The Dynamics of Involving Intermediaries on User Experiences and Outcomes of mHealth Initiatives: The Case of a Maternal Healthcare Intervention in Malawi

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Abstract

The use of mobile phones in information technology and communication for development (ICT4D) initiatives has the potential to bridge the digital divide in remote areas of developing countries. Due to low mobile phone ownership and the culture of sharing in developing countries, some mobile for development (M4D) initiatives are using intermediaries such as Community Volunteers to reach the digitally excluded population. This study investigates the dynamics of engaging intermediaries on the interactions between mobile phone technology intervention and it's users in information technology and communication for health (ICT4H). It looks at how such an engagement affects the access and usage of mobile phones and the realizing of outcomes; additional to sustainability and scalability of such interventions. An empirical study was carried out among the users of the intervention and the Community Volunteers using semi structured interviews. The findings show that the use of intermediaries has a great potential to make a positive impact in a programme, however, social and cultural challenges limit the usage and the impact of the intervention. Further, it was noted that the consideration of the socio-cultural and economic challenges coupled with volunteer management and training would improve on the intervention operations and outcomes.

Keywords: mobile phones, intermediaries, community volunteers, ICT4H, mHealth

Introduction

The use of mobile phones in information technology and communication for development (ICT4D) initiatives has the potential to mitigate the digital divide and improve connectivity and access to information in remote areas of developing countries (1,2). Due to the pervasiveness of mobile phones in developing countries, mobile technology systems are being used as a technology of choice in most ICT4D initiatives; and have been found to improve information system, processes and service delivery in healthcare (3). In information technology and communication for health (ICT4H) mobile technology has shown improvements in medical test result delivery, patient-provider communication, health information communication, remote diagnosis, data collection, disease and emergency tracking, and access to health records (4,5). The reality on the ground is that there is still low mobile phone ownership in remote areas of developing countries; however, this is usually overshadowed in both academic and popular discourses by the hype on mobile phone penetration. This low mobile phone ownership engenders a sense of inequality among the people who can benefit from mobiles for development (M4D) initiatives. In trying to reach these potential consumers for digital inclusion in remote areas, some interventions are taking advantage of the sharing culture in developing countries and involve intermediaries like Community Volunteers as point of access for mobile phone usage. The use of intermediaries has the potential benefit of scaling up the interventions since it may enable an intervention to expand without requiring provision of the mobile technology to all potential beneficiaries which could be costly. Currently, there is paucity of literature on intermediaries in ICT4D initiatives, and little is known on how intermediaries for mobile phone access and usage may impact on the beneficiaries' outcomes and affect the scalability and sustainability of M4D initiatives in healthcare in particular.

Maternal health, one of the main challenges facing developing countries, can benefit from mobile technology especially in reaching the rural and remote areas clients. Literature shows that the main barrier to accessing healthcare services in maternal health in rural and remote areas is delay; in decision making to seek care, arriving at health facility and receiving appropriate care upon arrival (6,7). The delays may be due to lack of information, inadequate services, the cultural position of women in society, long distance to a health facility, weak health systems, poverty, lack of education, lack of political commitment and cultural practices (7). Communication and communication technologies play a key role in improving the access and quality of maternal health services by providing informational support and regular care; thus the use of mobile phone technology interventions for mass communication and disseminating information to the communities can reduce maternal morbidity and mortality in developing countries (8).

This study investigates the dynamics of engaging intermediaries on the interactions between an

intervention and consumers of a mobile health intervention in maternal health. The study looks at how such an engagement affects the access and usage and the realizing of outcomes in an intervention for those with and those without mobile phones. The main research question for this paper is"What is the effect of involving intermediaries on the user experiences and outcomes of mHealth Initiatives?" Furthermore, the study analyses the impact of this kind of intermediation on the scalability and sustainability of mHealth initiatives. The study uses one of the mHealth interventions in maternal healthcare for remote mothers in Malawi as a case, where Community Volunteers facilitate mobile phone access and usage to improve healthcare delivery. Using the qualitative approach, we took an interpretive case study based on semi-structured interviews with the Community Volunteers and the intervention consumers (mothers). Data was analysed using thematic analysis.

Previous studies in this area have analysed the concept of Intermediaries within the ICT4D context and elucidate the role they play in different settings (9,10). This study has contributed to knowledge base by highlighting the dynamics involved during this intermediation that can affect users' experience, the realisation of intended outcomes by consumers, scalability and sustainability of mHealth initiatives; and their implication on policy and practice.

