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The impact of social mobilization on health service delivery and health outcomes

Evidence from rural Pakistan

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Abstract: We use a randomized community development programme in rural Pakistan to assess the impact of citizen engagement on public service delivery and maternal and child health outcomes. The programme had a strong focus on ensuring the participation of women. Women in the study villages had also identified access to primary care as a critical need for them and their children at baseline. At midline, we find that the mobilization effort alone had a significant impact on the performance of village-based health providers. We detect economically large improvements in pregnancy and well-baby visits by Lady Health Workers, as well as increased utilization of pre- and post-natal care by pregnant women. In contrast, the quality of supra-village health services did not improve, underscoring the importance of community enforcement and monitoring capacity for improving service delivery.

Keywords: public service delivery, maternal and child health, citizen engagement, community development, Pakistan, Lady Health Workers

JEL classification: C93, D7, H75, I11, O12

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1 Introduction

Community-driven development (CDD) is viewed as an important vehicle for improving public sector accountability and the quality of public service delivery by both governments and donors. Despite this, evidence on the effectiveness of CDD programmes remains mixed. This is due, in part, to the inherent difficulty of evaluating interventions that aim to change the nature of the interaction between citizens and the state. Such interventions usually have complex and unpredictable trajectories of change (Mansuri and Rao 2013). However, it is also due to a fundamental characteristic of the CDD approach. Communities are offered a bundle of distinct interventions, usually simultaneously, making it difficult to identify which aspects of a programme worked or did not work in a specific context.

A case in point, and one which is of some policy interest, is the investment that CDD programmes make in the social mobilization of poor and disenfranchised groups. Virtually all CDD programmes invest considerable resources in supporting community organizations. These organizations are meant to provide a platform for disadvantaged groups to engage in collective action around development priorities and interact with and influence institutions of the state, at the local level. Assessing the impact of these investments is difficult, however, since social mobilization is invariably combined with resource injections for community infrastructure, asset transfers for the poor, skills training or microcredit, all of which can have an impact on the demand for improved public services or influence over the policy process through other channels.

In this paper, we provide evidence of the impact of social mobilization on the quality of public service delivery in a context where other simultaneous inputs are absent. The Social Mobilization for Empowerment (MORE) programme was implemented as a large-scale randomized intervention in rural Pakistan in 2010. It is a typical CDD programme in design, but in the first three years of the programme, treatment villages were only provided with support for social mobilization. By assessing programme impact at this three-year mark, in mid-2013, we can decouple the impact of social mobilization from the injection of resources or other inputs.

The social mobilization effort focused on encouraging self-help and collective action within the community as well as better linkages with government. In treatment villages, citizens were organized into grassroots organizations, which appointed representatives to a village-level institution that had the authority to decide on village development priorities and to eventually allocate resources from a village development fund (VDF). Provision of funds and implementation of any development projects occurred after the midline survey was completed in mid-2013.

The social mobilization effort had a strong focus on increasing the participation of women in the village-level decision-making bodies. Since, at baseline, women identified access to primary health care as critical to their own needs and those of their children, we look at the impact of mobilizing women on public health provision. It is important to note that the social mobilization effort did not focus on health-related issues and no information was provided to community members on the performance of local public health providers.

The context we study is characterized by relatively high levels of maternal and child mortality, as well as malnutrition among infants and young children. Women have low decision-making power within the household and social mores restrict female mobility and autonomy. Education levels among adult women also remain extremely low, limiting their ability to access information or engage effectively with service providers. This context allows us to examine whether social

mobilization targeted at women can lead to an improvement in the performance of public health providers even in a context of low female literacy and mobility.

Rural villages in Pakistan have access to two types of health care providers. The first is a female community health provider known as a Lady Health Worker (LHW). LHWs deliver a range of services related to maternal and child health including ante- and post-natal care, well-baby visits, child growth monitoring, childhood immunization, family planning, and health education. Because LHWs are field workers who make home visits, particularly targeting households with young children or women of child-bearing age, they are the first line of direct access to public health care. In addition, the house of each LHW is declared a Health House, where residents can go for basic treatment or advice. For this reason, LHWs are typically selected from and reside within the villages that they serve. While each village is entitled to an LHW, not all villages had a LHW appointed at baseline. Among study villages, only 62 per cent reported having an LHW assigned to them at baseline. This may be due in part to a lack of qualified candidates in the village. Women must have at least eight years of formal education to be considered for the position, and those selected receive an additional fifteen months of health education and on-the-job training.

