

The role of gender dimensions in the transmission and control of Rift Valley fever in Uganda

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Rift Valley fever (RVF)

RVF is a zoonotic viral disease first reported in Uganda in 2016 and now considered endemic. RVF is transmitted from animals to humans through contact with infected blood, milk and meat but can be controlled by vaccinating livestock. Human cases can be reduced when people avoid or take proper precautions when doing activities that put them at risk of transmission, such as slaughtering animals or handling raw meat. Men and women's gender roles, or societal expectations about how to behave, affect their daily activities and risk of RVF transmission, their access to knowledge and information about animal care (including RVF vaccines), and their ability to make decisions about disease control in their livestock.



This brief provides an overview of RVF in Uganda, describes gendered practices that influence transmission of RVF to humans, discusses gender differences in knowledge and access to information about animal care, and considers social and infrastructural factors that affect the ability of Ugandan women to make decisions about disease control for livestock. The integration of sex and gender analysis into research

allows for the development of more effective strategies and policies to control RVF and other zoonoses in Uganda and globally knowledge and capacities for the planning, monitoring and evaluation of sustainable livestock development strategies and investments, particularly in low- and middle-income and emerging countries.

Rift Valley fever in Uganda

Uganda has high concentrations of domestic animals with estimates of 13 million cattle, 14.6 million goats, 3.9 million sheep, 3.7 million pigs and 43 million chickens reared for both socio-economic and cultural purposes (FAO 2018). Livestock are a source of wealth and families gain better income to pay

for services such as quality education and health care (Pius 2019). Cattle give social status, as well as prestige to men, and are used for paying dowry (FAO 2012). Small ruminants also play significant economic and cultural roles (Byaruhanga et al. 2014). Men dominate in ownership of cattle while women and children, mostly boys, are responsible for the small stock such as goats, although widows also own and manage cattle (Oluka et al. 2004). Though women may be primarily responsible for taking care of livestock, depending on the society, they may or may not have control over the decisions concerning animal disposal and marketing (Assan 2014). Women have access to livestock products such as milk and marketing of these products but have limited decision making in the sale of the animals (Zhang 2018). In the predominantly pastoralist Karamoja region, women, girls and some boys mainly participate in the trade of small ruminants while men and young boys participate in marketing of larger ruminants such as cattle (Pius 2019). Female headed households (FHH) have fewer livestock endowments than male headed households and own more small stock such as chickens, goats and pigs (Dolan 2002).

Despite the importance of livestock to the livelihoods of men and women, production is constrained by a high prevalence of livestock diseases (Bagnol et al. 2015). RVF is a major livestock disease which affects cattle, goats, sheep, and camels. It is a zoonotic viral disease; humans primarily become infected through contact with blood or body fluids of infected animals (Zuckerman and Simpson, 1978). RVF was first identified in 1931 on a farm in the Rift Valley of Kenya. Since then, several outbreaks have been reported in sub-Saharan and North Africa. RVF was first reported in Uganda in 2016 (Routray et al. 2017). Following the first reported cases, an investigation conducted in Kabale district estimated that cattle, goats and sheep had seroprevalences of 27% (86/324), 7% (40/569) and 4% (7/158), respectively (Nyakarahuka et al. 2019). Multiple outbreaks have since been observed in the south-western parts of the country (Nyakarahuka et al. 2018; Tumusiime et al. 2018). In another study conducted in Kisoro District which borders Kabale District in the western part of Uganda, cattle had the highest RVF seroprevalence, followed by sheep and goats (Budasha et al., 2018). Other cases of RVF have been reported in West Nile in Arua, Ocea, Aliba, Odoi, Luba, Kwili and Odobu parishes in Rhino Camp in Uriama and Rigbo sub-counties (Mutua et al. 2019 and Tumusiime et al. 2018).