Methods

The study was exploratory, and was conducted using inductive and qualitative approach with the aim of understanding the intervention users and the social and cultural contexts within which they interact with the Community Volunteers from the points of view of the participants. Interpretive approach was used as an underlying philosophy for the study to understand the different worldviews of individuals (11), with regard to the conversion factors relating to intermediaries enabling or restricting users to realise intervention outcomes

To identify participants who would provide information relevant to the study, both random and maximum variation samplings were used. About 100 intervention users and 50 community volunteers were selected randomly from their distinct databases. We called them to find out about their personal details and location. We further used maximum variation sampling to get participant of different ages, marital status, and tribes among other variables. The sample comprised of 12 women using the intervention, 2 female and 2 male community volunteers.

Empirical data for the study was gathered from September to November, 2012 in using semi-structured, face-to-face interviews with the community volunteers and the intervention consumers. The use of semi-structured interviews allowed the researcher to get information from respondent's own narratives which helped the researchers to eliminate biases (12). Field notes and participant observation were also used for the data collection. All interviews were audio-recorded and transcribed. Thematic Analysis was used for data analysis to identify factors that affect the realization of intervention outcomes in the social interactions between Community Volunteers and the mothers in the data and generate themes (13). The codes given to the respondents were based on their position in the intervention i.e. CV for Community Volunteers and Mother M1 for the user number one.

Results

From the interviews with the Community Volunteers and the women, the analysis yielded a number of themes, which were categorised into personal traits of the Community Volunteers, social factors and environmental factors affecting the realization of intervention outcomes. Some of the factors were enabling while others were hindering the process of achieving desired outcomes. It was found that factors such as privacy; trust; relationship with Community Volunteer; and the availability of the Community Volunteer were falling under both categories depending on the context. While training for Community Volunteers; Communication and programme support; and technical problems (phone and network) were found to be the hindering factors. In this section we will start by a brief summary of the mHealth intervention and the opportunities it can generate for the women; the role of a Community Volunteer and the dynamics at play in their interactions with the women, and finally the outcomes realised by the women.

Case Description

The Mobile System for Safe Motherhood (MSSM) intervention is a pilot project with the aim to maximize healthcare access and utilisation by remote mothers and children who are faced by so many challenges resulting in delays in seeking care and unnecessary expenditures. MSSM provides the community with lucid health advice on maternal care and referrals to appropriate health facilities closest to them. It is hoped that the intervention will improve the health outcomes for pregnant women that lead to a decrease in complications during pregnancy and increase the number of deliveries taking place at a health facility in order to decrease maternal morbidity and mortality in Malawi.

The intervention operates on two main systems:

- A hotline – a toll free line that women used to talk to call centre staff or hotline workers on health issues during pregnancy and also for children under the age of five.
- Tips and reminders – a messaging facility for pregnant women, caregivers of children under

one year and women of reproductive age; the messages were either voice or text, received every week on pregnancy development or baby development and health advice relating to the stage of development.

To register for the system, the women used the hotline, which operated on one mobile network provider (Airtel); and they were given a user identity. Clients could have messages sent to their personal phone or they could use their relevant date (estimated due date or child's birth date) to retrieve messages and also identifying themselves when talking to hotline workers, whom clients usually referred to as doctors. The hotline workers were trained in maternal and child health care so that they were able to identify symptoms or information needs and be able to provide relevant advice. Some of the hotline workers were nurses working on part-time basis. If they had a problem with solving a case or helping a client they escalated the issue to the midwife nurse at the district hospital, and feedback later to the client when they have had proper information. Our study is only interested in maternal care; the child care part of the system is out of scope for this paper.

Once registered on the system the clients received weekly messages about pregnancy development. Almost half of the clients interviewed listened to their messages every week, and it was found that voice messages were the most preferred services. The clients did not like text messages due to low levels of literacy, lack of privacy since anyone can see a message once it has arrived on the phone, and some were not aware of the option. Women would call the hotline workers when they have a problem, on average a client would call the hotline about three times during pregnancy. It was noted that the clients appreciated the time period given when talking on MSSM, on average a call would take 15 minutes, which gave the women ample time to explain their condition in detail and get proper advice. The clients said it was much better than a consultation at the clinic, which is usually rushed through, because there were always a lot of people. The number of clients using the intervention during the time of data collection was about 3000. It was noted that the intervention was most used when it was not farming period, the number of calls usually dropped during the rainy season; this could be due to people being busy working in the fields.

