TRANSLATORS WITHOUT BORDERS

Does Translated Health-Related Information Lead to Higher Comprehension?
A Study of Rural and Urban Kenyans

April 2015

Contents

Executive Summary

197 Kenyans participated in a research study designed to examine the level of comprehension of health-related information when presented in English and translated into Swahili.[1] Participants were asked questions about language competence and preferences and some pre-task questions on their knowledge of Ebola. They were then given either an English-language information poster to read or a Swahili version and were subsequently asked further questions about their knowledge of Ebola. The summary of results is as follow:

- Despite English being an official language in Kenya, understanding of it is very limited.
- Prior knowledge of Ebola was low among participants, regardless of age, gender, or abode (rural vs. urban).
- People reading health information in English understand very little.
- Providing the same information in Swahili leads to a very significant increase in comprehension.
- A huge majority prefers to receive health-related information in spoken format.
- Public gatherings, church and radio were listed as preferred modes of communication for health-related information, apart from Information Leaflets.

The results and implications are presented in detail below.

[1] Research ethics approval was sought and granted for this study by the Dublin City University Research Ethics Committee.

1. Introduction

This report is structured as follows: The design and purpose of the research is outlined first and this is followed with a section that describes research participant profiles from a language, gender, age and abode perspective. Section 4 reports the results from the pre-task questions on Ebola and Section 5 reports the results after reading the information on Ebola in either English or Swahili. We then consider feedback from the Community Health Workers who administered the surveys, summarise the results and present the implications.

Words of Relief is the first translation crisis relief network intended to improve communications with communities when the crisis response aid workers and affected populations do not speak the same language. Words of Relief was piloted in Nairobi, Kenya with Swahili and Somali and was supported by the Humanitarian Innovation Fund (HIF), a program managed by ELRHA. The Words of Relief Digital Exchange is funded by Microsoft's Technology for Good.

This study was supported by a large number of people who deserve mention for their contributions:

- All those who answered the survey
- The Community Health Workers
- Especially, Grace Tang, Paul Warambo and Phoebe Maina of TWB

About Translators without Borders

Translators without Borders envisions a world where knowledge knows no language barriers. The US-based nonprofit provides people access to vital knowledge in their language by connecting nonprofit organizations with a professional community of volunteer translators, building local language translation capacity, and raising awareness of language barriers. Originally founded in 1994 in France as Traducteurs sans Frontières (now its sister organization), Translators without Borders translates more than five million words per year. In 2012, the organization established a Healthcare Translators' Training Center in Nairobi, Kenya. For more information and to volunteer or donate, please visit: http://www.translatorswithoutborders.org or follow on Twitter at http://www.twitter.com/TranslatorsWB.

Please watch our most recent film on how local language information helps breastfeeding moms in Kenya.

2. Design and purpose of the research

The objectives of this research were twofold:

1. Measure the comprehensibility of English information posters vs. translated Swahili posters among urban and rural recipients in Kenya.
2. Gauge beneficiaries' preferences for the mode of delivery of such content and the language of delivery.

Swahili and English were selected because, although Kenya has a highly multi-lingual make-up, Swahili and English are the two statutory national languages (Ethnologue: Online). While English is spoken in commerce, government and in educational settings (Wikipedia) especially in Nairobi, Swahili is the *lingua franca* throughout the country; additionally the various ethnic groups typically speak their own mother tongues.

The aim was to survey 200 participants from the general population, *ideally* divided evenly as follows:

Urban Setting Total:	**100**
Total Women:	50
Of which:	25 read English leaflet/25 read Swahili
Total Men:	50
Of which:	25 read English leaflet/25 read Swahili
Rural Setting Total:	**100**
Total Women:	50
Of which:	25 read English leaflet/25 read Swahili
Total Men:	50
Of which:	25 read English leaflet/25 read Swahili

Community Health Workers (CHWs) were recruited by Translators without Borders (TWB) and were trained on the objectives and administration of the survey. The CHWs used their weekly meetings with the community to introduce the survey and to announce that they would be calling door-to-door with the survey. They emphasized that participation was completely voluntary. To fulfill research ethics obligations, they first read a 'plain language statement' to the participant and then the 'informed consent form', which the participant was subsequently asked to sign.

