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Health for all

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Digital Health – A Blessing or Curse for Global Health?

An anthropological perspective

High risk motherhood for rural mothers in underserviced areas: Can mobile technology make it safer for them?

By Laetitia van Haren

From desktop research and direct observation we note that maternal mortality among the rural poor is to a large extent caused by late or no detection of danger signs (ignorance of the women) (BMC Pregnancy Childbirth) and of the first line healthcare workers (Working with community health workers to improve maternal and newborn health outcomes) leading to delays in decisive action at the village end and at the health facility end as well as on the trajectory between the two. Better communication and better information of both the demand side (the mothers and their support) and the supply side (the firstline health workers and their support) could greatly reduce these obstacles. Modern digital communication technology could help overcome the communication and information gap. What then are the obstacles (Reprod Health) as well as the opportunities to use a mobile application to reduce maternal mortality and morbidity in rural underserved areas of Africa to improve the communication between supply (the healthcare service) and demand (the pregnant women and their support)?

JamboMama! Photo: © Laetitia van Haren

Opportunities and obstacles to reach the target group, expectant mothers from the onset to the end of their fecund lives

We note a general trend towards ever more smartphones and internet coverage (opportunity) (Mobile services in Sub-Saharan Africa: trends and forecasts 2018-2023) without any serious concerted efforts to develop a digital literacy pedagogy (obstacle) for the masses to use this technology for their betterment (a huge missed opportunity).

In rural areas of Africa, women have even less access to digital tools and have little or no opportunity to acquire digital skills (GSMA: Connected Women. The Mobile Gender Gap Report 2018). Yet pregnancy is a phase in which rapid intervention when a danger sign is detected makes the difference between life or death for both mother and child. So both health literacy and early warning followed by rapid action could theoretically be achieved through well designed apps in the use of which both mothers and health workers have been properly trained. Many rural women still go through seven or more pregnancies in their lives – if they

survive them all (Tanzania Mainland Poverty Assessment, WorldBank Group). Rarely will all pregnancies lead to live infants. This unprotected, unregulated and unaccompanied fecundity is a very wasteful process that causes a lot of suffering and loss of life.

Taken all together we conclude, regardless of the obstacles, that smartphone based communication, coordination and referral systems that improve pregnancy surveillance and put the woman centre stage is a *must*. We believe this is the way to go no matter what effort is involved in bringing the basic smartphone literacy required to make it work.

We maintain this from a *saving lives* position, from a *women's rights* position and from *a rights based position of fair access to health and human development for all*. We have to bridge the digital divide between rich and poor, urban and rural, for mere reasons of justice.

We had expected we could base our paper for this edition of the *Medicus Mundi Bulletin* on a field experience of the application actually introduced in a rural pregnancy monitoring service in a Tanzanian district, but the onset of the actual implementation is delayed once again. When this became clear while the date of the article was approaching, I became worried. Should I desist? But now I think that sharing with you how hard this very first beginning can be, is part of the story of the obstacles that have to be overcome if you want to bring digital tools to improve the quality and quantity of health care services in underserviced rural areas of a low-to middle income country today.

It is extremely hard for the public (including those we approach for crowd funding) to understand that this pre-induction part is perhaps the hardest: prepare the field for the arrival of the app. Convince the authorities, general and of public health, so they designate or approve a testing ground in a tucked-away niche. Overcome the obstacles of no good internet coverage, very limited and uneven access to smartphones and computers, while those who do have access are rarely digitally literate. Assess what digital skills there are, what expectations there are from digital technology, what the socio-economic and cultural determinants are that influence the access to and appreciation of mobile communication technologies. In short, what administrative, legal, technical, financial, practical and theoretical obstacles there are. It is a stage that is easily overlooked and misunderstood and underrated in terms of intellectual, technical and financial inputs required. Unfortunately, bigger institutions withhold their support until you have gone through this baptismal fire and survived, but then you can't without their support! It is multi-disciplinary challenge, of which I shall highlight the anthropological aspects and in this first article, tell it from a purely personal perspective. I hope it will provoke a lot of reaction and that from there we can move together towards a «best practices» story.

An interactive app for the condition of pregnancy

I had little experience with digital technology, of all those gadgets and the engineering that brings connection through sound – and light waves I have tried only a nanofraction. Nevertheless I saw its importance in 2015 for better monitoring of pregnant women who live far from the nearest health facility and I therefore developed an app for those conditions (= the condition of pregnancy and that of living far away from everything). It is an interactive app, a digital platform or back-end with two front-ends, one for health care providers and one for pregnant women (Dossier Technique JamboMama!).

JamboMama! Photo: © Laetitia van Haren

Why, what stirred me?

I am not a medical doctor, but a social anthropologist. I thought it was indecent that maternal mortality rates stagnate, some (Kevin Watkins). It was this indignation that this could still be the accepted fate of women when they give life that has stirred me.