MSSM was viewed as a programme for safe motherhood that is teaching women about health and good practices during pregnancy so as to minimise complications. It also encouraged women to start attending Antenatal Clinic (ANC) early in pregnancy and also to deliver at health facilities, which is not usually the case in rural areas because women have to walk long distances to get to a health facility. The advice that the women received from MSSM helped them to understand the changes going on in their bodies and also the development of the baby; and they were able to prepare for childbirth unlike before when they did not know what was happening. The intervention proved to be convenient for the clients as they got timely medical advice at home, without walking long distances to the clinic unnecessarily for any medical condition, even trivial ones.

Community Volunteers in MSSM

Most of MSSM clients did not own mobile phone due to poverty. Consequently, the project implementers engaged Community Volunteers who were provided with basic mobile phone for community access and usage. Their main role was to help the women in the community to access the MSSM. Women were supposed to go to the Community Volunteers' house to talk on MSSM, and the Community Volunteers also helped them with any queries they might have had about the intervention. Malawi being a low income country in Africa, women are 23% less likely to own a mobile phone than a man (14). The project found out that only 30% of households in the catchment areas where the project was being piloted had access to a mobile phone at home; and most of these phones were owned by head of the household, usually a man. As such, even most clients with phone access at home preferred to use the Community Volunteers' phone when utilizing MSSM facility. This was despite the fact that the Community Volunteers did not add any substantial value apart from operating the phone to connect to the system for those who could not operate the phone by themselves when accessing MSSM.

The intervention had over 350 Community Volunteers in total across all the four catchment areas of the project. The Community Volunteers were selected by the chiefs and a health committee in their villages. Community Volunteers had a half day training where they were taught about the intervention; strategies for promoting its services in the community; how to access the MSSM from a mobile phone; and also client management. During that training they were provided with a basic phone with solar chargers (one charger per village), informational materials for promotion, registration cards for clients, and branded tee shirts. The Community Volunteers held village meetings and also did door to door campaign to promote the intervention, and they met with the project implementers once a month for reporting purposes.

Dynamics of Community Volunteers

Personal Characteristics

In our analysis of the social context in which Community Volunteers interact with intervention consumers or clients, it was found that the dynamics involved can either be enabling or restricting to achieving outcomes depending on different perspectives and experiences of both the Community Volunteers and the clients. The personal traits that came out clearly in the analysis were gender, level of

understanding, and loyalty of the Community Volunteers. Where the Community Volunteer was a woman, clients were free to talk on MSSM even in their presence knowing that they themselves have gone through childbirth as a woman and would keep their details confidential. And the clients had a good relationship with female Community Volunteers and viewed them as acquaintances. On the other hand, with male Community Volunteers it was more of business: where they just go and use a mobile phone for health purposes.

All the Community Volunteers interviewed had quite a good understanding of the intervention. They were aware of the services offered in the intervention such as the hotline service, and the tips and reminders. However, most clients (even those with mobile phones) did not realise that they had a choice of either getting text or voice messages. The Community Volunteers promoted voice messages more than text messages. One Community Volunteer mentioned that it was because text messages used up memory space on the phone, so it was better that women just listened to voice messages which were being stored on the system and not on the phone.

The Community Volunteers had confidence in the intervention and in themselves in serving their communities with this safe motherhood system to improve health outcomes. As such, they were committed to helping the women in their villages. When most women were not interested to join the intervention at the beginning, they used their own initiative like calling for public meetings where both men and women were told about the intervention and how it was going benefit them. And they continued with their door to door campaign in search for pregnant women. For the women who joined the intervention, only a few were willing to go to the Community Volunteers' house to use MSSM, most clients waited for the Community Volunteer to go to their homes for them to use MSSM. All the Community Volunteers complained about this behaviour but they kept on visiting these clients weekly to make sure that the clients benefited from the intervention and also that they had a good report to submit to the project implementers at the end of the month. All the Community Volunteers interviewed depicted a sense of loyalty not only to the intervention but also to the women in their villages. They were proud to be rendering a service that could save women's lives and reduce maternal morbidity and mortality.

