Access and use of information by primary health care providers in rural Uganda: a qualitative approach.

By

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Abstract
The article summarises findings from a qualitative study that was conducted in rural Uganda, East Africa. The main aim of the study was to investigate the accessibility and use of health information in the lower echelons of Primary Health Care (PHC). Women, as PHC providers in an African family, were focussed on, as well as health workers. An interview schedule that consisted of open questions and one relating to health information critical incidents was used. A holistic inductive paradigm was adopted with a grounded theory analysis. The findings highlight a model of information behaviour that was driven by the value and impact of information unlike previous information models, which have been driven by information needs. The value and effect of information on PHC was as experienced and reported by the interviewees. Implications of the study and areas for further research are highlighted.

Keywords: Information models; Value of information; Information use; Information behaviour; Primary health care; Women; Information activities in rural Africa.

INTRODUCTION
Over the years, information related problems in the health sector have raised the concern of information professionals, health workers and social scientists. Some have suggested that in order to implement the planned health strategies, there is a need to improve not only the health information services but also the understanding of why and how to use the information. To many African health professionals and librarians, information is available but not accessible; while to some, information is neither available nor accessible (Lowan & Bukachi, 1998; Musoke, 2007). Therefore, although there is a need to produce more relevant information in Africa, the greatest challenge is to ensure that what is available so far, can be accessed.

The development of effective information services for rural people, and the policies governing their implementation and use, depends on ample knowledge of rural people's information environment and behaviour. Hardly any empirical data exists on this topic in Uganda. Focusing research on rural health workers, who are professionally isolated, is an important step in improving their information infrastructure. This would indirectly enhance information provision to the communities they serve. At a local level, the study is important because the majority of Ugandans¹ do not see high level health workers when they seek health care; it is provided within the family, community or health units run by nurses and clinical officers.

Many information studies in the developed world have focused on information systems and retrieval (Spink, 1999; Vakkari, 1999). However, the interest of an information researcher in a rural African setting can hardly be on such topics. Rather, the attention is

¹Uganda had a population of 31.4 million people in 2008, with slightly more males than females. About 70% of the population live in rural areas. (Source: Uganda Demographics profile, 2008).
on information in every day life. In a post civil war situation of an African rural area, can the use of available information make a difference to the lives of rural people?!

The main aim of the study was, therefore, to investigate the accessibility and use of health information by women and health workers, who are at the lowest level of Primary Health Care (PHC) service delivery in rural Uganda. This would advance the understanding of the role of information in the health sector and the information processes involved. Therefore, the main concern of the study was not to quantify data, but rather to understand issues surrounding access and use of information in rural Uganda, and how women and health workers perceived and interpreted these issues.

In this study, the term information was used in a broad sense to include the subjective and objective aspects of information, as well as the behaviours associated with information acquisition or use.

**METHODOLOGY**
Given the nature of the study, a holistic inductive paradigm was used with a grounded theory analysis. Although the study took a grounded theory approach, it differed from the grounded theory as originally defined by Glaser & Strauss\(^5\) in that it did not adopt a theoretical sampling strategy. The sample was determined by the PHC set up\(^6\), and followed a purposeful sampling strategy as described by Patton (1990). The study, therefore, focussed on two categories of people who form the base of PHC service delivery, namely the women and health workers. The total sample was eighty-two (48 women leaders and 34 health workers).

Face-to-face interviews were conducted using an interview schedule that consisted of open questions and one relating to health information critical incidents. Two sets were used: one for the women and the other for health workers. As a semi-structured (open-ended) interview method was used to collect data, it was preferred to do a cross-case analysis for each question in the interview schedule. This involved grouping together and comparing answers from different interviewees to common questions. The analyst then abstracted from the data and generated concepts and categories inductively. This was proceeded by open and selective coding, based on the original Glaser & Strauss (1967) approach.

Some interviewee responses are given in the findings. These are based on verbatim records (translated from vernacular to English in the case of women), and are quoted in italics. For confidentiality reasons, each quotation indicates the interviewee number rather than the name.

**FINDINGS**
The interviewees reported the difference information had made in their personal and professional lives, and the frustrations and consequences of failure to find or use the needed information. The article is going to focus on this finding. It should be noted that
the fully analysed findings of the study (Musoke, 2001) resulted into an interaction-value model where the value of information was the core category, while the moderation of constraints and the interaction with sources for latent or apparent needs are the two main categories which make up the model (Musoke, 2007). However, given the size limitation of this article, it is not possible to discuss all the findings here.

**Role of information**

The meaning information made to people after being accessed, used and interpreted, and its significance and role as perceived, experienced and reported by the interviewees were conceptualised as the value people attributed to information. The interviewees, as users of information, judged the information they accessed and attributed, or did not attribute, value to it.