Child versus mother - it means that all attention goes to the child in emergency situations, and the mother takes second stage (Prof J.van Roosmalen: « De moeder : het kind van de rekening ? »). In the USA this has led to rising MMR for black and hispanic women so blatantly visible and proven in statistical analysis of mega data that it has led to a whole rights based protest and wake-up movement. (J Perinat Educ) After delivery, a paediatrician does the

rounds but the mother is not properly examined and death through sepsis and late post-partum haemorrage is on the rise.
I am concerned about the lack of respect for the rights of the mother to her life in her own right. That is what I deduct from these trends. I think the answer is safe motherhood for all, access to contraception and freedom from imposed sex and childbearing. Safe abortion is an emergency measure, for it most often means conditions for consensual sex, family planning and safe motherhood were not met.

Opportunities

Internet coverage spreads rapidly, cellphones are everywhere even in remote villages, and smartphones are spreading fast, too. Cellphones are also used by the women, even by those who are barely literate. Somehow digital literacy is easier to acquire than book literacy because it is a combination of various senses: there are numbers and letters, pictures, colours, light flashes. A religious sister, a social worker, herself not using a smartphone, had noticed that all the women used cellphones and some also smartphones and they seemed quite at ease with them. This was in a peri-urban area. It may indeed be necessary to start in the urban peripheries and only from there move to the rural areas proper.

JamboMama! Photo: © Laetitia van Haren

Challenges

- Smartphones are mostly owned by men, and their medium age is between 20 and 45. Does the fact that men buy them for themselves mean that women should not learn to use them and eventually have their own smartphone, or that the man's smartphone become a joint phone (GSMA: Connected Women. The Mobile Gender Gap Report 2018)?
- Most of the smartphones in Africa are not used for anything more than exchanging pictures and fun information (GSMA Mobile Economy 2018 - Sub-Saharan Africa 2018). No effort has been made to help owners learn to use the smartphone to develop one's knowledge and decision making capacity.
- When I speak of bringing digital literacy to the villages and teach the women, many people think it is crazy. But shouldn't poorly educated villagers be given the same chance of learning to use mobile communication and information technology with applications that are directly relevant to improving their health and living conditions? And who are the most vulnerable and left behind when progress comes? The women, and especially the expectant mothers.
- Even today, the status of women in rural areas remains very low. When she is pregnant, her vulnerability doesn't make her entitlement status rise, but drop. She has no decision making power (Gender equity and sexual and reproductive health in Eastern and Southern Africa). If she is a young woman, a girl, rather, pregnant for the first time, and she thinks something is happening, she has to go to the hospital and she was wrong, next time she won't summon help from her family and friends (including money) to go to the hospital, for she will be afraid of rebuke. And this time she should have gone, and her pregnancy turns into an obstetric emergency. It is her low status that is her biggest enemy. It is the main cause that she knows so little and has so little access to means that help her connect to the outside world. I suggest her decisions must be given more weight, someone else with more authority should say : go to the hospital at once. If a smartphone beeps and shows this message, she can show it to the village head and to her relatives. Then the costly and complicated trip to go to the hospital is not just her request, it is the medical authority who calls her to come.

- A lot of effort is made to improve the quality of maternal and newborn health care, but the better performing staff doesn't necessarily get satisfaction from it. There is no salary raise; there is no increase in timely demand for these improved services, so maternal mortality doesn't go down that much (Quality Improvement for Maternal and Newborn Health in Mtwara Region, Tanzania (IMCHA).
- If the women are uncomfortable about the antenatal care and don't really understand what the use is of exams and tests there is little incentive to go to the clinic when it is raining and you have to walk five km. You feel even less inclined if you are in full labour. Of course they should have started out at the onset of labour, not when it has become unbearable, but then you must know when that is. (Reprod Health)

My conclusion

Supply and demand have to be brought closer together. If women were to have more or less the same basic knowledge as the first line care providers (though from the opposite perspective), dialogue should improve.

Rude and humiliating language and gestures from the medical staff to pregnant women, especially young girls, is repeatedly reported in grassroots interviews. And during delivery, when a woman is really totally helpless rudeness and abuse, even physical - slapping, beating, pressing hard on the abdomen - are all too common. But reading why and turning that around, I find that the medical staff is less inclined to be rude and disrespectful if they know the patient. So building some rapport before the actual time for birth will make it easier for a woman to decide to give birth in the clinic and not at home (Experiences of and responses to disrespectful maternity care and abuse during childbirth; a qualitative study with women and men in Morogoro Region).

If you have an app through which the communication can become more frequent, chances are that live meetings are friendlier and based on more mutual trust, which should lead to better pregnancy outcomes for mother and child.

The legal and political obstacles to finding a niche where we can try it out are overwhelming. Yet we can't give up. Like the birthing process, once it is started it must be struggled through.