> …Most women use my phone, and they want me to be going to their houses for them to use the service. If I do not go they do not come to my house to listen to their messages, with an exception of only two women. Since I volunteered to help them I do not get discouraged but continue to follow them to their houses so that they can use the phone… (CV4)

This means that when a woman had a problem on the day that the Community Volunteer did not visit then they did not get to use MSSM, which could have helped them. The women attributed this behaviour to being lazy to walk all the way to the Community Volunteers' house in their state of pregnancy. As a result, Community Volunteers took it as their responsibility to be going round people's homes so that the women continue to use MSSM; this could be straining and a burden to them especially that they did not get paid for the job.

Social Factors

In regard to mobile phone access and usage by the clients, the Community Volunteers were strongly advised during the training to respect privacy of the women considering that maternal health is a sensitive domain in Malawi, especially in the rural areas. Normally, the Community Volunteers operated the phone and once it was connected they gave the phone to the client to input their secret number to retrieve their message or start talking to a hotline worker. Then the Community Volunteer would go away to give the woman privacy so that she was free to talk. The Community Volunteer helped with inputting the secret number for those clients who could not operate the phone by themselves before giving them space to talk freely. Most women appreciated this gesture because they were able and free to talk just about anything.

> When I go to the volunteer's house or if she comes here, she gives me the phone to talk in private where I am all alone … the volunteer just gives me the phone and she goes away. I make the call myself and enter my secret number…that's why I am able to talk freely ....so privacy does not affect my use of this intervention in any way…if anything it encourages me to continue using the service… (Mother M1)

Since the Community Volunteers recruited the women into the intervention and were central to mobile phone access and usage, how trust was built and maintained between them and the clients was very important. In view of the fact that the Community Volunteers were selected by the chiefs and a health committee in the village, the women had deep respect for them. Besides, most of the Community Volunteers had been involved in health community work long before MSSM started. Most of these Community Volunteers helped running village clinics; and though they were not Community Health Workers recruited by the government they usually act as a link between health facilities and the community. Because of this long term relationship and the confidence that the women had in the Community Volunteers, the women continued to trust the Community Volunteers even with sensitive issues of pregnancy. Where the Community Volunteer is a woman, clients were free to talk on MSSM even in their presence knowing that they would keep their details confidential. It was found that such positive

relationships encouraged women to use the MSSM and benefited from it; while a sour relationship between Community Volunteer and the clients could yield negative results discouraging the women to use MSSM.

Some women said that the availability of the Community Volunteers whenever they want to call MSSM was one of the factors enabling and encouraging them to use the intervention. Some of the Community Volunteers were so organised that they had a book of appointment schedules for each client. However, there were times like in case of an emergency, when women go looking for the Community Volunteer and they do not find them at their house since they also have other personal engagements such as family issues, and working in the fields. It was also observed that some of the Community Volunteers were rarely available and this affected the use of MSSM in a negative way. But since each Community Volunteer serves their own village and they know their clients very well, they usually follow up on clients who came to use the mobile phone and did not find them.

As mentioned earlier the Community Volunteers were trained once at the beginning of the intervention when they were being given mobile phones. However, Community Volunteers did not engage with the community for mobile phone access and usage alone, they also represented the intervention itself in their communities and promoted it to potential clients in addition to managing existing clients. All the Community Volunteers interviewed voiced out concerns of women not really showing interest to join the intervention, and more often Community Volunteers spent their time going round their villages telling people about the intervention and its benefits. For this they needed up to date information about the intervention and support from implementing agencies. Furthermore, for the women already using the intervention only one or two would go to the Community Volunteers house to use the phone for MSSM, the rest of the women did not bother going to the Community Volunteers house to use the phone for MSSM; they expected Community Volunteers to bring the phone to their homes. If the Community Volunteer did not visit them at home, then they will not listen to their messages.

