

# The value of building health promotion capacities within communities: evidence from a maternal health intervention in Guinea

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This article presents results from a study that explored the association between community capacity for maternal health promotion and women's use of preventive and curative maternal health services. Implemented in the Republic of Guinea, the intervention aimed to build the capacity of community-level committees to heighten awareness about maternal health risks and to promote use of professional maternal health services throughout pregnancy and child-birth. Data were collected through a population-based survey. A total of 2335 women of reproductive age were interviewed, including 878 with a live birth or stillbirth since the launch of the intervention. An index of community capacity was created to explore the effect of living in a community with strong community-level resources and support for maternal health. Other composite variables were created to measure the content of women's antenatal counselling and their individual exposure to maternal health promotion activities at the community level. Multivariate logistic regression was used to explore the effect of community capacity and individual exposure variables on women's use of antenatal care (ANC) ( $\geq 4$  visits), institutional delivery, and care for complications. Our results show that women living in communities with a high score on the Community Capacity Index were more than twice as likely as women in communities with low score to attend at least four ANC visits, to deliver in a health facility, and to seek care for perceived complications. Building the capacity of community-level cadres to promote maternity care-seeking by women in their villages is an important complement to facility-level interventions to increase the availability, quality and utilization of essential health services.

**Keywords** Community capacity, care-seeking, maternal health

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## KEY MESSAGES

- Although recent evaluations of community mobilization efforts have shown promising results for neonatal health outcomes, the impact on maternal health care-seeking appears to be mixed, highlighting the need to strengthen the measurement of intermediate outcomes of community capacity-building efforts in order to better understand intervention factors that positively influence women's care-seeking during pregnancy and childbirth.
- An intervention in two regions of Guinea, which focused on building the capacity of community committees to monitor and promote maternal health care-seeking, showed that use of antenatal care, delivery care and care for perceived complications was significantly higher in villages with higher levels of community capacity for maternal health promotion.
- Building the capacity of community-level cadres to monitor maternal health and to promote maternity care-seeking is an important complement to facility-level interventions aimed at improving the availability, quality and utilization of obstetric care.

## Introduction

Considerable gains have been made in improving child survival during the past decade. However, reductions in maternal mortality have been harder to achieve (Bryce *et al.* 2013), and a recent progress report of 144 countries showed that only 26 had achieved 'sufficient progress' towards the fifth Millennium Development Goal (MDG) of cutting maternal mortality by 75% by 2015 (World Bank 2013).

Progress towards MDG 5 is disappointing despite broad-based consensus about essential interventions for improving maternal survival—namely skilled maternity care during childbirth and emergency obstetric care for women with complications before, during and after delivery. These interventions were recently reconfirmed as 'best bets' in a manifesto for a post-MDG maternal health agenda (Langer *et al.* 2013).

Although skilled maternity care is widely recognized as critical for reducing maternal mortality and morbidity, increasing rates of skilled attendance in low-resource settings remains challenging, and, as Miller *et al.* (2003) note in their article 'Where is the "E" in MCH?', there is insufficient evidence on how to increase women's access to these services, particularly during delivery and the post-partum period. Barriers to maternal health care-seeking are well-documented—as are individual and sociodemographic characteristics associated with use and non-use of maternal health services (Ensor and Cooper 2004; Koblinsky *et al.* 2006). However, less is known about effective facility- and community-level interventions for overcoming these barriers and increasing utilization of essential maternal health services (Ensor and Cooper 2004).

Globally, there is renewed commitment to capacity-building approaches that empower communities to take action to improve their own health and well-being (MacLellan-Wright *et al.* 2007; Prata *et al.* 2012), as well as increased recognition of the need for integrated community- and facility-level interventions to achieve desired health outcomes (Rosato *et al.* 2008; Lawn *et al.* 2008). Although several rigorous evaluations of community mobilization approaches have shown promising results for neonatal health outcomes, results related to maternal health care-seeking have been mixed (Prost *et al.* 2013; Victora and Barros 2013; Azad *et al.* 2010; Tripathy *et al.* 2010; Kumar, *et al.* 2008). These results highlight the need to better understand what intervention factors are positively associated with women's maternal health care-seeking.

This article presents the results of a community-level intervention that promoted use of maternal health services. Implemented in two regions in the Republic of Guinea, the intervention was focused on building the capacity of community-level volunteers to heighten awareness about maternal health risks and promote women's use of professional maternal health services. The hypothesis underlying the intervention is that training and providing support to community-level resource persons enhances capacity for maternal health within communities and that such capacities contribute to improved care-seeking at the population level (see Figure 1). In this article, we explore how intervention exposure and capacity within communities influence women's use of maternal health services during pregnancy and childbirth, as well as their care-seeking for complications before, during and after birth.