Interviewees reported, for example, that when they accessed information and used it, some of that information changed their states of knowledge, values, beliefs, attitudes and behaviour. This led to the various actions that put the knowledge acquired into practice or applied the information gained in various ways, which improved and promoted health. For example, when women received relevant health information, used it and found it valuable, they carried out various information dissemination sessions both formal and informal about, say, the causes and prevention of illnesses/diseases; so, they interacted with their networks to promote health. The value and impact of information also made health workers disseminate information to others in various ways (print, oral, visual). These information dissemination activities were driven by the value of information, and involved interaction with individuals, groups and communities in the case of women leaders interviewed; or fellow health workers and patients in the case of health workers. Therefore, those individuals who had been constrained to access information in one way, accessed it in another way (and a series of processes of information access and use went on, as value-reported information led to further interactions). Hence, the 'interaction-value' model of health information access and use that emerged from the overall findings (Musoke, 2001; 2007).

The value of information, as reported in the findings, was quite subjective, although it was shared with others as indicated above. Hence, this study's approach to the value of information is what Saracevic & Kantor (1997) referred to as 'perceived value approach', which is "Subjective valuation by users of information, of the value or benefits of given information. This assumes that users can recognise the value of information or the benefits gained/lost. If scales are used, it assumes that they can place the value in some ranking" (p.532).

Health workers reported the value of information mainly from a professional rather than a personal point of view. Information was valuable in clinical work, administration, decision-making, education and training, detection, prevention and control of diseases/health problems. Some examples of the role of information in critical incidents are given below:

“A 12 year old child was brought to the health centre bleeding from the nose profusely. After positioning him properly, I needed to find information about the
reaction of one of the medicines I wanted to prescribe because I remembered from my training that this particular medicine, if not administered properly, could cause serious clotting which may result into death. So, I rushed and referred to a manual (Standard treatment guide) which fortunately provided the information about the correct dose of the medicine; I then gave it to the child and he got well” (Clinical officer -Bh8).

“Recently I examined a patient and thought he had an intestinal obstruction; on opening, I found a ruptured gall bladder yet I had never done cholecystectomy before. I called in a colleague; before he came, I decided to read the CME materials, which provided the details of what to do. When my colleague came, he brought a copy of Primary Surgery textbook by King which also gives step by step account of what to do in order to carry out that operation. These assisted us to successfully do the operation (Doctor-Lh1)”. 

Women reported that most of the information they had accessed was very valuable and they used it in the prevention and treatment of diseases, to know the causes of illness, to promote health, take decisions, make choices, overcome constraints and misconceptions, cope with illnesses, support the community/self help, change behaviour, change attitude, participate in information dissemination/awareness raising, and for general health knowledge. Some examples of the value of information are:

Information was valuable in the prevention of illnesses through knowing their causes. Knowledge of how diseases are caused and transmitted was reported to have led to the control of disease vectors, water borne diseases and health promotion in general.

“I learned how to control the breeding of mosquitoes which transmit malaria, so I do everything possible to keep this home free from bushes and stagnant water where mosquitoes breed and to close windows and doors before dark, sleep under a net... Since I started putting these measures in place, my household members take long to suffer from malaria; actually, we may spend almost a year without an attack, yet in the past, it was a frequent problem in this home” (Woman-Bw2).

Information that was used to prevent diseases was also reported to have had some economic benefits.

"I learned about the importance of immunisation and my children got immunised. Since then, they have been a lot healthier... This reduces our medical expenses because they no longer get diseases like measles which used to disturb them” (Woman-Iw5).

Some women interviewees also reported that the information they received assisted them in disproving concepts and/or overcoming beliefs and attitudes about family planning and other medical practices. Once these were overcome, women made decisions to use contraceptives, use medical instead of traditional practices/services, etc. Hence, 'overcome misconceptions' triggered off various decisions. Some decisions were taken as
a direct result of overcoming misconceptions, while others were taken as a result of the value of information in general. Some women reported that among the various decisions they took was to change behaviour in order to prevent diseases such as AIDS. This can be illustrated as follows:

Value of information → decision making → behavioural change → prevention

Figure 1: Role of information in promoting health

The study found out that awareness about AIDS was quite high, in fact the highest of all the health topics reported. That high awareness seems to have been translated into behavioural change, which has greatly checked the spread of AIDS in Uganda. This development has been supported by national and international statistics\(^1\), which indicate that the HIV/AIDS rate had reduced from 30% in 1980 to 6.4% in 2008 mainly due to effective information provision and behavioural interventions\(^2\). While celebrating the World AIDS day (1\(^{st}\) December, 2008), it was reported that the reduction in the national prevalence rate is “an achievement attributed largely to the country’s rapid acknowledgement of the crisis it faced, the roll out of national prevention and treatment messages and its embrace of open discourse around causes and solutions to the virus”\(^2\).