The second type of health care provider is the Basic Health Unit (BHU), a primary care health facility that typically serves multiple villages within a catchment area. LHWs are responsible for making referrals of all pregnant women to the BHU, which delivers additional pre- and post-natal care services and deals with minor illnesses of all types. While all villages in the study area were within the catchment area of a BHU, the BHUs varied substantially in the availability of trained medical staff, number of beds and supplies. Since exposure to the MORE programme was randomized at the village-level, and the catchment area of a BHU typically includes both mobilized and non-mobilized villages, we expect community mobilization to be less effective at influencing BHU-level outcomes than those of village-based LHWs.

We examine the effects of community mobilization on two sets of health-related outcomes. The first relates to women's interactions with service providers (health care utilization, access to and quality of care from LHWs); the second pertains to improvements in health outcomes for women and young children such as the incidence of illness, pre- and post-natal care, well-baby check-ups, and child immunization.

We find no significant improvements overall in the utilization of BHUs. However, there is a substantial reduction in reported waiting times at these facilities and an improvement in the odds of a woman's pregnancy being registered at the BHU as well as in the odds of her receiving post-natal care. Since LHWs connect women to BHUs and are the first providers of post-natal care, we cannot disentangle whether the improvements in registration or post-natal care are due to improvements in service delivery at the LHW or BHU level. However, women are significantly more likely to report having been visited by an LHW. They also report significant improvements in pre- and post-natal care provided by the LHW, as well as significantly higher LHW well-baby visits, including a visit to check child height.

In contrast, outcomes that are not driven by the type or quality of care provided by LHWs, such as the incidence of diarrhoea or stunting—which depends far more on community-level factors such as water quality and sanitation conditions, and household health behaviours, such as the use of soap or barefoot walking among children and adults—registered no improvement.

These findings suggest that community collective action can improve the performance of service providers only if the provider is accessible and can be held accountable by the village. This chain of accountability is most effective if the purview of the service provider is at the level of the mobilized community, as is the case with LHWs, and less effective, as in the case of BHUs, for

providers who are located at the supra-community level and are therefore accountable to multiple stakeholders.

The rest of the paper is organized as follows. The next section describes the literature on social mobilization and health. Section 3 describes the data we use for the analysis, Sections 4 and 5 provide the econometric framework and results, and Section 6 concludes.

2 Community-driven development and health

The existing literature on community-based health service interventions suggests potentially positive impacts of CDD activities on health outcomes, particularly in the domain of maternal and child health. However, since these interventions bundle several activities together, it is not possible to isolate the impact of community mobilization alone. Community-based health service programmes encompass a range of activities that focus on maternal and child care and household health behaviours. These interventions can be roughly divided into two categories: (1) projects where communities are encouraged to take an active role in resource allocation, and (2) interventions where community volunteers or community-based health workers are mobilized to deliver health services or information.

For example, Chase and Sherburne-Benz (2001) examine the impact of community organization and resource allocation via the Zambia Social Fund on health and education outcomes. They find that communities using social investment funds to construct a health facility see higher utilization of primary care services and lower utilization of hospital services compared with control communities, but they find no overall difference in total health care utilization between treated and control communities.

Other community-based health projects mobilize communities to improve health through direct engagement with formal service providers. Binka et al. (2007) implement a randomized intervention in Ghana to compare the efficacy of providing trained nurses to communities versus community volunteers. While in this study volunteers on their own do not improve child survival significantly, volunteers working with trained nurses outperform nurses working on their own. This suggests a strong role for community organization in improving health outcomes when used as a supplement to formal provision. Björkman and Svensson (2009) evaluate the impact of citizen report cards on quality of health care delivery. In a randomized trial, they find that communities provided with information on health care providers saw less absenteeism and higher quality of care. The results suggest that improvements were driven by increased community monitoring and capacity to hold providers accountable, not by any direct effects of providing information on health care providers.

Interventions in India (Tripathy et al. 2010) and Nepal (Manandhar et al. 2004) use community facilitators to organize women's groups to tackle, among other things, health behaviours and health entitlements. Both randomized trials find improvements along a range of outcomes, with large reductions in neonatal mortality.

