

Microbiological safety of milk and processing and consumption behaviour in pastoral areas in southern Ethiopia

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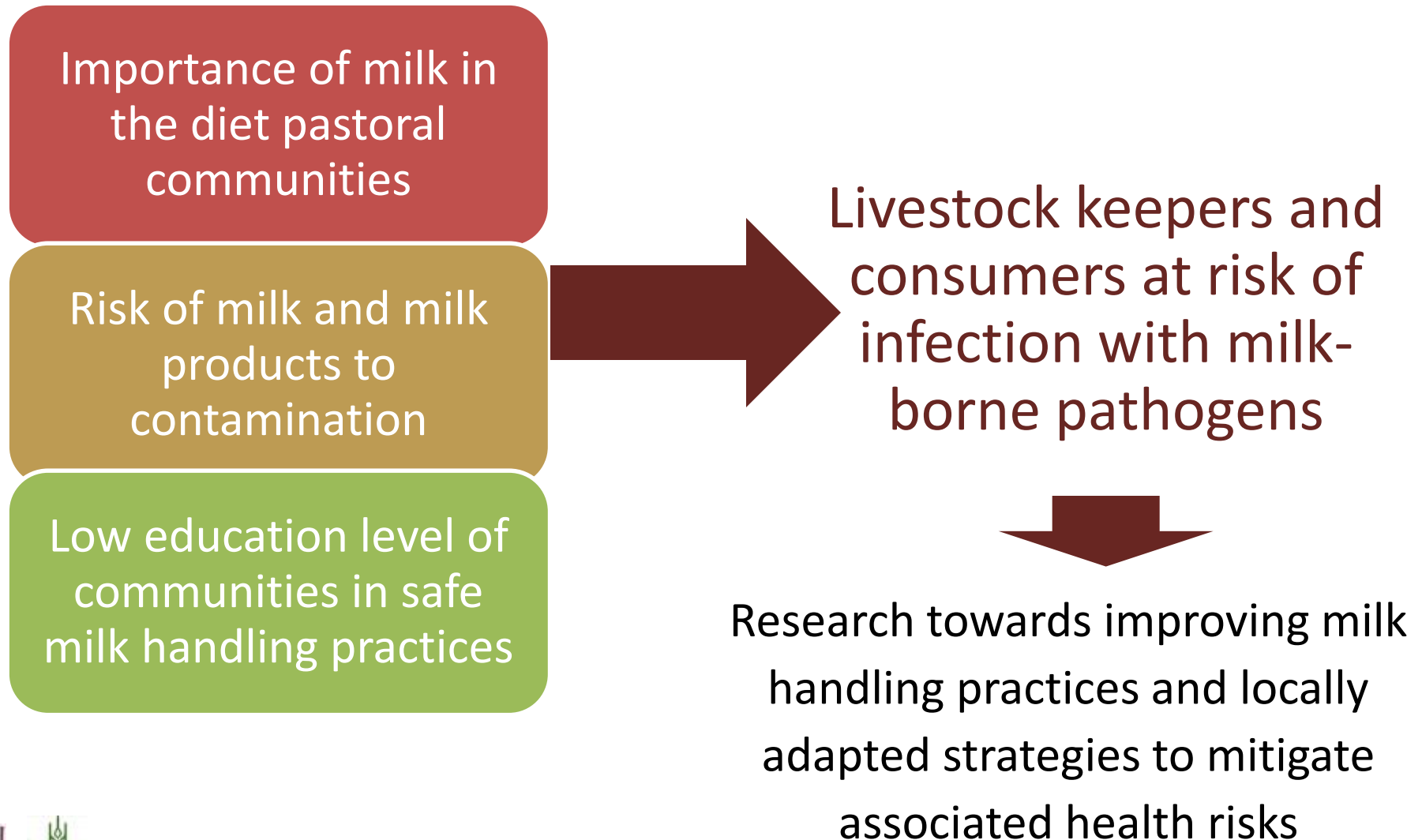


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Introduction

- Milk is prone to microbial contamination and subsequently loses its quality and safety
- The microbiological quality and safety of milk is affected by different factors:
 - health status of the animal
 - hygienic practices in the dairy premises
 - post-milking handling
 - processing practices

Milk production in Borana



Objectives

- To assess dairy production and consumption behaviour of pastoralists
- To assess microbiological quality and safety of milk and traditional dairy products

Materials and methods

Qualitative research

Qualitative survey in 4 villages

- Semi-structured interviews with 40 women
- 4 Focus group discussions (one per village)

Questions on :

- milk production and processing practices
- quality and safety of milk including perceived criteria for good milk
- milk boiling practices
- milk-borne diseases



Materials and methods

Microbiological assessments

- 203 samples collected
 - 145 pooled milk
 - 40 fresh milk directly from udder
 - 18 ititu (fermented whole milk curd with whey removed)
- Tested by culture for *E. coli* O157:H7, *Listeria spp* and *Staphylococcus aureus*
- *E. coli* count

Results

Dairy production

- Cattle, camels and goats kept for milk production
- Cattle most important
 - processing of cow milk into different dairy products
 - use of butter for hair dressing and cosmetics
 - cow milk and sometimes goat milk converted into *ititu*



Results

Dairy consumption

- Seasonal preference for camel milk (dry season)
- Consumption of camel milk considered a taboo by some Borana clans (e.g., *Qallu Karayu*).
- Goat milk mixed in tea: perceived better nutritional value
- Children drink fresh goat milk during herding



Results

Perception on quality and safety

- Proper smoking of containers ensures good quality and safety of milk and dairy products
- Reasons for smoking of milk containers:
 - increases shelf life of products
 - good consistency of curdled milk
 - pleasing flavour
 - health benefits



Balaiaca
Used *nites aegypti* for smoking

Results

Perception on milk boiling

- Boiling of fresh milk not common practice
 - “long time tradition of Borana people for not doing so”
 - the perception that “boiling of milk destroys vitamins”
 - “boiled milk is considered dead”
 - boiling of milk reduces the nutritional quality of milk
- However milk is boiled for children: to prevent qulichoo (cream, risk when vomiting)

Results

Milk-borne diseases

Women highlighted health benefits of milk, poor awareness of disease risks:

- “People drinking milk don't have problem. Rather, people who don't drink milk get sick”.
- “We haven't seen milk related sickness. We haven't had any problem because of the milk from our animals. We use it to raise our children. We are not aware that one can get disease from milk” (IDI 11)
- “...The milk itself is medicine. Fresh milk can be recommended for TB patients” (IDI 8).

Results

Microbiological results

- *E. coli*: 51.7%
 - mean count 5×10^5 CFU/ml.
- *E. coli* O157:H7: 2.5%,
- *Staphylococcus aureus*: 10.8%
- *Listeria* spp: 1.5%

Conclusion

Various risk behaviours identified, thus need to:

- Closely engage with local communities to improve their understanding on milk safety risks
- Facilitate a change in practices
- Measuring the effect on milk safety of changed practices

→ involve women in research





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