Complications during pregnancy in Uganda:
Researching socio-cultural drivers using innovative methods
Reach remote, diverse and unique communities

Engage citizens in vibrant and inclusive discussions

Deliver interactive media projects with local partners

Analyse social data using a multidisciplinary framework

Amplify voices through actionable insights and visual reports
Africa’s Voices projects

**Client organisation**

**AFRICA’S VOICES**

**Reach & Engage**
1. Design project and research

**Deliver**
2. Manage implementation

**Analyse**
3. Clean, and prepare secure dataset
4. Analyse SMS data

**Amplify**
5. Generate insights, visual reports, and recommendations
6. Disseminate, engage and influence

**Media forums** e.g., interactive radio shows, social media

**Scripts and questions**

**Opinions and answers**

**Audiences** e.g., radio listeners, social media

**Digital platform** e.g., SMS platforms, web scrapping

**Collective beliefs held by different groups** (e.g. gender, practices)

**Client Organisation**

**Media partners**

**Community**

**SMS surveys**
Maternal Health Pilot Study
Objectives

Using Africa’s Voices innovative approach, we sought to understand the socio-cultural factors that play a part in the high maternal mortality and morbidity rates in the Central region of Uganda.

Every day, nearly **830 women** die from preventable causes related to pregnancy and childbirth across the globe, with **more than half** of these deaths occurring in Sub-Saharan Africa (WHO, 2015).

**16 women** die every day in Uganda as a result of complications of pregnancy and delivery.
Method

Reach and engage via interactive radio

Gather citizens’ opinions via mobile technology (SMS)

Analyse a rich corpus of citizen-generated data
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Three Luganda radio stations in Kampala broadcast four weekly interactive discussions, featuring
- a guest (e.g. medical doctor)
- a testimonial from a woman who had experienced pre-eclampsia
- a related question for the audience to respond to
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Each show began with a real-life testimonial:
“My husband thinks that when pregnant am too tough and very angry all the time and that is why I develop high blood pressure. Other people think that stressing myself with problems and work lead to this condition. I do a lot of hard work that is why my pregnancies do not survive and I get high blood pressure on each pregnancy.”

Radio Questions
Show 1: What do you think caused Nangoma’s problems?
Show 2: What can be done so that other young girls willing to give birth don’t to go through the experience of Birungi?
Show 3: How would your community explain Nanyonga’s problem?
Show 4: Did you or your wife deliver from the hospital? Why, or why not?

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### Method

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  - Three **Luganda radio stations** in Kampala broadcast weekly **interactive discussions**, featuring:
    - A guest (e.g., medical doctor)
    - A testimonial from a woman who had had pre-eclampsia
    - A related **question**, e.g., “What do you think caused her problems?”

- **Gather citizens’ opinions via mobile technology (SMS)**
  - Radio audiences could respond to the question by sending a **free text message** to an SMS platform. Some messages were read live on-air.

- **Analyze a rich corpus of citizen-generated data**
  - Participants received an **SMS survey** in reply, that asked for their age, gender, location and a topic-related question.
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Gather citizens’ opinions via mobile technology (SMS)

Radio audiences could respond to the question by sending a **free text message** to Africa’s Voices SMS platform. Some messages were read live on-air.

Participants received an **SMS survey** in reply, that asked for their age, gender, location and a topic-related question.

Analyse a rich corpus of citizen-generated data

We gained **4462 SMS** during the one month pilot study from over **2000 people**.

Most messages were in **Luganda**, and some in **English**.
Analysis
SMS Analysis Flow

1: Data Exploration

2: Language classification

3: Thematic analysis

4: Manual theme labelling

5: Language processing

6: Automatic labelling
Textual analysis

1. Data preparation
   - general substitutions (0-0)
   - parse punctuation
   - replace numbers
   - delete repeated messages
   - identify regex for demographics
   - code demographics
   - link messages and demographics

2. Language detection
   - comparing ngrams used in Bible in Luganda, Swahili and English
   - compute % terms in each language for each message
   - compute precision index (max-min)
   - classification of messages into one language