The plain language statement, informed consent form, survey questions and information poster were translated into Swahili by TWB. The reason for translating the research instruments (plain language statement, informed consent form and all survey questions) into Swahili and conducting the survey in Swahili was that we wanted to avoid any possible confusion regarding the research project . It was our supposition that, despite English being a lingua franca, there would potentially be comprehension issues with information delivered in English. This was, in fact, the basic motivation for the research project and the data gathered below on language competence supported this supposition. Once surveys were returned to TWB, the data were uploaded to an online survey tool for analysis.

3. Participant Profile

Demographics

In this section, the profile of survey participants is presented according to the categories of abode (rural or urban), gender, age, and language preferences.

As shown in Figure 1, there were 95 participants from a rural area and 102 from an urban area. Figure 2 demonstrates that there was an almost equal separation between male (99) and female (98) respondents.

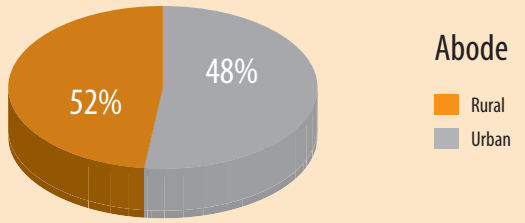

Figure 1: Rural vs. Urban Participants

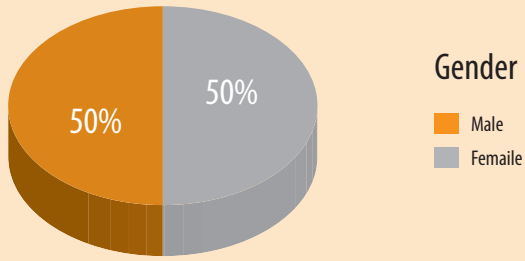

Figure 2: Gender of Participants

Distribution across age categories was, however, more skewed, with 137 in the 18-44 category, 55 in the 45-64 category and 5 in the 65+ category.

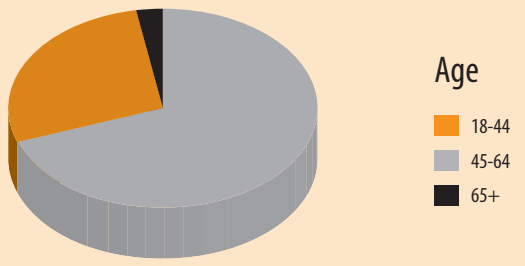

Figure 3: Age Categories for Participants

The sample therefore includes a balance between abode and gender, but was biased towards a younger age group.

Languages

Participants were first asked to name their 'mother tongue'. This was qualified as 'tribal language'. Table 1 shows the mother tongues listed in descending order of speakers with twenty-four different languages named. In the context of the results presented later in this report, it is worth noting that Swahili is listed as a mother tongue by only four people. However, when asked to list their 'second-best language', 189 listed Swahili (with five listing English, one Nyoyaya, and two Orma). When asked for their 'third-best language', English came out on top (see Table 2).

Language	Number
Kikuyu	22
Kamba	20
Nyoyaya	20
Orma	19
Maa	18
Luhya	17
Kisii	12
Luo	12
Pokomo	11
Samburu	6
Malakote	5
Meru	5
Taita	5
Digo	4
Kalenjin	4
Swahili	5
Borana	2
Kiembu	2
Nandi	2
Oromo	2
Giriama	1
Kuria	1
Mijikenda	1
Teso	1

Table 1: Mother Tongue (Tribal Language)

2nd Best Language	Number
Swahili	189
English	5
Nyoyaya	1
Orma	2

3rd Best Language	Number
English	135
Swahili	44
Arabic	11
Somali	5
Orma	1
None	1

Table 2: Second and Third-best languages

Note that the total number who selected Swahili as first, second or third-best language exceeds the total number of participants. The CHWs confirmed that some participants responded with 'Swahili' more than once, which explains why this is the case. We can only speculate here that some of the participants did not understand what was meant by first, second and third-best language.