> …You know that when you are using someone else's things problems are inevitable, it is different if it's your own phone…you can use it anytime anyhow. So even if am free to talk on the phone when I go to the volunteers house, sometime I feel lazy to go all the way to the volunteer's home just to talk on the phone…that means I have missed the message for that week, which affect the things that I would have learnt for that week. But if I had my own phone I could just use it right here in my home… (Mother K2)

The project implementers met with the Community Volunteers of each catchment area at a healthy facility once every month, where the Community Volunteers presented reports of new recruits and also the number of clients who used the mobile phone for MSSM in that month. And they also addressed any other issues arising, which were usually to do with technical problems of the mobile phones. Community Volunteers felt that the support they got from project implementers was not enough;

> We have monthly meetings with project implementers where reports are submitted…but visits by the project implementers into the community would encourage the women, as a way to confirm that as Community Volunteers we do not work on our own but that there is an organization implementing the whole programme and we have their support…(CV3)

Environmental Factors

The technical condition of the phone could make it possible or improbable for the women to use the intervention. If the Community Volunteer's phone was working properly and was charged then the women would use it to connect to the system without problems. Good mobile phone network coverage in an area also facilitated the use of MSSM. But after one year of intervention, most mobile phones (over 50%) given to the Community Volunteers were not working properly, with problems ranging from keypads not responding to batteries not charging. The Community Volunteers phone came with solar chargers; some Community Volunteers complained that these chargers did not work very well especially when it was windy even though the sun was shining. These being basic mobile phones, most of them were hard to repair and they end up being redundant leaving the Community Volunteer and a village without a mobile phone to use because the project implementers were not able to replace them with new ones due to lack of funds. Maintenance and replacement of mobile phones for Community Volunteers was not planned for. Some Community Volunteers borrowed mobile phones on Airtel network from the village to continue helping their clients. Technical problems with mobile phones was a major problem affecting the use of MSSM; one of the concerned clients put it this way:

> … I went this morning to listen to my messages, the keypads on the phone were not working, this affects my use of these mobile health services…I feel like I have missed out on something important because I value the messages a lot…It would have been nice if our community volunteer had more than one phone, may be two or three. So that when one is not working then we could use the other one…that would make our communication with MSSM not difficult, minimizing on communication breakdown… (Mother P3)

Other NGOs working in the same catchment areas gave participants of their interventions incentives of many kinds, mostly monetary. Therefore, even though it had been explained to the women so many times, some women using MSSM found it hard to believe that MSSM intervention did not offer anything. The Community Volunteers being a point of contact for the implementing agency, women thought that the Community Volunteers received monetary incentives from the project implementers but they do not share with them.

> I did not receive anything (material aid) from the intervention. I actually asked the community volunteer that what are we going to benefit from this intervention. He said "Even me I don't know"… But most women get discouraged to continue using the intervention and others are not even interested to join because of that…but for me I have seen that this intervention is beneficial to us in so many ways even if it does not offer any incentives (Mother C1)

These theories discouraged some women from continuing using the intervention, and also affected the trust between the Community Volunteers and the clients. It was also observed that the Community Volunteers were not contented doing all the hard work in the community for MSSM without any incentives or benefiting anything at all for themselves from the intervention. This can have a huge impact on the commitment of the Community Volunteers to their role in the intervention as a whole and also affect how the intervention is promoted in the communities.

Outcomes

The results showed that the intervention outcomes for the clients were that they find the intervention convenient to use as they could access health information from their homes or communities; and also confidential in the sense that they talked privately to someone they had never met and was able to help them with their problems. Furthermore, they were free to talk without any reservations as the Community Volunteers gave them privacy as well. In addition, the clients got adequate time talking to the hotline workers which was not usually the case at the health centres due to over population of patients, and they were rushed in consultation rooms, not given enough time to explain their problems. The intervention was also timesaving and moneysaving for the women since they did not have to go to the health facility for any little medical attention. They were now getting help at home with some of their problems without walking long distances or paying for transport to go to a health facility. The clients appreciated the quality advice they received and knowledge gained on maternal health issues that enabled them to take responsibility for health decisions, acted on some decisions in the home or community and changed some behaviours to improve health outcomes e.g. starting ANC early and seeking medical attention in time. These outcomes empowered them to be healthy and lead a better life such as being healthy during pregnancy and give birth to healthy babies with the help of medical personnel; being able to look after their families while pregnant; and working in the fields.