3. English corpus
   - filter stopwords
   - identify topic-relevant words
   - collapse keywords to lemmas
   - reduce messages to lemmas
   - identify keywords from lemmas
   - collapse keywords into themes
   - agree coding scheme

4. Luganda corpus
   - identify stopwords
   - identify topic relevant words
   - create misspellings for keywords
   - reduce messages to keywords
   - collapse keywords into themes
   - adjust English coding scheme

5. Theme coding
   - manual labelling of ⅓ messages (training set)
   - generate rules of keywords with themes
   - generate automatic rules from training set
   - combine machine and human rules to label remaining messages (testing set)
   - cross-check for accuracy using training set with coding algorithm
Results & Insights
Demographics

- 49.6% of participants are women [Uganda population=51.2%]
- 56.3% of participants are 20-29 years [Uganda population=29.0%]
- Men and women don’t differ in terms of age (distribution).
Most of the participants are from Central region of Uganda, mainly from the districts of:

- Kampala
- Wakiso
- Masaka
- Mukono
- Rakai
- Mityana
- Mubende

There are also participants from as far as Gulu (N), Ntoroko (W), Kabale (SW) and Sironko (E).
To identify beliefs about the causes of complications during pregnancy and at delivery, we developed a coding scheme using manual and automatic techniques. There are 16 distinct themes:

1. **Mother's lifestyle** (poor diet, lack of exercise, promiscuity, overworking)
2. **Mother's biology/genetics** (too young/old, genetics)
3. **Delays in seeking healthcare** (missed check-ups, inaction)
4. **Mother's negligence** (irresponsible, lazy)
5. **Mother's psychological concerns** (stress, denial, fear, overthinking)
6. **Medical condition of the mother** (blood pressure, HIV, malaria, infections)
7. **Substance abuse** (alcohol, drugs)
8. **Mother's lack of education/knowledge** (not enough information, ignorance)
9. **Lack of medical resources** (lack of clinics, hospital far away, scarcity of doctors)
10. **Low quality of professionals** (rudeness, bribing, abuse, unprepared professionals)
11. **Immediate poverty** (poor sanitation, cannot afford travel)
12. **Traditional beliefs** (witchcraft, family cursed, traditional remedies)
13. **Religious beliefs** (not praying enough, lack of faith)
14. **Quality of relationship with the husband** (absent husband, unsupportive, wife's jealousy)
15. **Violence/abuse** (rape, domestic abuse)
16. **Other** (music, environment, clothes, use of contraception)
We categorised beliefs based upon if the cause was attributed to:

1. **The mother**  
   (internal locus of causality)

2. **The government**  
   (external locus of causality)

3. **The husband or others**  
   (external locus of causality)

4. **Supernatural**  
   (external locus of causality)
Beliefs about the causes of complications during pregnancy and at delivery

1. The mother

a. Delays in seeking healthcare

b. Mental/psychological issues

c. Her lifestyle

d. Her biology/genetics

e. Negligence

f. Medical condition

g. Substance abuse

h. Family planning

She took long without going for medication. My mother passed way because of that.

I have just lost my baby because I went to the hospital when it is 5 months and they checked for my BP and it was high but the cause for the miscarriage was due to stressing on my side.

Over-reacting or too much getting angry has done her bad coz even me I have lost three pregnancies due to the same problem.

Some women eat a lot when pregnant which makes them lazy in the end.

Due to her carelessness.

Some women don’t follow the precautions of the medical officers.

I think pressure just comes as another disease coz i have seen many ladies with that case.

I think the problem is using family planning drugs when she was still young.

Some women when a woman is due, in case she has intercourse with lots of men, this can affect her private parts hence having a problem in delivering.

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Beliefs about the causes of complications during pregnancy and at delivery

2. The government

a. Low quality medical professionals

b. Lack of medical resources and facilities

c. Lack of education and awareness

d. Poverty

I was chased away from naguru when I had a problem with the placenta so I request medical personnel to be empathetic.

Trained midwives are few. For those who are trained the majority are not ethical - so I think we need more trained midwives.