With the increase in the number of RVF outbreaks in Uganda, the Uganda government has taken up actions such as active surveillance and reporting, outbreak investigation, movement control and awareness creation in high risk areas such as abattoirs and livestock markets where RVF cases have been reported (ILRI 2017). In Kenya, the Smithburn vaccine has been approved for use in controlling RVF but in Uganda there is currently no approved RVF vaccine (Mutua et al. 2019). Additionally, RVF has not yet been included on the list of state-controlled diseases in Uganda (Tumusiime et al. 2018). Veterinary service in Uganda is carried out via open private practice supported by and in partnership with the government but there is no systematic disease surveillance system to support disease control (Abebe 2016).

To address livestock diseases transmitted between animals and humans, the International Livestock Research Institute (ILRI) is implementing the Boosting Uganda's Investments in

Livestock Development (BUILD) project in partnership with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and other partners focusing on supporting ongoing campaigns to control zoonotic diseases such as RVF.

Examining the role of gender and sociocultural dimensions in RVF control in Uganda is important to understanding the context of animal health service delivery and identifying opportunities for better disease control. This review looks at gender roles and sociocultural practices, the differential access to knowledge and vaccination information, as well as the intra household decision making processes in disease management. The review also examines the current animal health service delivery and major constraints faced by men and women in accessing these services.

Gender roles and sociocultural practices influencing RVF transmission

Societal norms determine the different roles and activities women and men perform in livestock management (FAO 2012). Livestock management roles affects a person's likelihood of exposure to the RVF virus and becoming infected. More women than men are the primary animal caretakers. The role of men is often supervisory and involves giving instructions on how to manage livestock, indirectly interpreted as giving care to animals (Rothschild 2011). Practices associated with RVF infection and with societal gender roles include:

- slaughter of animals mostly done by men
- consumption of raw or unpasteurized animal products such milk from infected animals predominant among herdsmen in pastoral communities
- consumption of meat from dead animals
- caring for sick animals primarily done by women
- contact with uncooked meat mainly among butchers during slaughter and housewives during food preparation
- communal goat production
- livestock movement from cattle markets mostly done by livestock traders who are predominantly men.

Slaughtering RVF-infected livestock is a major risk to abattoir workers and inspection personnel who are typically men (Mariner 2006).

In pastoral systems, for example in Karamoja, migrating herdsmen heavily rely on raw animal products such as milk and blood for food while traveling in search of pasture and water. Consumption of raw milk, blood or undercooked meat from infected animals is a potential risk factor associated with human RVF infection (Mathers 2016; Muga et al. 2015; Nicholas et al. 2014; Stites et al. 2016). Sociocultural behaviors and limited knowledge on risk practices predisposes communities to zoonotic diseases (Anyangu et al. 2010). For example, some Maasai elders prefer the taste of unboiled milk (Mathers 2016). In Uganda's Arua District-West Nile, meat is highly valued and burying dead animals

is perceived as wastage. Therefore, it is common practice to exhume buried animals for consumption. Some households dry the abortus before it's eaten; yet contact with an aborted animal fetus is associated with increased likelihood of severe RVF disease (Anyangu et al. 2010).

In Kabale in western Uganda, amongst households that own livestock, 70% have contact with goats, 59% with cattle and 19% with sheep. Seventy-seven percent of those who have contact with dead animals do so through handling raw meat (Maurice et al., 2018). Butchers, who are predominantly men, are at increased risk of RVF infection due to exposure to blood and body fluids from infected animals (Maurice et al. 2018; Shawky 2000). In another study in Kabale, butchers had higher RVF seropositivity (35%) as compared to farmers (10%), livestock traders (12.5%) and housewives (8%) (Nyakarahuka et al. 2018). Women who are responsible for taking care of sick animals and handling raw meat products during food preparation are also exposed to RVF virus, putting them at risk of infection (Miller 2011). A combination of slaughtering animals and preparing raw meat is significantly associated with increased risk of RVF infection (Nyakarahuka et al. 2018).

