

## Short Communication

# Meat Sale in Tete City: Perception and Reality of their Sanitary Conditions

Carlos Simone Manhoso<sup>1</sup> and Rito Santo Pereira<sup>2\*</sup><sup>1</sup>Provincial Direction of Agriculture and Food Security of Tete, Mozambique<sup>2</sup>Faculty of Health Sciences, Universidade Zambeze, Mozambique

## \*Corresponding author

Rito Santo Pereira Faculty of Health Sciences, Zambeze University, Tete City - Mozambique, Tel: 258-825678133;

Email: ritsanper@gmail.com

Submitted: 27 September 2016

Accepted: 03 October 2016

Published: 05 October 2016

## Copyright

© 2016 Pereira et al.

## OPEN ACCESS

## Keywords

- Hygienic-sanitary conditions
- Formal and informal market
- Meat sale

## Abstract

A qualitative and exploratory study was conducted in Tete city during the months of September to November 2013 to characterize the sale of meat in formal and informal markets. The selection of participants was held by non-probability sampling meaning people belonging to the nine belts of the city. The data collection techniques used was participatory observation and the semi - structured interview. In the population, studied meat buyers dominated the female while the sellers both sexes were represented equally. The level of primary-secondary education prevailed in most of the respondents. People prefer to buy meat in informal markets, especially in Kuachena, which is the largest market of the city. The main reason given is the low product prices in these places. The sanitary conditions of the city's informal markets are deplorable and should be a concern for the health system. In informal markets, both buyers and sellers of meat have a wrong notion about proper hygiene and sanitary conditions of meat sale.

## INTRODUCTION

The World Health Organization has warned of the need to curb food contamination by biological agents with potential to cause health damage [15]. The food services account for more than 50% of occurrence of outbreaks, contributing to this picture the environments, equipment, utensils and food handlers [18].

The microorganisms found in the meat from the animal itself or can contaminate her during the slaughter and processing technological processes [19]. To examine the exposed meat to marketing, it is necessary to meet their physical and chemical characteristics, organoleptic and nutritional as well as the hygiene, conservation, exhibition and marketing [16,17]. Man can suffer from various illnesses transmitted by food, especially the intestinal parasitosis, some of which are deadly [1]. The risk of infection with these parasites is higher still when people have knowledge deficit about the biology of the agent and food hygiene. This poor knowledge implies an inadequate perception of risk that represents to human health the consumption of food with questionable qualities [2].

In third world countries, the problem is complicated further with informal markets with hygienic-sanitary conditions [3]. Although the mozambican statistics are poor, we believe that the incidence of microbial diseases linked by meat marketed in precarious conditions of hygiene in several informal markets of our country is quite high due to the increase of the risk groups, the

very conditions of markets and diversity of symptoms of parasitic infections, which makes this a real misfortune and important problem of veterinary and public health area in Mozambique [4].

One of the problems verified, the present study aims to assess the perceptions of traders and buyers of meat on the hygienic-sanitary handling of these products and their knowledge about the risks to public health in the acquisition and consumption of these products (Table 1).

## MATERIAL AND METHODS

In the period from September to November 2013 after approval by the ethics and Scientific Council of the Faculty of Health Sciences of the Zambeze University was held in Tete a descriptive, qualitative and exploratory mapping of three informal (Kuachena, Kaminde and Zona militar) and two formal markets (Bracarense and Mercantil butchers), totaling 32 points of sale of pork, beef and goat. Observed aspects relating to hygiene of premises, equipment, utensils and handlers, as well as the storage temperature of the exposed products for sale. Data collection consisted in adopting qualitative methods from applying semi-structured interviews to sellers and buyers of meat markets referred to above, where they were questioned about aspects of the marketing of meat, market preference and motivation, education, animal species slaughtered and knowledge about food-handling practices. The data were processed and presented absolute and relative frequencies of responses.

**Table 1:** Hygienic-sanitary conditions of the markets.

Variables	Informal market			Formal market	
	Kuachena	Kambinde	Zona militar	Bracarense butcher	Mercantil butchers
Animalsslaughtered in slaughterhouse	No	No	No	Yes	Yes
Health surveillance in places of sale	No	No	No	Yes	Yes
Vector Control mechanisms	No	No	No	Yes	Yes
Use of individual or collective protection equipment	No	No	No	Yes	Yes
Quality oftents	Bad	Bad	Bad	Good	Good
Personal hygiene of the seller	Bad	Bad	Bad	Good	Good

## RESULTS

### Socio-demographic characteristics of respondents

Females prevailed in buyers (89.5%) while in the case of sellers; both sexes were represented almost equally, with slight predominance of males (54.4%). The education level has behaved similarly in both buyers as sellers in the secondary level, with 55.8% and 46.2 percent respectively.

### Preferred markets by the respondents

Most people favouring the purchase of meat on informal markets and within these Kuachena takes first place with approximately 54% of respondents, followed by Kambinde (31%), Mercantil butcher (8%), Bracarense butcher (4%) and Zona militar market (3%).