## Methods

### Setting

Ranked 178 out of 187 countries on the Human Development Index, Guinea is one of the world's poorest countries (UNDP 2011). Social and health indicators are poor; average life expectancy at birth is 56 years for women and 53 years for men (United Nations 2011). Almost half of the population (42.8%) is under the age of 15. Infant mortality is estimated at 84.5 per 1000 live births, and maternal mortality estimates range from 610 to 860 maternal deaths per 100 000 live births (Lozano *et al.* 2011; Hogan *et al.* 2011; WHO 2010). Women's use of reproductive health services is low; rates of institutional delivery during childbirth are 46% nationally (WHO and UNICEF 2013). Only 50% of women receive the recommended four antenatal care (ANC) check-ups during pregnancy (Countdown 2012).

As part of a community-level intervention to improve maternal health, 10 village safe motherhood committees (VSMCs) were established in Kissidougou prefecture in southeastern Guinea in late 2007. Comprised of six to seven community members each—both men and women—the VSMCs were trained to lead community discussions about obstetric risks and danger signs and to conduct household-level pregnancy monitoring visits to promote use of ANC and skilled maternity care. Members of the committees were also trained to record information on pregnancies, births and maternal and newborn

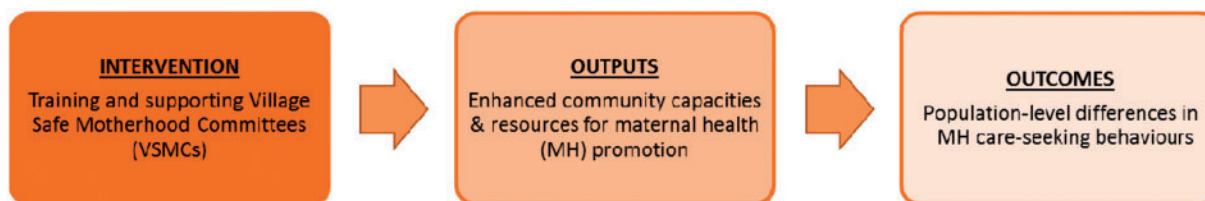


Figure 1 Intervention logic model

deaths in their respective villages. After being trained, the committees met quarterly to compile the data they had collected and to develop action plans. Based on the positive response to the VSMCs and requests from other village leaders, 10 additional committees were established and trained in Kissidougou in 2008 and 2009, and eight VSMCs were established in 2009 in Labé prefecture in northern Guinea.

Also active in health promotion in Guinea are health and hygiene committees established by local government authorities. Based at health centres and hospitals, these committees play a role in the oversight of health facility management and they are responsible for representing community needs and priorities related to health. The health and hygiene committees are also responsible for mobilizing communities around health issues through activities similar to those of the VSMCs, such as courtyard meetings and community discussions; however, these committees are responsible for covering all villages in a health facility's catchment area and addressing a broader array of health topics. When compared with the VSMCs, they have less day-to-day contact with community members at the village level, and maternal health is only one of the health issues they address.

### Study design and sample

The purpose of the study was to explore whether the establishment and support of the VSMCs in the intervention areas led to differences in community capacities related to maternal health promotion and whether such capacity is associated with maternal health care-seeking.

Data were collected through a population-based survey in 30 villages in Kissidougou and Labé prefectures, including 20 intervention villages and 10 villages where no VSMCs were established. Intervention areas were purposively sampled to focus on villages in each prefecture that had the longest exposure to the intervention. In Kissidougou, 12 villages where the first VSMCs were established in 2007 and 2008 were selected, along with eight communities in Labé where VSMCs were established in 2009. Ten comparison villages were selected across the two prefectures in consultation with the National Institute of Statistics based on the following considerations: non-contiguity to any of the villages covered by the VSMCs and similar health programming at the facility level.

In each village, households were randomly selected for interview using household lists updated by the National Institute of Statistics for the 2011 national census. In each household, up to two women of reproductive age (15–49 years) were interviewed. In addition, information on all household residents and household assets was collected through a separate

household questionnaire administered to the household head or other adult household member.

Interviews explored respondents' schooling, literacy, employment, ethnicity and religion, as well as their knowledge and attitudes related to maternal health care-seeking. Questions also explored awareness and perceptions about community-level support networks related to maternal health, such as the VSMCs and other local committees such as health and hygiene committees. Among women with recent live births or stillbirths, questions explored their care-seeking during pregnancy, delivery, and the post-partum period, as well as their experience of and care-seeking for complications. Questions related to obstetric complications focused on acute complications during pregnancy, delivery and the post-partum period—namely severe bleeding, convulsions not caused by fever, swelling of the face and hands, labour lasting more than 12 hours, high fever accompanied by foul discharge and leaking urine or faeces. As other studies have shown that retrospective self-reporting of complications is subject to inaccuracies (Filippi *et al.* 2000; Bryce *et al.* 2013; Tuncalp *et al.* 2013), this study explored complications with relatively unambiguous symptoms solely for the purpose of exploring related care-seeking—not for the purpose of measuring the incidence or severity of these complications.