Some examples were cited when health workers reported that the information they had accessed enabled them to make decisions concerning personal health e.g. diet. The data from women, on the other hand, showed that the value of health information was mainly to the family, then personal, and community in that order. What made the findings so distinctly African, was the extended family aspect. Women reported the value of information in relation to its effect or benefit to the nuclear and extended family members.

Therefore, the value of information in this study was mainly at two levels, namely, the social level because it served communities, and an individual level. The two levels were, however, interdependent. Health workers shared their individual valuable experiences

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\(^1\) In November 2003, the African-American Institute gave an Award to Uganda in recognition of its fight against HIV/AIDS …The Institute hailed Uganda’s dramatic reduction in HIV/AIDS rate in the last ten years owing to vigorous public education campaigns …www.monitor.co.ug/news November, 7\(^{th}\) 2003.

\(^2\) HIV/AIDS in Uganda by Kelly, A … www.guardian.co.uk/katine/2008/dec/01/world-aids-day-uganda.
with patients on such issues as diet or other professional matters with colleagues. Women leaders did the same.

The value of information in the prevention of diseases and promotion of health as demonstrated in the findings agrees with the WHO report, which points out that: “Both the public health and the personal care interventions have contributed to reversing the urban - rural differences in health status; better health among urban populations is due more to the application of improved knowledge than higher incomes in cities”\(^\text{11}\).

It therefore follows that although rural areas had low incomes, they could enjoy better health if they accessed information to enhance their knowledge. Hence, factors which negate information access and use in rural areas need to be addressed in order that rural communities may reap the benefits of improved health knowledge.

Finally, the findings highlighted the various needs for information, as well as the demands people made. Citing an example, health workers reported that when they go for, say, immunisation programmes in rural areas, women insist that the sessions should start with health education. Furthermore, health workers reported throughout the study about the need for continuing education to keep up to date, and how out-dated knowledge had constrained their activities. The study findings, therefore, differ from Nordberg's view\(^\text{12}\) who claimed that there was low demand for information from health workers and that they do not use information resources even where they are accessible.

**Consequences of failure to access or use the needed information**

The findings confirmed further the importance of providing timely information. For example, during the interviews, some women and health workers reported that they needed information about Ebola, but they had not been able to get it. If the available information on prevention was disseminated when these needs were identified, and after the Ebola problem was reported in neighbouring countries, Ebola may not have claimed so many lives in 2000 and 2001. In many situations therefore, information is available but not accessible; this leaves many health information needs unmet, which is a challenge to health information providers.

Furthermore, some of the incidents narrated revealed the consequences of delayed access or lack of appropriate advice or information, which led to the death of family members in the critical situations reported by five of the forty-eight women interviewed (Bw1, 4, 9; Lw4 & 9). In some cases, there was conflicting information or advice and it was difficult to judge which one to use. Hence, the need for timely and appropriate information. Provision “of the right information at the right time by the year 2000” was one of WHO’s declarations, which seems to have remained on paper. In rural Uganda, it was not easy to access the right information or information source at the right time.

It was also noted that women’s perceptions of illness or health problem and their preliminary interpretation of the illness play a role in their choice of source of information and the source tends to vary according to women’s own beliefs and knowledge about illness, and the availability of relatives, friends or neighbours who
become a primary source of information when they confirm the women’s interpretation or assist in identifying and labelling the symptoms.

The study also revealed that factors such as gender or religious practices and values interfered in both women’s and health workers’ activities especially on topics e.g. contraceptives and AIDS control. Hence, even though women interacted with health workers, accessed information about contraceptives, and derived meaning out of the information they accessed in the interactions, some of them reported that they were not able to use and apply that information due to the social forces around them.

In some situations, unmet information needs led to constraints to information use. The women's data highlight various interdependencies and relationships between unmet information needs, sources of information and constraints to information use, e.g. regarding the immunisation programme. Although all the women interviewed in the study reported that they accessed information about immunisation, the information they had accessed left some unanswered questions. For example, some women needed information about the safety of the vaccine; when this information need remained unsatisfied, those women decided not to have their children immunised, hence they were constrained to use the information they accessed about immunisation dates, venue and age of children to be immunised. If women obtained information/clarification about, for example, the safety of the vaccine and what caused children’s deaths after the previous immunisation session (to satisfy their information needs), the constraints could be overcome and the information used by taking children for immunisation. Hence, the more information needs are met or satisfied, other considerations being held constant, the less the constraints to information use, and therefore, the more successful the preventive measures such as polio immunisation or family planning would become.

It was also observed in the study that although there had been massive campaigns for polio immunisation, and only ‘rumours’ or word of mouth messages about the possible relationship between polio immunisation and the origins of HIV/AIDS, some people seem to have responded to the latter by resisting to participate in the immunisation exercise. Hence, some informal but negative messages from friends or relatives tended to have almost as much impact as the massive positive messages from formal and authoritative sources.