### The motivation of respondents according to the type of market

The low price is what most motivated respondents informal markets (83.8%), followed by good service (9.5%) and convenience or market location (6.6%) while the good local hygiene drives buying meat on formal markets (53.3%), followed by convenience or location (26.6%) and good service (20%) (Table 1).

### Informal sellers opined expressing himself as follows

*"we work here for a long time, always under the same conditions, our customers do not complain never them." ... (seller 3). "Nobody ever told us that our conditions of sale are not good." ... (seller 34). "We do everything possible to maintain proper hygiene, as it is this business that provide the livelihood for our family." ... (seller 74). "Our grandfathers have sold meat in the same way." ... (seller 101). "If I were a health risk customers wouldn't buy." ... (seller 52). "Eating meat is very good for health, I don't know any other thing better, I don't think it's eating the meat that we acquired diseases." ... (seller 77). "Yes, I know, the parasites that may be in the flesh." ... (seller 9). "The meat they sell here does not do harm to anyone." ... (seller 11) (Table 2).*

### Formal sellers gave their opinions expressing himself as follows

*"the meat is meat, no way can affect health." ... (seller 18). (seller*

*4). "No, it's not risk eating meat." ... (saller 7). "Yes, Yes, it seems to me that HIV can acquire ... the flesh. ... (seller 13) (Table 3).*

### Reporting informal markets buyers weighed in expressing himself as follows

*"This is our usual market conditions today are better than before." ... (buyer 178). "Yes, the conditions are great." ... (buyer 19). "They sell the meat in the best way possible." ... (buyer 4). "Dress up for work even though that could still improve". ... (buyer 68). "The risk does not exist, I can assure you." ... (buyer 24). "Does not affect anything, don't buy more because I don't have any more money." ... (buyer 61).*

### Reporting formal markets buyers weighed in expressing himself as follows

*"I do not think that is a risk to eat meat, the meat is always good."... (buyer 6). "I can assure you that the meat does not cause any damage and if causes are things without the slightest importance." ... (buyer 28). "Nothing, nothing, I don't know much about the topic, but I don't think there's any danger whatsoever."... (buyer 17).*

## DISCUSSION

The low level of education found in the studied population coincides with most of the revised bibliography. In a study in the Valley of Mexico, 53.8% of the population with secondary and 91% of the buyers was female [5]. As sellers, an investigation carried out in Colombia, the primary level in 44% and the secondary in 47% [6].

About sanitary hygienic conditions, studies found agree in part with the findings of this investigation. Oliveira [7] concluded that informal establishments did not meet the requirements of good practices of hygiene and food handling. Rosangela in her study found that the fairs offer free public health risks by not respecting the normative codes pertaining to the activity once the sanitary hygienic conditions of marketing of meats were precarious and required urgent action by intervention of institutionalized power [8]. The proper cleaning of the equipment and utensils as well as the handler itself is one of the most important factors for the quality control of the product [9]. Whereas the hands of manipulators, utensils and equipment used in food production can be a potential source of pathogens in food service [8].

**Table 2:** Formal and informal sellers' perception regarding sanitary hygienic conditions of markets and the risk of contracting diseases by meat consumption.

Variable	Informal market			Formal market		
	Good	Bad	Missing	Good	Bad	Missing
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Hygienic-sanitary conditions of the markets	78 (60,4)	51 (39,6)	0	18 (100,0)	0	0

  

Variable	Informal market			Formal market		
	High	Low	None	High	Low	None
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Risk of consumption of meat not inspected	26 (20,1)	103 (85,1)	0	5 (27,7)	11 (61,1)	2 (11,1)

**Table 3:** Buyers' perception of the formal and informal markets in relation to sanitary hygienic conditions of markets and the risk of contracting diseases by meat consumption.

Variables	Informal market			Formal market		
	Good	Bad	Missing	Good	Bad	Missing
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Hygienic-sanitary conditions of the markets	141 (67.1)	65 (30.9)	4 (1.9)	28 (93.3)	1 (3.3)	1 (3.3)
Personal hygiene of sellers	190 (90.3)	20 (9.6)	0	25 (83.3)	5 (16.7)	0

  

Variable	Informal market			Formal market		
	High	Low	None	High	Baixo	None
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Risk of consumption of meat not inspected	18 (8.5)	189 (90.0)	3 (1.4)	4 (13.3)	25 (83.3)	1 (3.3)

On the transportation and sale of meat, Almeida and collaborators [10] state that the maximum temperature for the transport must be of 7 °C, although it is recommended that the materials used in food handling locations must be made of material that does not transmit toxic substances, odors and flavors that are non-absorbent and corrosion-resistant and capable of withstanding repeated cleaning and disinfection, among other features. It was observed that the flesh was exposed wood surfaces and some sellers used cloths for cleaning hands and utensils. The only investigation found in Mozambique on the sanitary hygienic characteristics of the food sale proposed that most physical features not suitable locations for the preparation and sale of food [3].