The movement of livestock from cattle markets between Kabale, which is endemic for RVF virus, to the neighboring Kisoro District and bordering countries such as Rwanda, has amplified the spread of RVF (Budasha et al. 2018). Goat production in the area is predominantly smallholder sedentary mixed farming with significant movement of livestock within the district and into neighboring districts. In West Nile, goat production is also communal, thus increasing the risk of RVF infection (Onzima et al. 2018).

Gender differences in knowledge and access to information

The ability of livestock keepers to recognize RVF in animals and humans is the first step in preventing the spread of disease through action such as vaccination (Maurice et al. 2018). About half of the farming households in Uganda raise livestock (Kes et al. 2011), but evidence suggests lack of awareness of RVF in these populations, especially amongst women. A knowledge, attitudes, practices (KAP) study conducted in Kabale revealed that more men than women had heard of RVF but understanding of transmission was limited, even amongst men (Maurice et al. 2018; Mutua et al. 2019). Although most butchers (95%), herdsmen (94%), and farmers (92%) had heard of RVF, many did not recognize the most common signs and symptoms in humans and animals. The main source of information regarding RVF was the radio (Maurice et al. 2018). In households that owned radios, men used them more than women, and transmission of information from husbands to wives was minimal (Miller 2011). In contrast, in Arua District -West Nile, men and women had not heard of RVF and were unaware of human RVF cases and benefits of vaccination. This could be due to the poor veterinary/extension services in Arua (Mutua et al. 2019 and Onzima et al. 2018). The control of zoonoses, including RVF, is a major veterinary public health concern and addressing the challenge relies on close collaboration among health institutions, public authorities, diagnostic facilities, the medical sector and veterinary Services

(Mantovani 1992). Though veterinary public health units have been created in Uganda with the responsibility of controlling zoonotic diseases with supervision from the Director of Medical Services of the Ministry of Health, their activities remain isolated from the mainstream of public health programs (Belino 1992). Actual collaboration and communication between the ministry of health, Ministry of agriculture and Uganda wildlife Authority remains limited (Buregyeya et al. 2020).

Communication strategies used to relay information may inadvertently target or leave out certain demographics. Vaccination information is often communicated through posters and radio announcements which reach a limited audience (Mutua et al. 2019). Posters or written announcements in public places such as markets target literate people, mainly men who frequent these public places. Women have limited access to such public spaces due to domestic responsibilities and often miss out on critical information related to the livestock they manage. Additionally, the low literacy rate among rural women has hindered them from accessing the available information that would help them improve their agricultural activities (Ugwu 2019). Access to education in pastoral communities is relatively low compared to non-pastoral communities because pastoralists' lifestyles are not compatible with the conventional school-based systems (Zhang 2018). The overall literacy rate in Karamoja, for example, is 25% compared to 94% in Kampala; 80% of the youth (18–35 years) in Karamoja have never been to school and 60% of women are unable to read and write (Kall 2015; UNFPA 2018).

Trainings organized by extension services focus mostly on cattle and are mainly attended by men. For example, the East Africa Dairy Development program in Ibanda, western Uganda, established pasture multiplication centers for cattle farming and the training focused on pasture growing, which is typically the responsibility of men (Mutua et al. 2019). Despite the fact that female livestock farmers have a key role in livestock management and wish to receive information on small ruminant production and disease control, their roles and responsibilities in day-to-day care of livestock are not recognized and, therefore, women are rarely targeted for extension services (Lecoutere et al. 2019). In Karamoja region, about 80% of the households own livestock (Behnke and Nakirya 2013). However, the veterinary service is understaffed and provides insufficient support to livestock keepers (National Agricultural Biosecurity Centre 2011). Additionally, Uganda faces a significant shortage of trained healthcare professionals in the public sector and rural areas in particular. Thus, the Ministry of Health uses the Village Health Team and Community Health Extension Workers to deliver services (Stiles et al. 2018). To fill the gap in veterinary service delivery, the district veterinary officers use Community Animal Health Workers (CAHWs) to deliver basic curative and preventive veterinary services. Unfortunately, the current veterinary legislation and policy in Uganda does not recognize CAHWs as service providers (USAID 2016). Therefore, community mobilization and sensitization by the CAHWs receives limited assistance from the government. Information relayed to the communities is mainly on major livestock diseases such as Contagious Pleuropneumonia (CBPP), Contagious Caprine Pleuropneumonia (CCPP), East Coast fever, foot and mouth disease and brucellosis, but

rarely RVF (Bugeza et al. 2017).