Data were collected during a 6-week period between July and August 2011. At least two attempts were made to interview selected households. A total of 1846 households were successfully interviewed, including 2335 women of reproductive age, of whom 878 had had a birth since the establishment of the VSMCs (601 births in Kissidougou prefecture and 277 births in Labé).

### Definition of variables

Outcome variables included: use of ANC during pregnancy (at least four visits); delivery in a health facility; and care-seeking for complications during pregnancy, childbirth or the post-partum period. Facility delivery was defined as giving birth in a hospital, health centre or health post (public or private/mission). Care-seeking for complications was defined as seeking care at a health facility.

A set of variables were created to explore the association of sociodemographic factors, intervention factors and contextual factors with the dependent variables described above among women who gave birth since the committees were established (878 women). Principal components analysis (Filmer and Pritchett 2001) was used to compute wealth quintiles from data related to household assets, including consumer items (e.g. radio, television, bicycle, etc.), and dwelling characteristics (flooring materials, type of drinking-water source, toilet

facilities, etc.). Each household was assigned a standardized score for each asset, with the score determined by household ownership of that asset. Scores were summed for each household, and individuals were ranked according to the total score of the household in which they resided. The sample of women with births since the establishment of the VSMCs was divided into population quintiles.

A composite variable was created to measure each woman's exposure to community-level maternal health promotion activities carried out by the VSMCs, local health and hygiene committees, or other community-level health agents. This 'Community Support Exposure Index' was based on whether a respondent: agreed that there was a local committee involved in promoting maternal health; mentioned (unprompted) a community health committee or agent as the main source of maternal health information and help; and had personally attended a community-level meeting on maternal health during the past year. Based on responses to these questions, scores between 0 and 3 were assigned to each woman, and a cut-off value of 2 (i.e.  $\geq 2$ ) was used to create a dichotomous variable for 'high' vs 'low' exposure to community-level maternal health support systems.

As the content of ANC has been shown to influence care-seeking during childbirth (Bloom *et al.* 1999; Barber 2006; Mpmembeni *et al.* 2007), a second composite variable was developed to summarize the counselling provided to women during their ANC visits. The 'ANC Counselling Index' was based on whether women reported that during any of their ANC visits, they were: advised to deliver at a health facility; advised about danger signs during pregnancy and delivery; and advised on any of the following delivery preparations: saving money, arranging for transport, discussing delivery plans with family members or identifying a blood donor. Based on responses to these questions, scores between 0 and 3 were assigned to each woman, and a cut-off value of 2 was used to create a dichotomous variable for 'high' vs 'low' exposure to ANC counselling related to maternal health.

Finally, as community capacity—defined by Goodman *et al.* (1998) as 'the characteristics of communities that affect their ability to identify, mobilize and address social and public health problems'—is thought to contribute to healthy community outcomes (Goodman *et al.* 1998; Lempa *et al.* 2008), we created a composite variable to explore the effect of living in a community where village-level committees were widely known and relied upon as a community resource for maternal health. Drawing on dimensions of capacity identified by Goodman, including leadership, citizen participation, skills, networks and resources, we aggregated individual women's responses to create a village-level variable for community capacity. Drawing on data from our full sample of 2335 women, this 'Community Capacity Index' was based on the 'percentage of women in each village' who reported all of the following about the village where they lived: that community-level resource persons (committee members, community-based agents) conduct pregnancy monitoring visits to pregnant women; that community-level resource persons lead discussions or awareness-raising sessions on maternal health; and that community-level resource persons are the main source of information and help for maternal health concerns. Villages

were categorized as 'high' or 'low' on the Community Capacity Index using a cut-off score of 60%; villages where  $>60\%$  of respondents reported that these maternal health support systems existed in their community were categorized as 'high' on the Community Capacity Index.

Although measures of community capacity have generally been based on appraisals by external assessors or key informants at the community level, we chose to use population-based data from our full sample of 2335 women (which includes women with recent births as well as those who had never been pregnant or who had not had a birth within the past 5 years). In doing so, we postulated that women themselves are best positioned to evaluate whether support networks and resources for maternal health exist within their communities, as well as the extent to which these resources constitute a main source of information and help related to maternal health for people in their community. Our assumption is that VSMCs will be known and identified as a main source of information and help related to maternal health wherever they have developed and demonstrated capacity in the domains of leadership, skills, networks and resources and have successfully inspired or achieved adequate citizen participation in their community-level activities.