On balance, the literature on CDD and health suggests that communities can play a significant role in improving community health through various mechanisms including resource allocation, health service delivery, dissemination of information, and monitoring of service providers. However, these interventions combine community mobilization with other inputs like information or health care workers, and the literature to date has not been able to cleanly identify the impact of social mobilization alone.

3 The MORE programme

The goal of the MORE programme is to foster social mobilization and strengthen community development through the creation of community- and village-level organizations and the provision of village-level development funds. The programme was implemented in partnership with the Pakistan Poverty Alleviation Fund (PPAF). Social mobilization activities in the study areas were supported by a key partner of the PPAF, the National Rural Support Program (NRSP). The NRSP is the largest community-based development NGO in Pakistan in terms of outreach and coverage, and currently operates in 51 districts spread across all four provinces of Pakistan. The NRSP identified 158 villages in 5 districts where it currently has a presence. The identified villages had no history of social mobilization by either the NRSP or any other organization. Of these, 108 villages were randomly assigned to treatment status, the remainder being held as controls.

The procedure followed by the NRSP for social mobilization was standardized in all the villages and districts to allow comparability. In the treatment villages, a social mobilization team (SMT) consisting of one or two Social Organizers (SOs) organized a meeting of the community. At that meeting, the SOs introduced the concept of the Community Organization (CO)—a grassroots body of 15 to 20 members with the aim of providing a platform for collective efforts and allowing members to pool their resources for common development goals. Each CO would hold regular meetings, at which members could discuss local issues, prioritize community needs, and resolve any conflicts at the local level. The SO shared examples of other areas where people had formed COs and had been able to achieve significant improvement in their lives through this platform.

The SOs also informed the community that the basis on which they would get funds for developmental activities was the ‘number of households organized in a village’, where a household is considered organized if at least one member (male or female) is an active member of a CO and has attended more than one CO meeting. A minimum of 40 per cent of the village population needed to be organized in order to be eligible for the village development grant, the size of the grant increasing with the number of households organized above the 40 per cent threshold, thus providing a strong incentive for broad mobilization. In addition, the inclusion of women and poor households in the mobilization and CO formation process was actively encouraged.

Once 40 per cent of village households had at least one CO member, the village formed a Village Support Organization (VSO). The VSO comprised two elected members from each CO in the village. One of the main tasks of the VSO was to design and implement the Village Development Plan (VDP), a document that prioritized village development projects to be funded by the grant. The grant could be used for any productive purpose for the general benefit of the entire community, including physical infrastructure, health, education, training, asset transfers, and other livelihood activities. The amount of the grant varied from village to village depending on the total number of households and percentage of households that were organized in that village. On average, villages received a grant totalling 2,897,883 Pakistan rupees (PKR), or PKR10,482 per household in the village. The VSO was also charged with the management of the grant and the active involvement of community members in monitoring and promoting transparency.

The MORE intervention was successful at encouraging broad participation from the community. On average, 59 per cent of households in treatment villages were organized. Women were well represented in the community mobilization activities, comprising 51 per cent of CO members and 41 per cent of VSO members per village, on average.

The timing of the intervention and data collection allows us to isolate the impact of community mobilization from the direct impacts of the village-level grants. In each treatment and control

village, households were surveyed at baseline, after the formation of the first COs in the treatment villages. Households were surveyed again three years later (at midline). In treatment villages, the midline survey occurred after approval of the VDP but before the disbursement of grant funds. This study focuses on the impacts at midline between the treatment and control villages, which isolates the impact of community mobilization.

3.1 Data

The baseline and midline surveys were administered to a random sample of 40 households drawn from each of the treatment and control villages and included detailed modules on health facility utilization, health outcomes, and household health behaviours.

All adult women in the household were separately surveyed for specific sub-modules related to maternal health, ante- and post-natal care, childbirth, and health outcomes. Respondents were asked about their most recent pregnancy (in the past three years) to cover relevant health care utilization for pregnancies occurring between the baseline and midline data collections. Finally, all women in the household were asked about their interaction with the LHW assigned to their village. As discussed above, the quality of service provided by the LHW should be responsive to changes in local accountability, given that the LHW is recruited from within the community that she serves.