While vaccines have been recommended to effectively control RVF, uptake is limited by gendered and infrastructural constraints. Where government vaccination services are provided and animals are taken to a central place for vaccination, vaccination crushes which are available to immobilize the animals to reduce the risk of injury are usually broken down. Lastly, trekking long distances to access vaccination services and restraining animals during vaccination is challenging for women (Mutua et al. 2019).

Power and decision-making in disease control

Though women are traditionally responsible for goats, few have independent ownership (Byaruhanga et al. 2014). Women in female-headed households have fewer limitations to owning livestock than women in male-headed households (Dolan 2002). In male-headed households, men are the owners of livestock, and therefore, the ones who bear the costs associated with disease control (Oluka et al. 2004). Women in male-headed households have limited decision-making capacities over cattle; their role is to identify sick animals, regardless of the type of disease, and notify the husbands (Mutua et al. 2019). Amongst pastoralists, boys who herd livestock at early ages are the first to identify disease in animals and report symptoms to family members. Women who are often in charge of milking also identify disease signs and inform the household head (Mathers 2016). It is mainly the men who decide, and decisions depend on various factors such as availability of funds to pay for the required treatment, trust in the medication or vaccine, the distance to the vaccination point, and the value attached to a sick animal (Mutua et al. 2019). Cattle are vaccinated more than small ruminants for other livestock diseases but not specifically for RVF. Cultural or religious factors may bar men from meeting and/or talking to women to whom they are not related (Kariuki 2018) and yet in most cases, veterinarians and extension agents are usually men (Miller 2011). Consequently, in female-headed households, women seek the help of male neighbors, in-laws, or elder male children if available to call veterinary personnel to treat sick animals (Mutua et al. 2019). These cultural and religious attitudes about gender roles and relationships in Uganda has continued to deter women in rural areas from actively participating in decision-making in relation to livestock (Kariuki 2018).

Availability and access to a wide range of drugs remains a major challenge. Therefore, many livestock owners, especially men, buy drugs from backpack dealers to treat their own animals (Abebe 2016). In pastoral communities, drug misuse is common because the majority of pastoralists have limited or no education and are unable to read the labels on drugs to know how to apply and use them. They also rely on ethno-veterinary knowledge to control common livestock health problems using plant species and non-plant materials (Zhang 2018).

Conclusion

Men and women perform different but key roles in livestock management and have different levels of exposure to zoonotic diseases. Constraints to RVF control, such as limited understanding of RVF and limited access to vaccination information and animal health services, affect women more than men despite the major role that women

play in livestock disease identification. This may contribute to the escalation of RVF transmission in the communities since RVF signs may go unnoticed.

Differences in decision-making powers within households places men as heads of households and key decision-makers, limiting women from making decisions concerning livestock treatment and vaccination. Women, especially in rural communities, face sociocultural constraints which bar them from interacting with males to whom they are not related, which further limits their capacity to take decisions in case of severe disease conditions. This influences disease control if men are unavailable or unreachable. Training opportunities in livestock management are oriented towards cattle production, which is a male domain, further limiting the participation of women in livestock disease control.

RVF poses health risks to livestock and humans, yet it is poorly understood by both women and men livestock keepers compared to other livestock diseases. Addressing barriers to women's participation and engagement with livestock disease control in high-risk areas and in surrounding communities is one way to minimize RVF transmission and infection.

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