### Statistical analysis

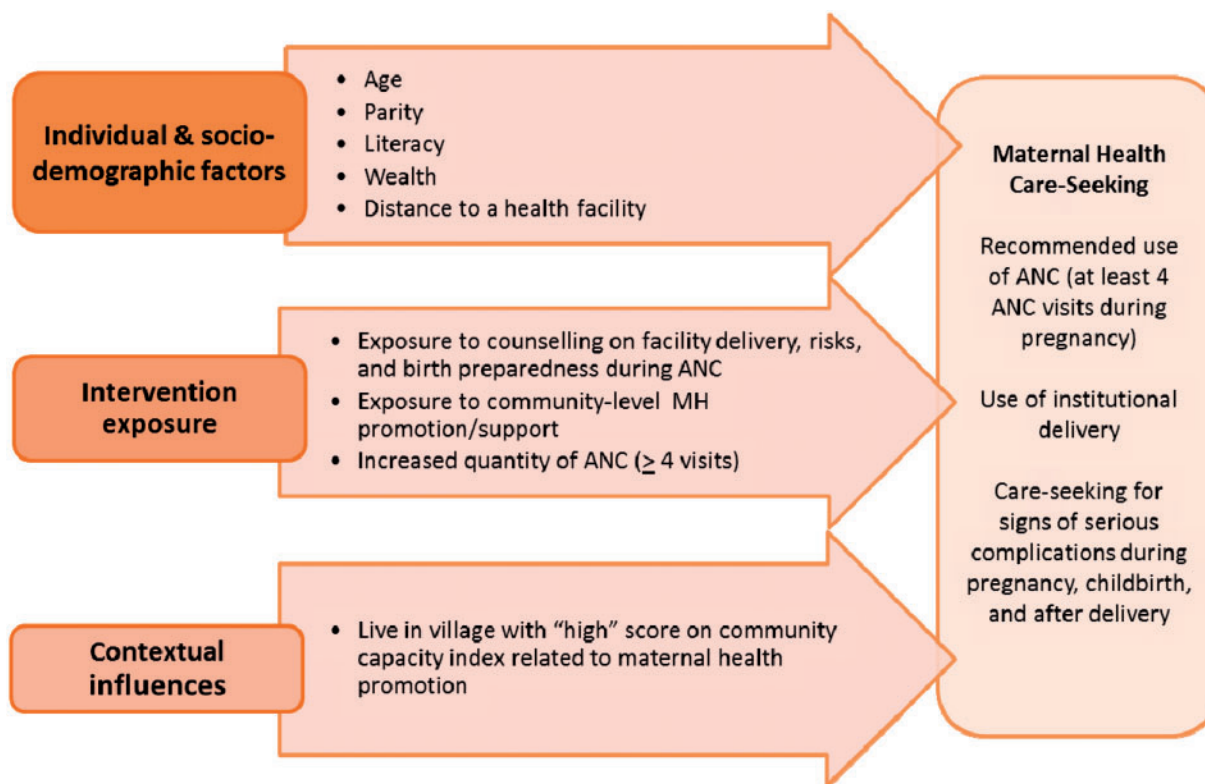
Data were analyzed in SPSS (version 20.0). Descriptive analyses and frequencies were run for all variables of interest. Among women with births since the launch of the intervention, bivariate analyses were performed to explore the association of intervention exposure, contextual factors, and sociodemographic factors with (1) use of ANC (at least four visits); (2) institutional delivery; and (3) care-seeking for complications during pregnancy, childbirth and post-partum (see Figure 2).

Logistic regression models were used to explore the effect of intervention exposure and contextual influences on outcomes of interest while controlling for known predictors (wealth, literacy, distance to a health facility, age and parity). A cut-off value of  $P < 0.1$  was used as the criterion for including predictor variables in the multivariate regression models; variables that were not associated with any of the outcome variables at  $P < 0.1$  were excluded from the multivariate analyses.

## Results

Characteristics of the sample are shown in Table 1. The mean age of women in the sample was 28 years ( $\pm 7.5$  years). The mean age at the time of the most recent birth was 27 years, and mean parity was 4.0 births. Almost all study participants (96%) were married, and 70% had never attended school. Although more women in intervention villages than comparison villages had ever attended school, there was no difference in rates of literacy, which was defined as the ability to read easily or with difficulty.

Although there was no significant difference between intervention and comparison villages in terms of mean wealth index score, a higher percentage of women in the comparison villages belonged to the two wealthiest quintiles (37 vs 29%,  $P < 0.05$ ). In addition, women in comparison villages were more likely to be employed in a remunerated activity. There were also



**Figure 2** Conceptual model for bivariate and multivariate analyses

significant differences between intervention and comparison villages in access to a health facility where maternity care is provided; women in comparison villages were significantly more likely to report living within 2 km and within 30 min of such a facility.