Participants were asked to rate their understanding of written and spoken Swahili, followed by their understanding of written and spoken English. This was done on a 4 point scale as follows:

Understanding of written Swahili/English

1. Very limited, I don't understand anything or just a few words
2. Limited, I usually understand about 50%
3. Good, I usually understand 80% of what I read
4. Excellent, I usually have no trouble at all understanding written texts.

Understanding of spoken Swahili/English

1. Very limited, I don't understand anything or just a few words
2. Limited, I usually understand about 50%
3. Good, I usually understand 80% of what I hear
4. Excellent, I usually have no trouble at all understanding what I hear.

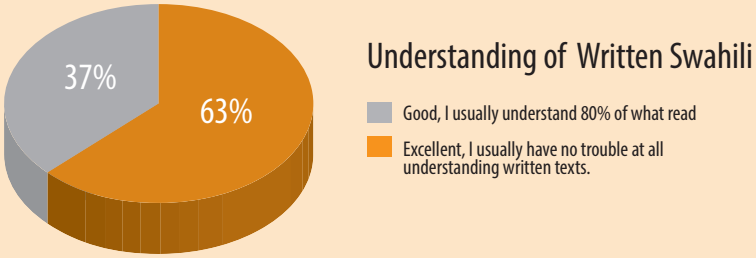

Figure 4: Understanding of Written Swahili

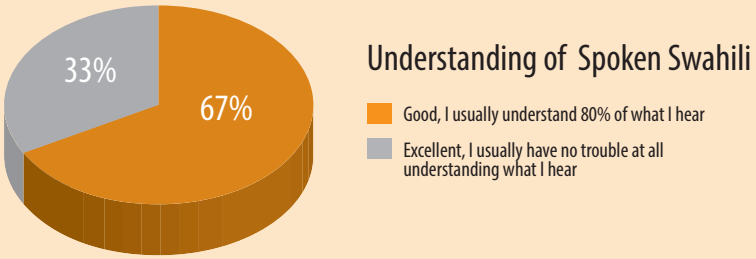

Figure 5: Understanding of Spoken Swahili

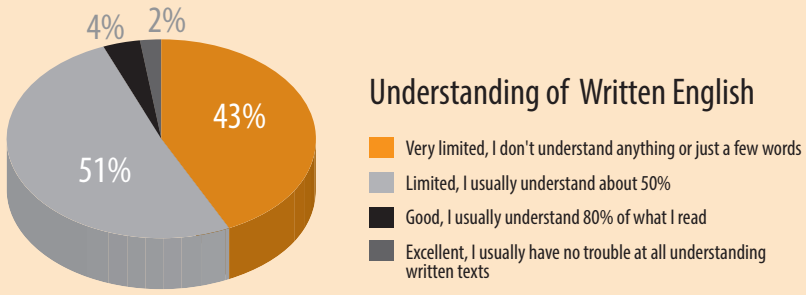

Figure 6: Understanding of Written English

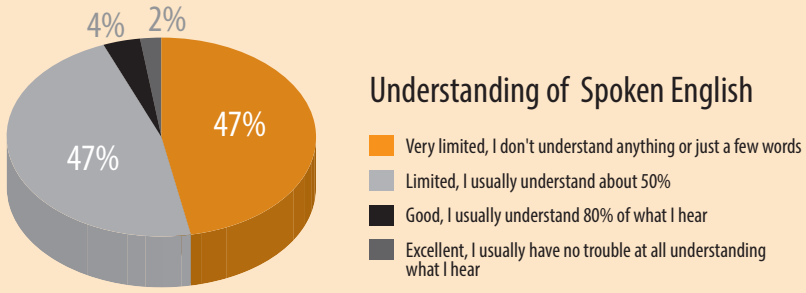

Figure 7: Understanding of Spoken English

It is clear from the self-rated responses that participants have a good to high understanding of both spoken and written Swahili, but have quite limited understanding of spoken and written English.