3.2 Sample characteristics

Table 1 presents the mean of village-level characteristics and checks for balance between treatment and control villages. Villages have about 279 households living in 7 to 8 settlements on average. Villages are relatively poor, with about 52 per cent of households below the poverty line and landless households comprising about 67 per cent of all households. Households have between 6 and 7 members on average. Most household heads (63 per cent) have not had formal education.

Table 1: Descriptive statistics

Descriptive statistics	All	Treatment	Control	P-value (T=C)
Number of villages	158	108	50	
Number of households (HHs)	5,828	3,990	1,838	
Ever married: women 15–40 years	6,109	4,169	1,940	
Women w/ pregnancies in past 3 yrs	2,762	1,907	855	
Children <= 3 years of age at midline	4,509	3,060	1,449	
Village population (No. of HHs)	278.98	267.32 (18.5)	284.38 (14.9)	0.499
No. of settlements	7.50	7.82 (1.1)	7.35 (0.7)	0.720
Proportion of landless HHs in village	0.67	0.67 (0.030)	0.66 (0.020)	0.820
Proportion of poor HHs in village	0.52	0.52 (0.006)	0.53 (0.005)	0.690
Number of HH members	6.34	6.33 (0.163)	6.34 (0.127)	0.968
HH heads with primary education	0.15	0.15 (0.012)	0.14 (0.006)	0.587
HH heads with middle education	0.18	0.17 (0.017)	0.19 (0.013)	0.365

Source: Authors' compilation.

When we compare treatment and control villages we find no relationship between treatment assignment and any of these variables, giving us confidence in the success of our randomization. In fact, when we run a regression of treatment status as the dependent variable against all of these variables, the p-value for the F-test that all the variables are jointly significant is 0.98.

Table 2 provides a description of the variables used in the analysis that follows. Our outcomes of interest are broadly classified as incidence of illness, utilization of health services, quality of care provided by the BHU, maternal health and child health outcomes, and perceptions regarding the quality of care provided by the LHW.

Table 2: Description of variables

Variable name	Description
<i>Illness characteristics</i>	
Incidence of Illness	Fell ill in past month (1=Yes)
N. of consultations	(If sick) Number of health care providers consulted
Govt. provider consulted	(If sick) Govt. health care provider was consulted (1=Yes)
<i>BHU utilization</i>	
Wait time	(If used BHU) Wait time at BHU
Consult fee	(If used BHU) Amount of consultation fee paid at BHU
Convey concerns	(If used BHU) Able to convey concerns to service provider (1=Yes)
Treated well	(If used BHU) Treated well by the service provider (1=Yes)
BHU index	Index combining Wait time, Consult fee, Convey concerns, Treated well
<i>Pregnancy</i>	
Pregnancy	Pregnant in the past 3 years (1=Yes)
Registered	(If pregnant) Registered with the BHU (1=Yes)
Ante-natal care	(If pregnant) Received ante-natal care during this pregnancy (1=Yes)
Pre-preg index	Index combining Pregnancy registered and Ante-natal care
Post-natal care	Received post-natal care following delivery (1=Yes)
Birth registered	Child was registered at BHU after delivery (1=Yes)
Weight recorded	Child was weighed at birth (1=Yes)
Post-preg index	Index combining Post-natal care, Birth registered, Weight recorded
<i>Lady Health Worker performance and satisfaction</i>	
Visit	LHW visited during last pregnancy (1=Yes)
Ante-natal care	Ante-natal care received from the LHW (1=Yes)
Post-natal care	Post-natal care received from the LHW (1=Yes)
Height visit	Received well-baby visits for checking height/weight of baby (1=Yes)
Vaccination visit	Received well-baby visits for vaccination/immunization help (1=Yes)
LHW index	Index of LHW visit, Ante-natal care, Post-natal care, Height visit
Assigned to Village	HH reported that an LHW is assigned to their village (1=Yes)
Frequency of Visits	(If LHW assigned) Freq. of visits in a month (recall period: last 3 months)
Satisfaction	(If LHW assigned) Satisfied with services/advice provided by LHW (1=Yes)
<i>Immunization and health outcomes for children (0–3 years)</i>	
Incomplete immunization	Child not fully immunized against Polio, BCG, Measles or DPT (1=Yes)
Immunization card	Child has an immunization card (1=Yes)
Diarrhoea incidence	Child had diarrhoea in the last 6 months (1=Yes)
Stunting incidence	Height of the child indicates stunted linear growth (1=Yes)
<i>WASH outcomes</i>	
Use soap	Self-report of whether soap is used for washing hands (1=Yes)
Saw soap	Enumerator could verify presence of soap in household (1=Yes)
Adults barefoot	Adults in HH walk barefoot in the settlement (1=Yes)
Children barefoot	Children in HH walk barefoot in the settlement (1=Yes)

Source: Authors' compilation.