In terms of individual intervention exposure, there were significant differences between intervention and comparison villages in the percentage of women with high exposure to community-level resource persons involved in maternal health promotion (Community Support Exposure Index); 56% of women in intervention villages reported high levels of exposure, compared with 16% in comparison villages. In contrast, there was no significant difference between intervention and comparison villages in the percentage of women with a high score on the ANC Counselling Index, indicating that the quality and content of ANC was comparable across intervention and comparison areas.

Although some women in comparison villages reported exposure to community-level maternal health promotion activities, none of the comparison villages received a high score on the Community Capacity Index. This suggests that the coverage and intensity of maternal health promotion activities led by health and hygiene committees in the comparison villages was not sufficient to generate a high score on Community Capacity Index. In contrast, one-third of the intervention villages had a high score on the Community Capacity Index meaning that more than 60% of women in these villages reported the existence of a community committee that was active and relied upon as a primary source of maternal health information and help.

In terms of care-seeking behaviours, women in intervention villages were more likely to attend ANC at least four times (60 vs 50%). Similarly, in Kissidougou prefecture, where the VSMCs had been active longer, women in intervention villages were more likely than those in comparison villages to deliver at a health facility (50 vs 40%). However, for the full sample and in Labé prefecture, where the VSMCs were more recently established, no significant differences were observed between intervention and comparison villages in women's use of facility delivery.

Just over one-third of women in the study reported having experienced a serious complication during pregnancy, childbirth or the post-partum period. Care-seeking for perceived complications was high (78%), and there was no significant difference between intervention and comparison areas in care-seeking for complications.

Table 2 shows bivariate analyses exploring the association of individual characteristics and intervention and contextual variables with outcomes of interest. Because women who attend ANC more frequently may be more likely to seek professional maternity care, we also explored the associations between ANC attendance (at least four visits) and facility delivery and ANC attendance and care-seeking for complications.

Of the individual and sociodemographic variables, only distance (living within 2 km of a health facility) was significantly associated with all three outcomes of interest. Literacy (ability to read easily or with difficulty) and wealth (two wealthiest quintiles) were significantly associated with use of institutional delivery; however, neither literacy nor wealth was

**Table 1** Sample characteristics (women with births since the committees were established)

Characteristic	Mean (standard deviation)	Intervention ( <i>n</i> = 601)	Comparison ( <i>n</i> = 277)
Age (in years)	28.5 (7.5)	28.6	28.3
Age at time of most recent birth (in years)	27.3 (7.5)	27.3	27.2
Wealth quintile	2.99 (1.4)	2.62	2.76
Parity	4.0 (2.3)	4.0	4.0
Characteristic	Number (%) ( <i>n</i> = 878)	Intervention ( <i>n</i> = 601)	Comparison ( <i>n</i> = 277)
Region			
Kissidougou	610 (69.5)	429 (71.4)	181 (65.3)
Labé	268 (30.5)	172 (28.6)	96 (34.6)
Any education	264 (30.1)	194 (32.3)	70 (25.3)*
Literacy (can read with difficulty or easily)	162 (18.5)	115 (19.0)	48 (17.3)
Currently married	831 (94.6)	567 (94.3)	264 (95.3)
Wealth quintile			
Three poorest wealth quintiles	603 (68.8)	428 (71.3)	175 (63.4)*
Two wealthiest quintiles	274 (31.2)	172 (28.7)	101 (36.6)*
Employed in remunerated activity	520 (59.2)	337 (56.1)	156 (66.3)**
Live within 2 km of maternity care facility	416 (47.4)	272 (45.3)	159 (57.5)**
Live within 30 min of maternity care facility	354 (40.3)	225 (37.5)	140 (50.6)**
Community Support Exposure Index (High)	377 (42.9)	334 (55.6)	43 (15.5)***
ANC counselling index (High)	374 (42.6)	285 (47.5)	126 (45.5)
Community Capacity Index (High)	172 (19.6)	398 (28.6)	0 (0)***
At least four ANC visits	496 (56.5)	358 (59.6)	138 (50.0)**
Delivered in a health facility	448 (51.0)	312 (51.9)	136 (49.1)
Kissidougou		213 (49.7)	73 (40.3)***
Labé		99 (57.6)	63 (65.6)
Experienced a serious complication during pregnancy, delivery, or post-partum	310 (35.0)	202 (33.6)	108 (38.9)
Sought care for complications	242 (78.1)	157 (77.7)	85 (78.7)

\* $P \leq 0.05$ ; \*\* $P \leq 0.01$ ; \*\*\* $P \leq 0.001$ 

associated with ANC attendance or with care-seeking for complications. Parity was not associated with any of the care-seeking behaviours of interest.