Resources

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- **Working with community health workers to improve maternal and newborn health outcomes: implementation and scale-up lessons from eastern Uganda. Gertrude Namazzi** , Monica Okuga,Moses Tetui , Rornald Muhumuza Kananura, Ayub Kakaire, Sarah Namutamba, et alii Article: 1345495 | Received 05 Sep 2016, Accepted 19 Jun 2017, Published online: 29 Aug 2017

- Reprod Health. 2017; 14: 136. Published online 2017 Oct 24. doi: [10.1186/s12978-017-0402-6] PMCID: PMC5655951 PMID: 29065922 ***Persisting demand and supply gap for maternal and newborn care in eastern Uganda: a mixed-method cross-sectional study*** Rornald Muhumuza Kananura,Suzanne Namusoke Kiwanuka,[1] Elizabeth Ekirapa-Kiracho,[1] and Peter Waiswa[1,3,4]

- **Mobile Services in Sub-Saharan Africa: Trends and Forecasts 2018-2023 - ResearchAndMarkets.com** August 29, 2018 02:26 PM Eastern Daylight. Time DUBLIN--(BUSINESS WIRE)--The "Mobile services in Sub-Saharan Africa: trends and forecasts 2018-2023" report has been added to **ResearchAndMarkets.com's** offering. Country-level trends:

  - Tanzania: Rising smartphone take-up, 700MHz auction spectrum and mobile money will support revenue growth
  - Uganda: The shift from voice to data usage will be accompanied by revenue growth, despite low adoption of 4G

  For more information about this report visit https://www.researchandmarkets.com/research/swbdbd/mobile_services?w=4

- GSMA: Connected Women. The Mobile Gender Gap Report 2018 https://www.gsma.com/mobilefordevelopment/connected-women/the-mobile-gender-gap-report-2018/
- Figure VII.6 Fertility Levels and Trends Differ across Geographic Zones, page 78, Tanzania Mainland Poverty Assessment, WorldBank Group. http://www.worldbank.org/content/dam/Worldbank/document/Africa/Tanzania/Report/tanzania-poverty-assessment-05.2015.pdf
- Only on request : ***Dossier Technique JamboMama!*** Moventes, 1 sept 2017
- Kevin Watkins, Director Human development reports, interviewed for a BBC documentary on maternity in Chad : ***women's low status is the root cause of maternal death*** : source : BBC one : Dead Mums Don't Cry http://news.bbc.co.uk/2/hi/programmes/panorama/4626963.stm
- Prof J.van Roosmalen spoke about this in both his inaugural and farewell speech in Dutch : « ***De moeder : het kind van de rekening ?*** » (The mother, the one who pays the price (with her life) for the baby 's life (in obstetric crises) ? **Farewell symposium Jos van Roosmalen 'De Moeder het kind van de rekening'** 08 november 2011 « On 4 november 2011 gynaecologist prof. dr Jos van Roosmalen took leave of the Leiden Women's Clinic. His farewell symposium bore the title of his inaugural speech : The mother pays the price (of obstetric emergencies) This has been for him the leading topic in his career. https://www.knov.nl/actueel-overzicht/nieuws-overzicht/detail/afscheidssymposium-jos-van-roosmalen-de-moeder-het-kind-van-de-rekening/946

- J Perinat Educ. 2000 Spring; 9(2): 50–51. doi: [10.1624/105812400X87653] PMCID: PMC1595019 PMID: 17273206 **Alarming Racial Differences in Maternal Mortality** Mary Beth Flanders-Stepans, PhD, RN « Maternal deaths and severe complications from pregnancy and childbirth in the United States have risen by 50% over the last generation ». (source : Campaign Every Mother Counts)

- GSMA Mobile Economy 2018 - Sub-Saharan Africa 2018 https://www.gsma.com/mobileeconomy/

- Gender equity and sexual and reproductive health in Eastern and Southern Africa: a critical overview of the literature Eleanor E. MacPherson,[1,*] Esther Richards,[1] Ireen Namakhoma,[2] and Sally Theobaldhttps://www.tandfonline.com/doi/abs/10.3402/gha.v7.23717%40zgha20.2015.8.issue-s1
- **Quality Improvement for Maternal and Newborn Health in Mtwara Region, Tanzania (IMCHA).** Another issue is poor health-seeking behaviours among women. Combined with weaknesses in the health system, these factors limit the use of high quality interventions that have been proven to reduce maternal and neonatal morbidity and mortality. https://www.idrc.ca/en/project/quality-improvement-maternal-and-newborn-health-mtwara-region-tanzania-imcha

- Reprod Health. 2018; 15: 14. Published online 2018 Jan 27. doi: [10.1186/s12978-018-0463-1] PMCID: PMC5787311 PMID: 29374486 **Quality of care during childbirth in Tanzania: identification of areas that need improvement** Andrea Solnes Miltenburg, Richard Forget Kiritta,[2] Tarek Meguid,[3] and Johanne Sundby[1] N.B. Virtually all articles written by Andrea Solnes are relevant for my research on which the JamboMama app is based.

- a) Global Health. 2015; 11: 36. Published online 2015 Aug 15. doi: [10.1186/s12992-015-0117-9] PMCID: PMC4537564 PMID: 26276053 **Attitudes and behaviours of maternal health care providers in interactions with clients: a systematic review** P. Mannava, K. Durrant, J. Fisher, M. Chersich, and S. Luchters

  b) Experiences of and responses to disrespectful maternity care and abuse during childbirth; a qualitative study with women and men in Morogoro Region, Tanzania Shannon A McMahon[1*], Asha S George[1], Joy J Chebet[1], Idda H Mosha[2], Rose NM Mpembeni[3] and Peter J Winch

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