**ABSTRACT**

Brucellosis is among the world’s widest spread zoonotic diseases and recognized as a public health concern in both developed and developing countries. It is a bacterial zoonotic infection resulting in significant health and economic losses in Kenya. Human infection of brucellosis occurs only from contact with infected animals or animal products. There is limited information on the public health implication of brucella particularly in the pastoral areas of Kenya. Thus, the objectives of the current study were 1) To estimate the sero-prevalence of brucellosis in human and animals; 2) To determine risk factors associated with human sero-positivity; and 3) To study the knowledge attitude and practices (KAP) of the local community in relation to brucellosis transmission and control.

A cross-sectional survey was conducted within Marsabit County which represents a pastoral ecosystem. The study was conducted in a two-stage cluster sample whereby sub-locations and households were randomly selected. All persons living in the selected household were listed and three randomly selected. Sampling of livestock was conducted at the herd level where the maximum number of animals sampled per herd per species was fifteen animals randomly selected. Blood samples from the selected animal species (cattle, sheep, goats, camels) were tested for Brucella antibodies using an ELISA test.

A total of 227 households were selected. Blood samples were aseptically drawn from the selected human and animals. Thereafter, the samples were tested for Brucella immunoglobulin G (IgG) antibodies. Questionnaires were administered via personal interviews to the head of the study household. The human Brucella sero-prevalence was estimated at 44% and the animal sero-prevalence was; 16.09% in goats, 11.89% in sheep, 11.24% in cattle, and 11.14% in camels. The household and herd sero-prevalence was 73.13% and 68%, respectively. In univariate analysis, individual level factors that were associated with testing positive to Brucella antibodies included; male gender (OR=1.5, p=0.0049), age category (Youth (OR=2.2, p=0.0022), Mid age (OR=2.4, p=0.0007), Old (OR=3.4, P=0.0001)), Education level (Primary (OR=0.4, p=3.02e-6), Secondary (OR=0.3, p=0.0045), Post-secondary (OR=0.2, p=0.0196)), Primary occupation (Student (OR=0.4, p=0.0036), Skilled workers (OR=0.2, p=0.0023)), Consumption of raw milk (OR=1.6, p=0.0051), Consumption of market milk (OR=0.4, p=0.0002), Consumption of raw blood (OR=1.4, p=0.0391), Handling hides and skins (OR=1.3, p=0.0490), Milking (OR=1.7, p=0.0008), Herding (OR=1.5, p=0.0145), Slaughtering (OR=1.8, P=0.0002), Cleaning barns (OR=1.4, p=0.0419), Assisting in delivery (OR=1.5, p=0.0033). In the multivariate analysis, the significant factors were; being a male (OR=1.8, p=0.0477), Herding (OR=0.5, p=0.0365), Primary occupation (student (OR=0.3, p=0.0009), Skilled workers (OR=0.2, p=0.0021)), Consumption of milk from the market (OR=0.5, p=0.0447), Consumption of packed milk (OR=0.3, p=0.0035). At the household level, factors that were significantly associated with testing positive to Brucella antibodies in univariate analysis included; using milk from own animals (OR=0.1, p=0.0002), Feeding aborted materials to dogs (OR=0.4, p=0.0039), Assisting in delivery (OR=7.0, p=0.0058), Keeping sheep (OR=2.3, p=0.0075), Boiling milk before use (OR=0.3, p=5.968e-05). However, only 4 factors remained significant in multivariate analysis including; using milk from own animals (OR=0.2, p=0.0024), Boiling milk before use (OR=0.4, p=0.0155), Assisting in delivery (OR=5.4, p=0.0312), Keeping sheep (OR=2.3, p=0.0151).

Although majority (85.5%) of the respondents said they knew about brucellosis, only a few could identify the disease by clinical signs in both man and animals. The vast majority (88.5%) engaged in practices that were likely to enhance Brucella transmission and thus spread. These practices included: assisting animals during birth, without protective clothing; consumption of raw milk; and
feeding aborted fetuses to the dogs or throwing them in the environment leading to contamination. In conclusion, brucellosis is endemic in Marsabit County affecting both man and livestock. There is scarce knowledge of the disease in the study area. Thus, there is a need for control and preventive strategies to be implemented in Marsabit. Such measures would include livestock vaccinations, education and public campaigns on how to control the infection.