Individual exposure to community-level maternal health promotion activities (Community Support Exposure Index) was positively and significantly associated with use of ANC and institutional delivery. Similarly, women with a high score on the ANC Counselling Index were significantly more likely to attend ANC at least four times during pregnancy, as well as to seek institutional delivery care and care for complications. The contextual variable—living in a community with a high score on the Community Capacity Index—was positively and significantly associated with all three care-seeking outcomes in the bivariate analyses.

Multivariate logistic regression analyses were performed to assess the influence of intervention and contextual variables on care-seeking behaviours while controlling for individual and sociodemographic factors and living in an intervention or

comparison village. We also controlled for the quantity of ANC (at least four visits) because of its association with care-seeking during labour. Parity did not meet specified criteria ( $P < 0.1$ ) for inclusion in the multivariate models.

Table 3 shows the multivariate regression results for ANC use ( $\geq 4$  visits), institutional delivery, and care-seeking for complications. Two factors were shown to be consistently associated with the three care-seeking behaviours: distance (i.e. living within 2 km of a health facility providing maternity care) and a high score on the Community Capacity Index. Women living in a village with active and trusted community-level resource persons were more than twice as likely to use maternal health services during pregnancy, delivery, and for complications (see Table 3).

Individual exposure to community-level resource persons involved in maternal health promotion (Community Support Exposure Index) was significantly associated with recommended ANC use, but such exposure was not associated with

**Table 2** Association of sociodemographic, individual, intervention, and contextual variables with maternal health care-seeking (bivariate analyses)

Care-seeking behaviour	ANC (at least four visits) <i>n</i> = 496		Institutional delivery <i>n</i> = 448		Care-seeking for complications <i>n</i> = 242	
	<i>n</i> (%)	OR (95% CI)	<i>n</i> (%)	OR (95% CI)	<i>n</i> (%)	OR (95% CI)
Characteristic						
Age (<25 years)	169 (34.1)	1.23 ( <i>P</i> = 0.09) (0.92, 1.63)	152 (33.9)	1.19 (0.89, 1.57)	80 (33.1)	0.97 (0.55, 1.71)
Literacy	92 (18.5)	1.01 (0.72, 1.43)	120 (26.8)	3.38 (2.31, 4.95)***	41 (16.9)	0.95 (0.47, 1.93)
Parity (<2)	70 (14.1)	0.97 (0.67, 1.43)	70 (15.6)	1.26 (0.86, 1.85)	37 (15.3)	1.57 (0.67, 3.71)
Wealth (wealthiest two quintiles)	158 (32.0)	1.08 (0.82, 1.45)	171 (38.3)	1.99 (1.48, 2.66)***	63 (26.2)	1.26 (0.66, 2.39)
Distance to health facility <2 km	260 (54.6)	1.65 (1.26, 2.17)***	268 (62.2)	2.98 (2.25, 3.94)***	130 (55.1)	2.45 (1.38, 4.35)**
Community Support Exposure Index (High)	243 (49.0)	1.77 (1.35, 2.33)***	214 (47.8)	1.50 (1.15, 1.96)**	98 (40.5)	1.33 (0.76, 2.34)
ANC Counselling Index (High)	247 (49.8)	1.36 (1.02, 1.81)*	215 (53.3)	1.70 (1.28, 2.25)***	119 (55.3)	2.21 (1.24, 3.94)**
At least four ANC visits			278 (62.1)	1.58 (1.21, 2.07)**	128 (53.1)	1.13 (0.66, 1.94)
Community Capacity Index	115 (24.7)	1.79 (1.26, 2.54)**	116 (27.2)	2.36 (1.66, 3.36)***	61 (26.5)	2.53 (1.14, 5.59)*
Intervention vs comparison	358 (72.2)	1.47 (1.11, 1.96)**	312 (69.6)	1.12 (0.84, 1.49)	157 (64.9)	0.94 (0.54, 1.67)

OR, odds ratio; CI, confidence interval.

\**P* ≤ 0.05; \*\**P* ≤ 0.01; \*\*\**P* ≤ 0.001.