Discussions and Conclusion

The study has explored the factors at play in the interactions between Community Volunteers as intermediaries and the clients of the ICT4H intervention. The study found that the dynamics involved in Community Volunteer- client interactions would either encourage or discourage the women to use MSSM and realize its outcomes. For the clients to achieve the intervention outcomes, the role of Community Volunteers as intermediaries in the MSSM intervention was very critical as they are a gateway to reach deep into the community and provide mobile phone access and usage, in additional to promoting the intervention and managing the clients. The way the position of the Community Volunteer had been structured in the intervention was more of an enabling factor than a hindrance for the community to use the intervention and benefitted from it. Firstly, the Community Volunteers were people well known in their communities and were chosen with the authority of the chiefs, as such they were respected and clients trusted them even with sensitive issues. The relationships that they had with the clients were based on that mutual respect and trust which encouraged the clients to continue using the intervention. Lastly, the privacy strategy promoted in the intervention fits in well with the realities of rural areas of developing countries such as Malawi, where women find it easier to talk about their problems in private; even more so to a stranger who do not know them like the hotline workers.

Female Community Volunteers were preferred to male Community Volunteers but the effects of gender seem to be negligible. Despite monetary incentives and benefits like in other ICT interventions (15,16) Community Volunteers showed commitment to the intervention and their communities; they were happy to help the women in their villages with phone access and usage for maternal health. This could be due to the view that in rural areas it is prestigious own a mobile phone and have a branded T-shirt, therefore these could have been seen as incentive in their on right and motivated their actions. Their loyalty helped a lot with the intervention promotion and operations. The Community Volunteers understanding of the intervention was essential as it affected the information that was passed on to the community. Regular communication with the implementers, refresher training and support from the implementers do help intermediaries to have up-to-date information and accurate details of the interventions to be disseminated to the community (9). Additionally, it could serve as a forum to voice out community volunteers concerns and how they could improve on

client management and intervention promotion. There was need for vigorous awareness campaigns by implementers in the villages so that clients got to understand the intervention and its benefit from the implementers themselves. This would also show support for the Community Volunteers who felt that they were on their own, working without much support and direction.

Some women walked long distances to go to the Community Volunteers house just to access and use a mobile phone, and they might not find the Community Volunteer or found that the phone was not working or had no power; this was discouraging to the women and they would just stay at home and not bother with the intervention even though they knew that the advice they got from it was beneficial. The technical problems of handsets are a drawback to mobile phone interventions (17). The intermediation of Community Volunteers was proving to be not sustainable as it was expensive to provide and maintain the handsets. There was no action plan for damaged phones and they were just taken to any technician for repairing; and project implementers were not able to replace the phones that could not be repaired since it was not initially planned for. Due to such technical and financial constraints the intermediation of Community Volunteers could not be scaled. The MSSM project had been partially successful as the provision of community phones had managed to extend services to digitally excluded women in remote areas but such resources could not be provided to all rural areas of the country due to cost involved. As such the project could not be rolled out on a wider scale.

Intermediaries can be vital or destructive in ICT4D interventions (10), the analysis showed that the use of intermediaries was vital to the intervention and had a great potential to make a positive impact in a programme as it enabled healthcare to reach the digitally excluded in remote areas. However, the study also noted a myriad of socio-cultural and economic challenges which limited the usage and the impact of the intervention. Further, the results also showed that the volunteers were poorly managed by the implementers and this led to volunteer fatigue and the volunteers providing wrong and inconsistent information to the beneficiaries. Volunteer management, support and training are essential in interventions where volunteers play a critical role of linking the intervention and the community (9). And there is need to consider the socio-cultural factors based on the realities of the local settings, especially in sensitive domains like maternal health where social inequality affects a pregnant woman's autonomy and choices in health matters and overall quality of life (18,19).

The intermediation between service providers/intervention and the consumers can be central to the success of ICT4H or M4D initiatives, especially in remote areas where technology ownership is still low. The use of intermediaries could help interventions reach the majority without privileging those who are already with technology at the expense of those without. For effective use of intermediaries, policy makers and programme implementers need to understand how the intermediaries ought to be integrated into the design and execution of the intervention. The findings of this study contribute towards that understanding by highlighting the dynamics involved during this intermediation that can affect the realisation of intended outcomes by consumers, scalability and sustainability of mHealth initiatives; and their implication on policy and practice.

The study had time limitations, and the findings are prone to some biases as the sample interviewed was too small, and also both the Community Volunteers and the clients were used to receiving incentives or benefits from other interventions operating in the communities. Further, this research is limited to the case study of Malawi; however, it is believed that the lessons learned from this case study can be applied to other developing countries as well as to other types of interventions other than health. Future research into this area would be to explore effective management and training for intermediaries in M4D initiatives; and also explore other means of including the have nots in M4D initiatives that are scalable and sustainable.

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