Communication preferences

Participants were asked the following question in relation to their communication preferences: In which language would you most prefer to receive health-related information: Swahili, English or Mother Tongue (Tribal Language)?

Participants had to choose between written and spoken communication for their preferred means of receiving health-related information in general. Strikingly, **82% selected spoken over written communication.**

They were also asked to list other modes of useful communication, apart from the information leaflets such as those used in the survey. Table 3 shows the other modes mentioned and the number of participants who mentioned these.

What other modes would be useful for disseminating important health-related information?

Public gathering	72
Church	61
Radio	56
Mosque	7
Spoken by health-care workers	1

Table 3

4. Pre-task knowledge of Ebola

Before giving either an English or Swahili poster to a participant for reading, they were asked four preliminary questions to test their pre-existing knowledge of Ebola. The four questions were as follows:

PQ1: Can Ebola spread through contact with other people? (Correct answer is Yes)

PQ2: Can Ebola spread through the air? (Correct answer is No)

PQ3: Can Ebola be treated with Antibiotics? (Correct answer is No)

PQ4: Is it ok to touch the dead body of somebody who had Ebola? (Correct answer is No)

As mentioned in the introductory section, these questions had been translated into Swahili in advance and were posed by the CHWs in Swahili.

Answers Given Across All Respondents

The majority of answers given for each question were incorrect. Across all four questions and the total population of 197 participants, on average 136 of the responses were incorrect, 16 were correct and 45 responded with 'don't know'. The numbers for each question are shown in Figure 8. This illustrates that knowledge about Ebola was quite low before reading the posters.

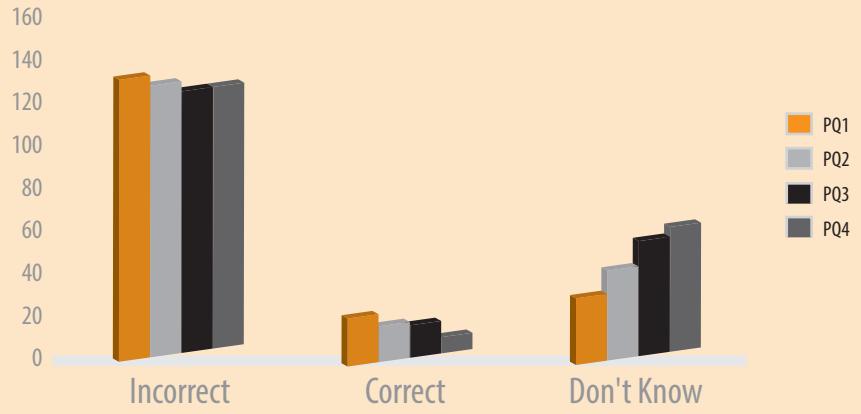

Figure 8: Pre-task Responses to Questions on Ebola

Rural/Urban Divide

To investigate if there was any evidence of a rural/urban divide in pre-existing knowledge of Ebola, we recorded the correct/incorrect/don't know answers per location. As Table 4 demonstrates, there is no substantial difference in the level of correctness of the responses. This implies that pre-existing knowledge of Ebola was the same, no matter whether the participant lived in an urban or rural setting.

Numbers of correct/incorrect/don't know answers per abode

RURAL Respondents	PQ1	PQ2	PQ3	PQ4	AVERAGE
Incorrect	69	68	64	64	66
Correct	10	8	8	6	8
Don't Know	16	19	23	25	21
URBAN Respondents	**PQ1**	**PQ2**	**PQ3**	**PQ4**	**AVERAGE**
Incorrect	72	69	68	71	70
Correct	12	9	8	3	8
Don't Know	18	24	26	28	24

Table 4

Gender

We also wished to investigate if there were any differences in terms of correctness of responses across gender. Table 5 shows the responses per question and averages for male and female respondents. Although the average number of incorrect respondents is lower for males, it is not substantially lower, and the number of 'don't know' responses is higher for males than females, though again the difference is not substantial. It is reasonable to assume from this data that pre-existing knowledge of Ebola was the same for both male and female respondents.