I am asking whether mulago is a government hospital coz when I took there my pregnant daughter they asked money from me.

These ends of kabwasa the hospitals are very far, you can even deliver or die on the way before getting to hospital.

Add trained doctors at hospital and early infection can be handled. dr annet and team helped me.

Some women fear to go for ante-natal because of the way the medics treat them.

The government should organise seminars at every health center in order to educate mothers the dangers of not going to the health worker.

Poor road network especially in rural areas government should intervene.

Poverty

Anything can happen to a pregnant woman coz of being dirty coz the doctor can refuse to touch on her coz being dirty.

Some women fear to go for ante-natal because of the way the medics treat them.
3. The husband and others

a. Relationship with husband

The problem is the husband did not care about the wife, when the woman is pregnant, you have to pamper her like a baby. When I told my husband that I was pregnant to our second born, he said that I should abort it but when I refused, he stopped giving me monetary support.

I gave birth when the pregnancy is just six months, thank God my baby is alive but the cause for that was my husband.

b. Violence/domestic abuse

Poor communication between man and the woman which was due to lack of love among them.

What disturbs me a lot when pregnant is that my husband neglects me.

Women are harassed by their men like they are beaten terribly for what they have not done. some after being impregnated men dump them.

Let men love their pregnant women and avoid adultery to reduce on stress in pregnant women.

I think the woman is mistreated by the husband hence stressing and having depression which affected her pregnancy.

Beliefs about the causes of complications during pregnancy and at delivery

What leads 2 our death is pressure from the family of the man.
4. Supernatural

a. Witchcraft

b. (Lack of) religiosity

Some people say that it was a curse. For me, I think it was just demons as usual. Maybe she was bewitched. Some women when they get pregnant, they visit witch doctors due to fear of medics who they think are rude. People say that she should visit pastors and they pray for her. I think it's spiritual and she should go 4 prayers. She needs to be prayed for; it could be satanic powers. Death comes from god and it's common everywhere. Let her take it as a by gone.
The most commonly perceived causes for complications during pregnancy are:

1. **Delays in seeking healthcare** [592]
2. **Low quality professionals** [459]
3. **Mother’s psychological concerns** [278]
4. **Relationship with husband** [246]
5. **Mother’s biology/genetics** [207]
Men and women **generally agree** with the perceived causes of complications during pregnancy.

But **men** are (%) **more likely than women** to attribute causes to:

- Mother’s biology/genetics (23%)
- Mother’s negligence (30%)
- Direct poverty (34%)
- Witchcraft (110%)

In turn, **women** are (%) **more likely than men** to attribute causes to:

- Mother’s lifestyle (36.7%)
- Low quality of professionals (18.7%)
- Violence/abuse (14.4%)
- Lack of religiosity (12.1%)
To assess perceived risk, we asked participants via an SMS survey:

- 37.9% thought that they are at risk
- 62.1% thought that they are not at risk of pre-eclampsia.

However the answer depends on the gender of the respondent $[\chi^2(1)=17.76, p<.001]$.

Only 18.1% of men thought that they (their wife) are at risk

In comparison, 45.9% of women thought that they are at risk.
To explore barriers to seeking treatment, we asked participants via an SMS survey:

- 52.1% said yes they do
- 47.9% said no they do not have access to good healthcare.

Again the answer depends on the gender of the respondent \( \chi^2(1) = 12.04, \ p < .001 \).

Only 31.8% of men said they have access to good healthcare.

In comparison, 67% of women said they have access to good healthcare.
Key insights

- There is a good understanding about health complications during pregnancy (blood pressure) and the importance of seeking immediate healthcare.

- Men and women differ on some of the beliefs: men focus more on internal causes related to the biology, medical conditions or dispositional traits of women; women tend to attribute problems to the low quality of health professionals and lack of support from their husbands.

- Men perceive the risk of complications as very low, as it is something that happens to ‘other people’, whereas women tend to perceive the risk as higher.

- Understanding the norms and beliefs held by different groups and communities is crucial to shape context-specific health interventions focused on improving the quality of medical and social support for Ugandan women during pregnancy.
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