**Table 3** Factors associated with maternal health care-seeking (multivariate analysis)

Variables (reference category)	ANC use (≥ 4 visits) adjusted OR (95% CI)	Institutional delivery adjusted OR (95% CI)	Care-seeking for complications adjusted OR (95% CI)
<b>Sociodemographic and individual variables</b>			
Age (<25 vs ≥25 years)	1.46 (1.05, 2.03)*	1.07 (0.76, 1.51)	1.24 (0.63, 2.45)
Wealth (two wealthiest quintiles vs three poorest quintiles)	1.24 (0.87, 1.76)	2.05 (1.43, 2.94)***	1.21 (0.56, 2.60)
Literacy (able to read easily or with difficulty vs cannot read at all)	0.93 (0.58, 1.49)	2.79 (1.66, 4.69)***	0.46 (0.19, 1.14)
Distance (<2 km of maternity care vs ≥2 km)	1.69 (1.23, 2.31)**	2.94 (2.14, 4.04)***	3.25 (1.65, 6.42)**
<b>Intervention exposure variables</b>			
Community Support Exposure Index (high vs low score)	1.60 (1.14, 2.25)**	1.39 (0.98, 1.97)	0.79 (0.38, 1.62)
ANC Counselling Index (high vs low score)	1.24 (0.91, 1.69)	1.47 (1.07, 2.03)*	2.79 (1.43, 5.47)**
ANC use (>4 ANC visits during pregnancy vs < 4 ANC visits)	n/a	1.33 (0.96, 1.85)	0.97 (0.52, 1.80)
<b>Contextual factors</b>			
Community Capacity Index (high vs low score)	2.24 (1.40, 3.60)**	2.42 (1.55, 3.79)***	3.49 (1.24, 9.85)*
Intervention vs Comparison	1.25 (0.88, 1.77)	0.90 (0.62, 1.30)	0.72 (0.36, 1.44)

\**P* ≤ 0.05; \*\**P* ≤ 0.01; \*\*\**P* ≤ 0.001.

institutional delivery or care-seeking for complications. In contrast, exposure to counselling on place of delivery and birth preparedness (ANC Counselling Index) was significantly associated with both institutional delivery and with care-seeking for complications.

## Discussion

Although considerable progress has been made globally in reducing maternal mortality since the MDGs were launched in 2000, many countries—particularly in sub-Saharan Africa—are not on track to meet MDG 5 (World Bank 2013). In addition, disparities in access between the rich and poor are greater for maternal health services than for newborn and child survival

interventions (Barros *et al.* 2012), which highlights the need to better understand what approaches are effective in increasing women's use of essential care throughout pregnancy, childbirth and post-partum so that effective approaches can be better targeted to the poor and other marginalized groups.

Findings from this study confirm the importance of several known determinants of maternal health care-seeking, including distance, wealth status and literacy, while also offering insights into intervention factors that may influence care-seeking. Our findings affirm that the content of counselling during ANC is important. Other studies (Bloom *et al.* 1999; Barber 2006; Mpembeni *et al.* 2007) have shown the quality and quantity of ANC to influence women's care-seeking during childbirth. Our findings are consistent with these studies, and, additionally, in controlling for the number of ANC visits sought by women, we

found that counselling on place of delivery and birth preparedness had a strong positive association with care-seeking for delivery and for perceived complications.

Importantly, findings from this study also confirm the importance of investing in the capacity of community cadres and volunteers to promote maternal health. Our findings indicate that living in a village with strong community-level networks or support systems for maternal health is positively associated with maternal health care-seeking. Controlling for known sociodemographic and individual determinants, women living in villages with a high score on the Community Capacity Index were more than twice as likely to seek the recommended four ANC visits during pregnancy, deliver in a health facility and seek care for signs of complications than were women living in communities with a low score on the Community Capacity Index.

These findings are in line with those emerging from research on how contextual factors, social capital and social norms influence health knowledge and care-seeking behaviours. For example, Kruk *et al.* (2010) found that women's use of health care facilities during childbirth was positively associated with the percentage of women in their communities who held positive beliefs about the importance of institutional delivery. Similarly, secondary analyses of Demographic and Health Survey (DHS) data in Malawi, Ghana, Burkina Faso, Côte D'Ivoire and Tanzania showed women's care-seeking during delivery to be positively associated with the percentage of women in their community who had delivered in a health facility (Stephenson *et al.* 2006). Such evidence—along with research in Uganda showing that conservative community-level gender norms negatively influence family planning use (Paek *et al.* 2008)—underscores the importance of fostering and supporting agents of change within communities who are positioned to raise awareness about and create a normative environment that is supportive of maternity care-seeking.

Our findings are also consonant with those emerging from randomized controlled trials in Nepal, India, Malawi, Bangladesh (Prost *et al.* 2013), which have shown that participatory community activities implemented through women's groups contributed to significant reductions in neonatal mortality—primarily through improved newborn care practices at the household level—along with decreases in maternal mortality and improved maternal care-seeking in selected settings (Manandhar *et al.* 2004; Prost *et al.* 2013). However, our findings also highlight additional questions that should be explored regarding 'how' change is catalyzed at individual and community levels. Are participatory learning and action processes the necessary catalyst for social change or is it the development of community capacity that matters? Alternatively, does the acquisition of capacity by community groups or committees—through training and ongoing support—position such groups to be able to influence social norms and values related to health in their communities? Where participatory community interventions have been effective in influencing maternal health care-seeking behaviours, it is unclear whether the effect is due to the particular approach used or to the capacity that leading these processes requires and the status conferred upon community members who are trained and supported to implement them. Such questions underscore the importance of assessing relevant dimensions of community

capacity to better differentiate between the effects of participatory community processes and their essential inputs.