Numbers of correct/incorrect/don't know answers per gender

MALE Respondents	PQ1	PQ2	PQ3	PQ4	AVERAGE
Incorrect	66	65	68	68	67
Correct	11	7	7	3	7
Don't Know	22	27	24	28	25
FEMALE Respondents	**PQ1**	**PQ2**	**PQ3**	**PQ4**	**AVERAGE**
Incorrect	75	72	64	67	70
Correct	11	10	9	6	9
Don't Know	12	16	25	25	20

Table 5

Age

Finally, we wished to ascertain if there was any difference in pre-existing knowledge of Ebola across the different age categories recorded in the survey, i.e. 18-44, 45-64, 65+. As can be seen from the table below, the percentage of correct, incorrect and don't know responses for the 18-44 and 45-64 age are very similar. The results differ for the 65+ category. However, as there were only five in the latter category we cannot claim that there are significant differences between this age category and the other two (see Table 6).

Numbers of correct/incorrect/don't know answers per age

AGE: 18-44	**PQ1**	**PQ2**	**PQ3**	**PQ4**	**AVERAGE**	**%**
Wrong	100	98	95	97	98	71.2
Right	16	11	12	7	12	8.4
Don't Know	21	28	30	33	28	20.4
AGE: 45-64	**PQ1**	**PQ2**	**PQ3**	**PQ4**	**AVERAGE**	**%**
Wrong	41	39	37	38	39	70.5
Right	6	6	4	2	5	8.2
Don't Know	8	10	14	15	12	21.4
AGE: 65+	**PQ1**	**PQ2**	**PQ3**	**PQ4**	**AVERAGE**	**%**
Wrong	41	39	37	38	39	70.5
Right	6	6	4	2	5	8.2
Don't Know	8	10	14	15	12	21.4

Table 6

To summarise, the pre-task responses suggest that knowledge of Ebola was low among participants, that there was no difference across rural orurban dwellers, gender, or the age categories, with the exception of the 65+ category. The latter category had too few respondents to make any claims regarding differences due to age.

5. Post-task knowledge of Ebola

For this survey, we are mostly interested in whether reading the *translated* poster in Swahili improves comprehension of the content. We will focus on comparing answers from the participants who read the Swahili information with those who read the English information. First, however, it is also interesting to ask if reading *any* information led to an increase in the number of correct responses, regardless of whether this information was in English or Swahili. We assume, of course, that reading some information will improve knowledge, especially seeing as the rate for incorrect and don't know responses was so high in the pre-task questions (see above).

In Figure 9 we present the number of incorrect, correct and don't know responses for each survey question. In this figure we do not distinguish between which language version was read.

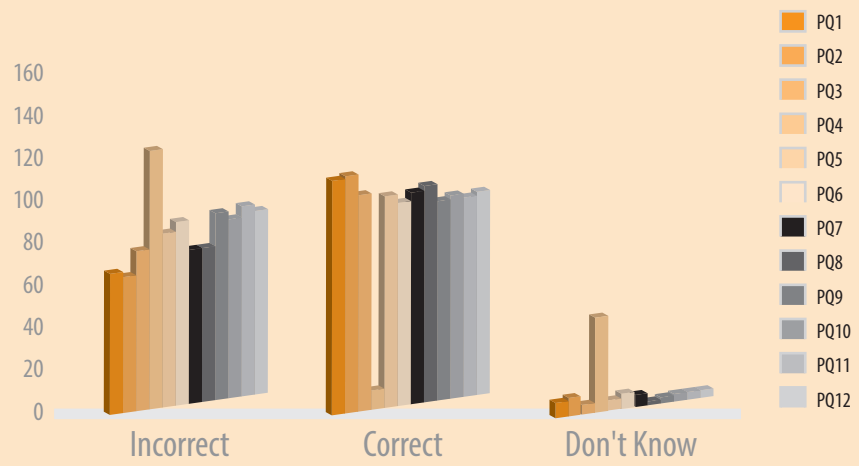

Figure 9: Number of incorrect, correct, don't know responses in total, post-task

These results demonstrate that there is an increase in the rate of correct responses given to questions about Ebola after having read the posters. However, the rate of incorrect answers and 'don't know' responses is still high.