The unmet information needs, therefore, remained a strong constraint to information use, as well as a challenge to the health of Ugandans.

Information provided by health workers to patients was generally considered insufficient. The findings of this study have shown, for example, that while the majority of women interviewees preferred to get more information (monitors) about their long-term and life-threatening illnesses or the illnesses of those they nursed, two women reported that information would make them more worried and hence, worsen their situation (blunters). It is, therefore, important that health workers assess patients' general orientation to information so that the monitors are provided with as much appropriate information as possible to assist them to cope with the illnesses. Health workers have been reported to
provide too little information to people, something that needs to be addressed. On the other hand, the blunter, who may not need information at all or who may need some information but not all, should have their choice respected.

Finally, it was noted that the problems of limited access to information caused by having few or hardly any health workers reaching some rural areas, lack of time for the women to attend meetings, listen to the radio, etc., led the local authority council (LC) executive committee members to take on an information dissemination role (for the benefit of their communities) either by inviting health workers to give talks in LC meetings or by the LC executive members moving door to door to ensure that emergency health information reaches every member of their community. At a slightly higher level of abstraction, this relationship seemed to be one in which the value of information, the need for information access and use, and the prevailing constraints in rural Uganda had led, among other things, to the institution and flourishing of an informal mechanism of health information provision.

Nuijten (1992) observed that such local practices or initiatives are often denied their due importance and labelled as 'disorganised', 'traditional' or 'indigenous' in development studies literature. These debates, however, remain far removed from the everyday practice of the people as this study has demonstrated.

CONCLUSIONS

The article has illustrated that where appropriate information was available, accessible, used and applied, it solved emergency or critical health needs and saved lives, as well as promoting health; the reverse was true when health workers or women as care givers failed to access and use the required information.

In addition to supporting their professional work, well informed health workers are a key element in informing the women’s social network which was reported to be an important source of information, and hence a positive element in the promotion of health and the health care of rural families. Amongst the implications identified are:

- The need to adopt a participatory and multi-sectoral approach involving front-line health workers, the Local Authority (LCs), the Faith-based organisations, women's groups and other development organisations for the effective provision of information to women.
- The use of social networks that have proved valuable and effective as sources of information need to be recognised and supported.
- In this part of the world, there was still a need to pay attention to printed materials which were still inadequately provided in some rural health units, and yet the infrastructure for accessing electronic sources was not fully developed.
- Improving access to information on radio and other simple technologies was a popular demand by the interviewees. Repackaging information to increase its accessibility was recommended.

Besides advancing our knowledge, qualitative research provides the necessary details needed to design systems and improve service delivery. Furthermore, access to health
information has become topical making the study findings relevant to local and international agencies. It is, therefore, not surprising that the topic of “access to health information and knowledge sharing” was, for example, part of the Rockefeller Foundation’s eHealth sponsored series of conferences from 12th July to 8th August 2008 entitled “Making the eHealth Connection: Global Partnerships, Local Solutions.” International institutions such as the World Health Organisation (WHO), Commonwealth Secretariat, the G8, European Union, the Commission for Africa and the Health Metrics Network have established eHealth action plans and programmes. Despite advancements, substantial questions remain regarding the best strategies for eHealth system design, funding, implementation, and capacity building, particularly in developing or “Global South” countries. The issue of how to leverage eHealth to advance health services, particularly in low-resource settings remains a challenge (Rokefeller Foundation, 2008).

Areas for further research
Several areas for further research were identified in the study (Musoke, 2001); for this paper, only three are presented:

1. The ‘interactivity’ in the ‘Interaction-Value’ model was added to the Slawson and Shaugnessy formula by Smith14.

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   U = \frac{R \times V}{W}
   \]

   Where U = usefulness of the information to health workers, R= relevance of the information, V= validity of the information, and W= work to access the information. In words, the most useful information for health workers is information that is relevant to their practice, is valid, and does not take too much work to access. “After listening to a presentation by Maria Musoke, a researcher from Uganda, on the usefulness of information to rural health workers in Uganda, I added ‘interactivity’ to the top line of the equation. The information is still more useful if you can interact with the source and interrogate it. The formula provides a test of the ways in which doctors look for information they need.”(Smith, 2002). Studies to test this formula are recommended.

2. Coping and information behaviour: The findings of this study have shed some light on the information needs and information behaviour of people with long-term illnesses, e.g. sickle cell anaemia, asthma, HIV/ AIDS and paralysis. These findings just emerged from the interviews. There is therefore a need for further and more specific research on coping and information behaviour. Baker15 also observed that because very few studies have focussed on people with chronic diseases, information about monitoring and blunting behaviour in the face of long-term stress remains relatively scarce.

3. More extensive research on larger samples should be undertaken to test the findings, which emerged from the qualitative data in this study.
REFERENCES