4 Econometric framework

Given random assignment to treatment and control villages, we can compare midline outcomes between experimental groups in order to establish the causal impact of the treatment on the variables of interest. We estimate the following specification:

$$Y_{ivb} = \alpha + \beta T_{vb} + \gamma_b + \varepsilon_{ivb} \quad (1)$$

where Y_{ivb} is the outcome of interest for household i in village v mapped to SMT branch b , T_{vb} is an indicator for whether village v was assigned to the treatment group, and γ_b are SMT fixed effects. The coefficient β measures the impact of social mobilization by capturing the difference in the outcome between treatment and control villages. We cluster standard errors at the village level since treatment is assigned at the village level. To allay concerns related to multiple hypothesis, we also create composite indices of related variables (see Kling et al. 2007) and assess treatment effects relative to these indices in addition to their individual components.

5 Results

The first set of outcomes (Table 3) relates to the overall incidence of illness in the past month and health services sought for these episodes of illness. Column 1 indicates that at midline, self-reported incidence of illness is significantly lower among households in treatment villages than in control villages, where no mobilization has occurred. Households in treatment villages also appear to consult a larger number of providers when a household member is ill, as shown in Column 2. While over 90 per cent of households report seeking some form of consultation during episodes of illness, only 20 per cent of households seek health services from government providers. Column 3 reports no increase in the likelihood of utilizing government health service providers following social mobilization.

Table 3: Illness incidence

	(1) Incidence of illness	(2) No. of consultations	(3) Gov't provider consulted
Treated village	-0.043*** (0.016)	0.053** (0.023)	0.026 (0.023)
N	44,265	12,505	11,494
R-squared	0.038	0.030	0.015
Mean of Dep. Var. in control villages	0.316	1.040	0.199

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Table 4 analyses whether assignment to treatment results in an improvement in the experiences of households using the BHU. Column 1 reports a statistically significant reduction of roughly 6 minutes in waiting times reported at the BHU among households in treated villages. However, no other indicator shows significant improvement. Consequently, our BHU index, which combines all measures of BHU performance, has a positive but insignificant coefficient. Note that the sample is smaller because only households that visited the BHU facility provided information on their performance.

Table 4: Utilization of Basic Health Unit (BHU)

	(1) Waiting time	(2) Consultation fee	(3) Convey concerns	(4) Treated well	(5) BHU index
Treated village	-5.821*** (1.756)	9.407 (20.395)	0.007 (0.022)	-0.010 (0.025)	0.060 (0.051)
N	1,003	1,003	1,003	1,003	1,003
R-squared	0.175	0.075	0.026	0.092	0.129
Mean of Dep. Var. in control villages	20.7	37.9	0.960	0.934	

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Tables 5 and 6 look at maternal outcomes pre- and post-delivery, as well as child outcomes immediately following birth. Since LHWs are the first point of contact for pregnant women and BHUs provide the secondary level of care, this set of outcomes could plausibly have been influenced by better performance of BHUs or LHWs. Table 5 reports pre-delivery outcomes while Table 6 focuses on post-delivery mother and child outcomes. Since these data cover pre-delivery outcomes for completed pregnancies, and there was only a three-year period between the start of social mobilization and the midline data collection, we expect weaker effects on pre-natal outcomes due to the lower exposure to treatment.

Table 5: Maternal health – pre-delivery

	(1) Pregnancy	(2) Registered	(3) Ante-natal care	(4) Pre-preg. index
Treated village	0.013 (0.015)	0.052* (0.030)	0.013 (0.023)	0.072 (0.048)
N	6,109	2,762	2,762	2,762
R-squared	0.009	0.225	0.270	0.329
Mean of Dep. Var. in control villages	0.441	0.256	0.553	

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Column 1 of Table 5 shows that at midline there has been no increase in the odds of pregnancy from the base of 44 per cent at baseline. There is a statistically significant 20 per cent increase in the odds of a pregnancy being registered at the BHU, over a base of 26 per cent, but no significant change in the odds of receiving ante-natal care. Overall, the effect of social mobilization on improvements on pre-pregnancy maternal health, captured in Column 4 of Table 5, is not significant.