Those who read the English poster

In the following, we will distinguish between the answers given depending on whether an English or Swahili version of the poster was read.

The results in Figure 10 give an overwhelming indication that reading the poster in English did not significantly improve comprehension regarding Ebola. On average, the wrong answer was given 76% of the time by those who were given the English version. 16% of the answers were correct and 6% of the responses were 'don't know'. These numbers are broken down per question in Figure 10.

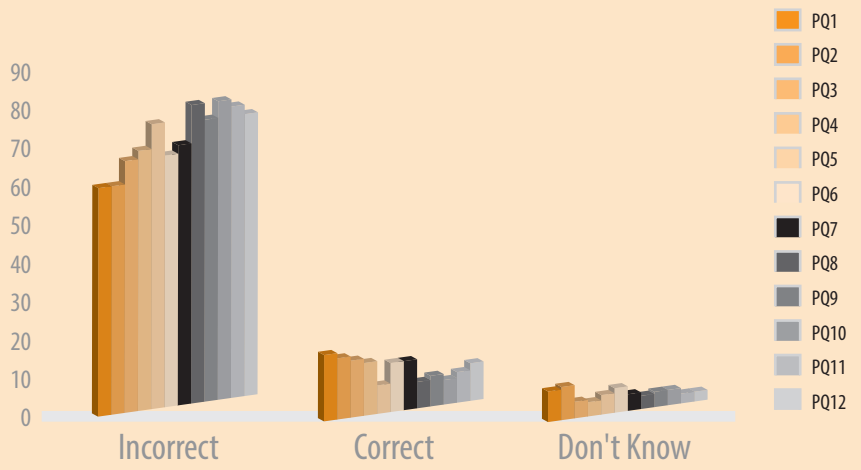

Figure 10: Number of incorrect, correct, don't know answers after reading the English Poster

This result is unsurprising in light of the self-ratings for English competency (Figures 4-7). The majority of participants rated themselves as having either very limited, or limited understanding of spoken or written English. If we compare the percentage of incorrect, correct and don't know responses from the entire set of respondents before reading any information poster, and *the percentage after having read the English poster*, we see that the number of 'don't know' responses islower, the number of 'correct' responses is greater, but so too is the number of 'incorrect' responses. It would appear then, that the effect of reading the English poster is to lower the number of 'don't knows', but this does not transfer directly into 'correct' responses only.

Those who read the Swahili poster

The answers provided by those who were given the Swahili version of the poster **lie in stark contrast to those who read in English**. Having read the Swahili version of the poster led to 92% correct answers on average, with 7% wrong and 0% "don't knows". These results are broken down by question in Figure 11.

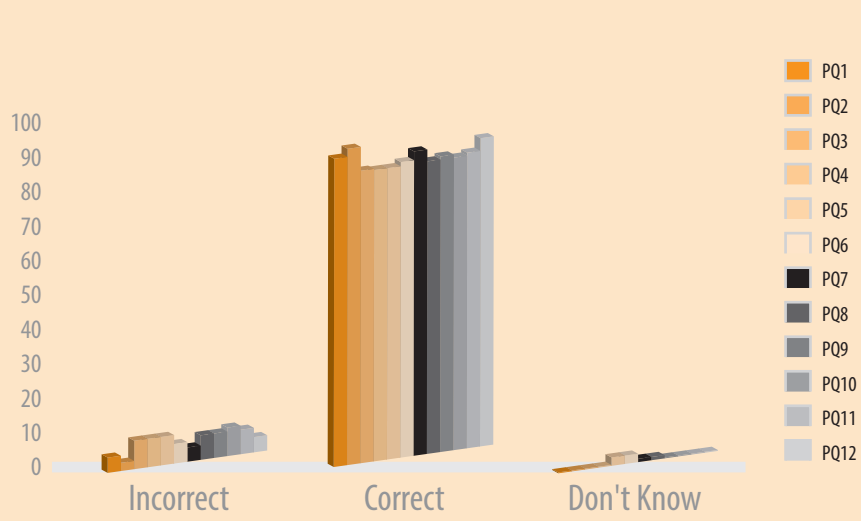

Figure 11: Number of incorrect, correct, don't know answers after reading the Swahili Poster

6. Feedback and Comments from Community Health Workers

Translators without Borders asked the coordinator of the survey if they had received any feedback from the Community Health Workers who had administered the survey on the ground. Two CHWs (thanks to Mema and Anne) provided some very useful feedback from the exercise, which is summarised here.