On the perception of respondents about the risk of contaminated meat consumption, the results of this investigation don't agree with others obtained by different authors. Camila in her study found that most respondents said being aware of the risks that contaminated meat could offer the informal market where you obtained the largest percentage for this item (91%) [11] Catalina in her study noted that with increasing family income and level of education, the greater the perception of consumers about the possibility of some foods being vehicles of microbiological contamination [12].

The present study calls attention to the lack of knowledge about zoonotic disease found in most respondents. It is true that the study was conducted in urban areas and peripheral and that besides Mozambique is a country in the process of being developed where illiteracy levels are high. Nevertheless in Malawi, a country bordering and with similar socio-economic

conditions were peasants with high knowledge levels about zoonoses [13]. Identical results were confirmed in Uganda, another African developing country [14].

## REFERENCES

- Murrell KD. Zoonotic foodborne parasites and their surveillance. *Rev Sci Tech.* 2013; 32: 559-569.
- Borges V, Santos A, Correia CB, Saraiva M, Ménard A, Vieira L, et al. *Helicobacter pullorum* isolated from fresh chicken meat: antibiotic resistance and genomic traits of an emerging foodborne pathogen. *Appl Environ Microbiol.* 2015; 81: 8155-8163.
- Adenilma SF. Condições de higiene e segurança sanitária alimentar das residências atendidas pela estratégia saúde da família em Teresina, Pi. Ministério da Educação e Cultura Universidade Federal do Piauí. Teresina. 2012.
- Bianca R, Rinaldini C, André L. *Segurança alimentar no contexto da vigilância sanitária: reflexões e práticas.* Rio de Janeiro. 2014.
- Maria T. Bases para o planeamento de estratégias de educação sanitária alimentar em Moçambique. Instituto Superior de Ciências da Saúde Egas. Tese de mestrado. Dezembro. 2014.
- Guillermo F. Estudio del consumo de carne de cerdo en la zona metropolitana del Valle de México. Colegio de postgraduados. 2011.
- Diana S. Modelo evaluativo de condiciones sanitarias de la cadena carnica en el municipio de popayan. Universidad de la salle Facultad de medicina veterinaria Bogota dC. 2006.
- Oliveira S. Avaliação das condições higiênico-sanitárias de carne bovina comercializada em Supermercados de João Pessoa. *Alim Nutr Araraquara.* 2008; 19: 61-66.
- Rosangela B. Condições higiênico-sanitárias da Comercialização de

- carnes em feiras livres de Paratama, pe. Alim Nutr Araraquara. 2011; 22: 585-592.
10. Kochanski S, Pierrozan MK. Avaliação das Condições Microbiológicas de uma Unidade de Alimentação e Nutrição. Alim Nutr Araraquara. 2009; 20: 663-668.
  11. Almeida. Condições Higiênicas Sanitárias da Comercialização de Carnes em Feiras Livres de Paratama, PE. Alim Nutr Araraquara. 2011; 22: 585-592.
  12. Camila O. Perfil da qualidade higiênico - sanitária de carnes comercializadas em feiras livres do município de Pau dos Ferros/ RN - Brasil. 2012.
  13. Catalina M. Percepção do consumidor sobre contaminação microbiológica em alimentos e reflexos na cadeia produtiva. Dissertação de mestrado em agronegócios. Universidade de Brasília. 2012.
  14. Tebug SF, Njunga GR, Chagunda MG. Risk, knowledge and preventive measures of smallholder dairy farmers in northern Malawi with regard to zoonotic brucellosis and bovine tuberculosis. Onderstepoort J Vet Res. 2014; 81: 2014.
  15. Catherine K, Anthony M, Fredrick M. Knowledge and perceptions of brucellosis in the pastoral communities adjacent to Lake Mburo National Park, Uganda. BMC Public Health. 2014.
  16. Organização Mundial de Saúde - OMS. Food safety and food borne illness. Genebra, 2002. Disponível em: Acesso em: 10 de agos. 2016.
  17. Gill CO, Mcginnis JC, Badoni M. Assessment of the hygienic characteristics of a beef carcass dressing process. J Food Protect Ames. 1996; 59: 136-140.
  18. Heuvelink AE, Roessink GL, Bosboom K, de Boer E. Zero-tolerance for faecal contamination of carcasses as a tool in the control of O157 VTEC infections. Int J Food Microbiol. 2001; 66: 13-20.
  19. Diniz WJS. Aspectos higiênicos da comercialização de carnes em feiras livres: a percepção do comerciante. Acta Veterinaria Brasilica. 2013; 7: 294-299.
  20. lundgren PU, Silva JAS, Maciel JF, Fernandes TM. Perfil da qualidade higiênico-sanitária da carne bovina comercializada em feiras livres e mercados públicos de João Pessoa/PB-Brasil. Alim Nutr Araraquara. 2009; 20: 113-119.

**Cite this article**

Manhoso CS, Pereira RS (2016) Meat Sale in Tete City: Perception and Reality of their Sanitary Conditions. *Ann Food Process Preserv* 1(1): 1005.