Examining the post-delivery outcomes (Table 6), we find a significant and sizeable increase in utilization of post-natal care in treatment villages. The likelihood of seeking post-natal care increased by 26 per cent in treatment villages, relative to a base of 27 per cent. In contrast, there is no change in the odds of child mortality at birth, birth registration, or the recording of weight at birth. Overall, the coefficient for the post-pregnancy index is significant at conventional levels, driven in large part by the substantial increase in post-natal care.

Table 6: Maternal health – post-delivery

	(1) Post-natal care	(2) Child died at birth	(3) Birth registered	(4) Weight recorded	(5) Post-preg. index
Treated village	0.065** (0.027)	0.008 (0.007)	0.011 (0.019)	0.021 (0.014)	0.097** (0.043)
N	2,762	2,762	2,626	2,626	2,626
R-squared	0.194	0.006	0.575	0.008	0.282
Mean of Dep. Var. in control villages	0.269	0.021	0.421	0.038	

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Tables 7 and 8 focus on the performance of LHWs. Table 7 looks at the incidence of specific services provided by the LHW, while Table 8 looks at household perceptions of satisfaction with the LHW service provision. Column 1 of Table 7 indicates that the likelihood of the LHW visiting pregnant women in treatment villages rose by 19 per cent from a base of 35 per cent in control villages. Treatment villages also report a 37 per cent higher probability that pregnant women have received ante-natal care from LHWs, from a base of 14 per cent, and a near doubling of LHW-provided post-natal care, though from a very low base of 3 per cent (Columns 2 and 3). Given that there was an insignificant increase in the level of ante-natal care in treatment villages overall, the increase in care provided by the LHW implies a substitution away from other providers to the LHW.

Turning to child outcomes, we again see a significant and large increase in the probability of receiving a well-baby visit by the LHW to check infant height and weight. The odds of the LHW making a well-baby visit more than doubled in the treatment sample, though again the probability in control villages was only 4 per cent (Column 4). The impact of social mobilization on our LHW index, which combines standardized measures from Columns 1–4, is positive and statistically significant at the 1 per cent level.

Table 7: Lady Health Worker (LHW) health service provision

	(1) Visit	(2) Ante-natal care	(3) Post-natal care	(4) Height visit	(5) LHW index
Treated village	0.068* (0.038)	0.053*** (0.020)	0.028** (0.012)	0.046*** (0.014)	0.139*** (0.042)
N	2,762	2,762	2,762	2,626	2,626
R-squared	0.355	0.204	0.099	0.012	0.286
Mean of Dep. Var. in control villages	0.353	0.142	0.034	0.041	

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Table 8 captures household perceptions of LHW performance in two samples. Columns 1–3 include all women of reproductive age, while Columns 4–6 restrict the sample to women who have had a completed pregnancy in the past three years. In both samples we see a large and significant increase in the odds of households reporting that an LHW was assigned to their village. The size of the effect ranges from 20 to 25 per cent, depending on the sample, from a base of 60 per cent. This result may be explained by a greater presence of an already assigned LHW in the community or the assignment of new LHWs to previously unserved villages. Interestingly, conditional on being in a village with an assigned LHW, treated households do not report an increase in the frequency of LHW visits or a higher satisfaction with LHW visits relative to households in control villages.

Table 8: LHW performance and satisfaction

	(1)	(2)	(3)	(4)	(5)	(6)
	Assigned	All women Freq.	Satisfaction	Assigned	Pregnant in past 3 years Freq.	Satisfaction
Treated village	0.133** (0.055)	-0.029 (0.037)	0.017 (0.033)	0.150** (0.064)	0.059 (0.059)	0.029 (0.043)
N	5,828	4,160	4,220	1,466	1034	1,041
R-squared	0.142	0.012	0.065	0.173	0.017	0.083
Mean of Dep. Var. in control villages	0.621	1.050	0.686	0.603	1.07	0.692

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Tables 9 and 10 turn to health outcomes for infants and young children up to 3 years of age. For this sample of children, Column 2 of Table 9 reports that the odds of having an immunization card are substantially higher in treatment communities (39 per cent increase from a base of 11 per cent). However, there is no statistically significant impact on the completeness of the immunization record in Column 1. It is worth noting that conditional on having an immunization record available, completeness rates for immunization were at 65 per cent among controls. This complements the results on LHW service provision in Table 7, since LHWs typically identify children eligible for immunization and work together with field workers to provide immunizations.