The CHWs reported that people were **generally enthusiastic** about participating in the survey. Two CHWs expressed the wish to have the questionnaires available in local languages, not just in English and Swahili. This, in particular, would cater to those over 65 who may not speak either of the latter two languages and who were underrepresented in the sample above. Some people in the villages with hearing disabilities wanted to participate but could not because the survey was administered orally.

Unsurprisingly, given the results above on English competences, participants expressed a preference to see the information posters in Swahili and the CHWs had to convince participants to read the English versions.

The CHWs remarked that it was surprising to see how many people struggled with English. Anne's comments sum this up very well: "I tell you language is a problem more than I ever knew."

Finally, it was reported that participating in the study helped to dispel misconceptions about Ebola. The CHWs reported that many participants did not know much about this disease prior to participating.

7. Summary of Results

- Understanding of both written and spoken English (self-reported) was very limited among participants.
- 82% of participants would prefer to receive health-related information in *spoken* format.
- Apart from information leaflets, public gatherings, church and radio were listed as preferred modes of communication for health-related information.
- Prior knowledge of Ebola was low among participants, regardless of age, gender, or abode.
- Reading of the English poster did not lead to any increased comprehension of Ebola.
- Reading of the Swahili poster led to a significant increase in comprehension of Ebola.

8. Implications and Recommendations

We set out to measure the comprehensibility of English information posters compared with translated Swahili posters and have seen that there is a very clear difference in the levels of comprehension, in favour of the translated Swahili poster. We have also recorded preferences for spoken over written communication. This leads to the following list of implications and recommendations.

- **Content needs to be provided in the languages of highest comprehension.**
  English is not a suitable medium for the transfer of important information among representatives of these communities whereas Swahili seems to function well as a language of communication. For this population, Swahili should therefore be used as the main channel for communicating important information.

- **More information needs to be made available in tribal languages and alternate formats.**
  Where it is feasible, the multitude of tribal languages should be considered in communications. For example, the inclusion of representatives of the 65+ generation could be better facilitated through materials in some local languages other than Swahili. The inclusion of people with hearing and/or reading limitations would require the presentation of materials in formats suitable for that population. Some possibilities for alternative modes/materials include pictorial representations, braille and/or Kenyan Sign Language (KSL) interpreting.

- **In Kenya, there is a strong preference for spoken content to supplement written content.**
  Participants stated that they have a preference for spoken rather than written information. This suggests that perhaps the spoken medium would be better for transferring important information. However, spoken language is temporary and the recipients would not be able to refer to the spoken message as they would if they had a leaflet or poster to refer to and to re-read. This issue could be addressed by supplementing spoken material with simple written material such as posters. Audio-visual materials (perhaps with subtitling) might also be useful where technology allows for access.

- **Aid organizations need to understand best means for distribution of content in the right language.**
  Participants in Kenya pointed to a variety of channels, including public gatherings, church and radio, as best distribution points. While these channels offer easy forums for spoken content, the first two (public gatherings and church) also can be used to provide simple written material that is reinforced through spoken content. But more importantly, one health message in Swahili in a church sermon could be more effective than thousands of brochures delivered in English.

- **More studies are needed on the impact of English and local language information**.
  Some of the implications outlined above could lead to future studies. For example, comparative studies could be done on:
  - whether these results are replicated in other countries
  - comprehension of spoken vs. written information
  - comprehension of different spoken media (e.g. radio vs. church)
  - comprehension of tribal languages vs. Swahili in the 65+ cohort
  - how best to communicate with deaf communities etc.