***	0.065	0.028	0.059
	(0.089)	(0.037)	(0.103)	(0.040)	(0.111)
Observations	1,416	1,416	1,416	1,416	1,416
R^2	0.372	0.373	0.369	0.369	0.369
			Anthropometric Index		
Coefficient	0.235***	-0.012	-0.080	0.021	-0.105
	(0.072)	(0.029)	(0.086)	(0.033)	(0.093)
Observations	1,528	1,528	1,528	1,528	1,528
R^2	0.090	0.084	0.085	0.084	0.085

NOTE: The value reported is the coefficient of running a regression of several standard control variables and the variable indicated in the column title on the ASQ Index. Only runs the regression on children younger than 24 months old since these questions were only asked of parents with a child younger than 24 months old.

TABLE A4: Earthquake Severity Correlation with Children's Attrition Level

	(1) Had Property Damage	(2) Home Destroyed	(3) Displaced Displaced	(4) Days	(5) Water Impacted	(6) Received Assistance	(7) Received Remittance	(8) Remittance Amount
Coefficient	0.043**	0.038	0.032	0.000	0.008	0.029*	0.033	0.000
	(0.021)	(0.028)	(0.022)	(0.000)	(0.029)	(0.017)	(0.041)	(0.000)
Observations	4,196	4,196	4,196	4,196	4,196	4,196	4,196	4,196
R^2	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000

NOTE: The value reported is the coefficient of running a regression of the variable indicated in the column title measuring earthquake severity on attrition at the child level. Attrition definition includes attrition in either the endline or follow-up survey.