Our findings also confirm the need for—and feasibility of—evaluation frameworks that go beyond traditional intervention/comparison designs to assess the influence of contextual factors and intervention exposure. As Bryce *et al.* (2011) have noted, randomization is rarely possible in programme evaluations and, with continued scale-up of maternal and child survival programmes, finding 'virgin' comparison areas is increasingly challenging. In addition, traditional evaluation designs ignore an important reality of programming—that interventions are never implemented or 'deployed' with uniform intensity or effectiveness. It cannot be assumed that intervention areas are uniformly exposed to programmatic interventions as intended or designed. Measuring the intermediate outcomes of community interventions in terms of community capacity and social capital created is challenging, but perhaps necessary, for understanding what interventions influence women's use of maternal health services.

Social capital and community capital are complex concepts that have been variously defined and measured (Goodman *et al.* 1998; Lempa *et al.* 2008; Paek *et al.* 2008). Departing from traditional approaches that rely on key informants and those directly involved in the intervention to appraise the extent to which community capacity has been built (Chazdon and Lott 2010; Traverso-Yepez *et al.* 2012), we used population-based data from our full study sample to construct a relatively simple index related to community capacity based on the extent to which community-level committees and resource persons were recognized, trusted and relied upon for maternal health information and help. In so doing, we assume that when theoretical concepts of community capacity dimensions are operationalized simply, lay members of the community—rather than external experts or intervention participants—are positioned to evaluate capacity within their communities.

Our study has several limitations. As noted earlier, we relied on women's recall of their care-seeking during pregnancy and childbirth and for perceived complications before, during and after delivery. Client recall is known to be imperfect, particularly regarding diagnoses of illness and the quantity and content of health care. We tried to minimize potential recall errors by focusing our analyses on care-seeking; however, we were not able to verify the quantity of ANC visits reported by women in our sample or the content of the counselling they received during these visits.

A related limitation is that the study did not include assessments of the quality and availability of maternal health services provided at local health facilities. Clients' perceptions of service quality are known to influence care-seeking behaviours (Kruk *et al.* 2009, 2010); however, if differences in service quality existed between the intervention and comparison areas, there is no way to control for them in this study.

## Conclusion

Our findings, along with those in the extant literature, offer several practical lessons for 'getting on with what works'. Available evidence suggests that lay members of the community can be important catalysts for changes in maternal health



care-seeking when they have the training and support needed to serve as a resource in their community for maternal health information and help. To remain relevant and useful to their communities, such cadres need ongoing support and capacity building—not one-off trainings—in order to be able to continually refine their awareness-raising approaches and improve their monitoring and understanding of the status of maternal health in their communities. In addition, whether participatory community action processes or traditional awareness-raising approaches are used, such cadres need to be assigned realistic areas of coverage to be effective in serving as a resource in their communities. In our study, just over half of women with recent births in the intervention areas reported ‘high’ levels of individual exposure to the VSMCs’ activities, according to the Community Support Exposure Index. Although this coverage is higher than that achieved through some of the participatory community mobilization interventions referenced above—which ranged from 2 to 51% of pregnant women in intervention areas (Prost *et al.* 2013)—it is clear that many women are not being reached through such community-level interventions.

Equally important is ensuring that maternal health services are available, accessible and acceptable to women and their families. Attention must also be given to the content and quality of antenatal counselling to ensure that it reinforces information and support provided by community-level partners. In Guinea—as in most countries in sub-Saharan Africa (Wang *et al.* 2011), almost all pregnant women attend ANC at least once. Yet our study showed that many women receive inadequate counselling on the importance of facility delivery or birth preparations. As such counselling is positively associated with intrapartum and complications care-seeking, ANC represents an important ‘missed opportunity’ to promote women’s use of the continuum of maternal health services throughout pregnancy, childbirth and post-partum.

Thirty-five years after the Declaration of Alma-Ata, there is renewed commitment to the integration of community- and facility-level interventions in order to build integrated health systems and to link communities and facilities in a continuum of care (Lawn *et al.* 2008). Although there are additional questions about participatory community processes and community capacity to be explored, available evidence offers important signposts for how to accelerate progress in increasing the coverage of essential interventions for maternal survival.

## Ethical Statement

The Comité National d’Ethique pour la Recherche en Santé de Guinea reviewed the study protocol and tools and provided ethical clearance for the study. Data collectors and supervisors were trained in facilitating informed consent, and it was obtained from all survey respondents.

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