Table 9: Immunization outcomes (children 3 years and under)

	(1)	(2)
	Incomplete immunization	Immunization card
Treated village	-0.038 (0.030)	0.041* (0.019)
N	4,372	4,372
R-squared	0.195	0.096
Mean of Dep. Var. in control villages	0.354	0.106

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Table 10 finds no significant impact of social mobilization on the incidence of diarrhoea (Column 1) or child stunting (Column 2) in children aged 3 and under.¹

¹ Column 2 has fewer observations because the measure for stunting requires the age in months, which was collected only at endline. There was some attrition in the sample, including an entire district (Nowshera), which could not be surveyed for security reasons. As a check, we examine immunization outcomes and incidence of diarrhoea for this restricted sample and find similar results compared when the full sample.

Table 10: Incidence of diarrhoea and nutritional outcomes

	(1) Diarrhoea	(2) Stunting
Treated village	-0.015 (0.026)	0.001 (0.026)
N	4,372	1,915
R-squared	0.035	0.005
Mean of Dep. Var. in control villages	0.370	0.535

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

Finally, Table 11 shows no change in the use of soap or the incidence of walking barefoot in the home or around the village.

Overall, the evidence suggests that broad mobilization efforts alone are unlikely to bring about shifts in household health behaviours or increase private investments in higher quality water and sanitation. More targeted efforts may be needed for these.

Table 11: Wash outcomes

	(1) HH uses soap (self-reported)	(2) Surveyor saw soap in HH	(3) Adults in HH walk barefoot	(4) Children in HH walk barefoot
Treated village	0.009 (0.014)	0.033 (0.025)	-0.042 (0.026)	-0.039 (0.030)
N	5,823	5,823	5,823	4,764
R-squared	0.041	0.111	0.091	0.054
Mean of Dep. Var. in control villages	0.926	0.637	0.385	0.624

Note: The symbols *, **, and *** represent significance at the 10, 5, and 1 per cent levels, respectively. Standard errors are reported in parentheses below the coefficient and are clustered at the village level. All specifications include SMT effects. Variables are defined in Table 2.

Source: Authors' compilation.

6 Conclusion

In this paper, we assess whether social mobilization aimed at strengthening women's participation in collective action can improve the performance of public health providers even in the absence of ancillary health inputs or financing. We find little overall improvement in the quality of services provided by supra-village public providers like Basic Health Units (BHU). In contrast, we see a substantial increase in the quality of service provision by village-based skilled female health workers under the Lady Health Worker programme. BHUs cater to multiple villages in a catchment area, not all of which were organized, limiting the capacity of any one village to influence BHU-level performance through any collective action measures. In comparison, the LHW's catchment area is limited to the village in which she typically resides, allowing for a more effective exercise of collective action on the part of the community in ensuring her presence and monitoring her performance.

Specifically, we find that a range of health services which fall under the purview of the LHW show a significant improvement in villages that were mobilized. This includes access to ante-natal care, post-natal care, and well-baby visits. Households in mobilized villages are also far more likely to report receiving visits from LHWs during pregnancy or that they have an LHW assigned to their

village. The improvement occurs in a context where there was no treatment effect on the odds of pregnant women receiving any ante-natal care, suggesting a substitution away from other public and private providers towards LHWs. This is not the case for post-natal care, where we find a sizeable increase in access to care among women in mobilized villages. Given that LHW provision of post-natal care is low at baseline, even the doubling of care by LHWs that we observe in treated villages cannot explain the overall increase in access to post-natal care. This implies a greater use of private facilities by women in mobilized villages given that there is no increase in BHU utilization.

Our results suggest that while community collective action is not a panacea for improving all levels of public service delivery, it can be quite effective in improving aspects of service delivery where community members have enforcement and monitoring capacity. The results also show that the active engagement of women in efforts to improve community collective action can have important payoffs in improved service provision targeted towards to the needs of women and young children.

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