



EVALUATION OF DOG SLAUGHTER AND CONSUMPTION PRACTICES RELATED TO THE CONTROL OF RABIES IN NIGERIA

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Received: 16 April, 2013; Revision: 22 May, 2013; Accepted: 29 May, 2013

Available Online: 5 June 2013

KEYWORDS

Dog slaughter

Dog consumption

Rabies

Nigeria

ABSTRACT

The trade, slaughter and consumption of dog meats are some common attitudes and practices in sub-Saharan West African countries. These factors may represent a source of human rabies exposures and infections in the population of these countries and may be because of these only, still rabies remain endemic disease in Nigeria. Therefore, a survey was conducted during January, 2012 to July, 2012 for finding out the rational of dog meat consumption in Niger state, Nigeria. One hundred and fifty five volunteers (146 males and 9 females), consisting of dog butchers, consumers and those who leave around the slaughter points answered a questionnaire at five dog slaughter locations across the state. Information on the dogs slaughtered was also collected. The results revealed that 125 (80.6%) of the respondents consumed dog meat (4 females and 121 males). Only 12 (9.6%) were actually engaged in dog butchering who also identified that they purchased their dogs for slaughter from households within and outside their territories, not by personal breeding. None of the butchers were vaccinated against rabies. Regarding reasons for dog meat consumption, 80 (64%) respondents indicated that the meat was delicious, 23 (18.4%) claimed medicinal purposes, and 1 (0.8%) respondent believed that its consumption protected against the witches. Overall, 471 dogs were recorded to be slaughtered for human consumption during the study period. Despite their rational, the practices of dog trade, slaughter and consumption were detrimental to dogs as well as the control of rabies, particularly when evidence indicated that up to 28% of dogs slaughtered for human consumption in Nigeria may harbor the rabies virus.

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Peer review under responsibility of Journal of Experimental Biology and Agricultural Sciences.

1 Introduction

Canine rabies continues to be endemic in Nigeria since its first official report in 1912 (in humans) and 1925 (in dogs) (Oboegbulem, 1994). Over 96% of animal rabies in Nigeria is from dogs (Garba et al., 2008). According to Ogunkoya (2008), the illegal trade in dogs, destined for the commercial exchange for food source across the Cameroon-Nigerian border is common. Studies on twenty-four canine virus isolates from Plateau State of Nigeria revealed IV genetic variants (GV) in which GV I to III shared antigenic relatedness with isolates found in Cameroon, Chad and Benin republic (David et al., 2008). The fourth GV was believed to be from another Northern African country (David et al., 2008) suggesting trans-border spread of rabies from the dog trade. Additionally, neither culling of dogs as a means of rabies control nor the slaughter of dogs for human consumption is permissible in Nigeria. Despite some level of knowledge on the disease expressed by various languages/dialects ascribing local names for rabies (Okoh, 2007; Garba, 2011), the consumption of dog meat is becoming alarming in Nigeria. In 2010, a study in Sokoto and Katsina State from Northwestern Nigeria, found that 28% of apparently healthy dogs slaughtered for human consumption had rabies virus antigen in their brains (Garba et al., 2010). Earlier findings from north eastern Nigeria (Borno State) revealed 31% of apparently healthy dogs slaughtered for human consumption had rabies antigen in their brains (Ajayi et al., 2006), indicating that humans could become exposed and infected. The slaughter and consumption of dog meat has been reported worldwide since antiquity. The practice of slaughter and consumption of dog meat has been reported in most continents and countries across the globe. These include China, Mexico, Rome, South Korea (Schwabe, 1979; Rupert, 2002; Anthony, 2009); India, Indonesia, (Anon, 2004; Mao, 2010; Shepherd, 2012); as well as in Africa like Cameroon, Ghana and Nigeria (Simmons, 1994). While some people speculate domestic dogs are only eaten for specific rituals (Eric and

Oliver, 1982); others claimed it is a delicacy (Mao, 2010) but Douglas (2009) reported that the dog meat has also been used as a survival food in times of war and/or other hardships. In the reports of Murray (2007) and Willy (2007) they said dog meats are believed to have medicinal powers.

In Nigeria till date some tribes considered the consumption of dog meat as their cultural norms; but majority of people and tribes consider the consumption of dog meat as unethical, prohibitive and forbidden on both religious and social grounds. In addition there is the global criticism on dog slaughter as a social animal from international organizations such as the World Society for the Protection of Animals which goes against dog meat consumption and the torture of dogs caged and farmed for their meat. (WSPA, <http://www.wspa-international.org/wspaswork/dogs/dogmeattrade/default.aspx>).

Despite the international perceived risk of rabies, the trade, slaughter and consumption of dogs in sub-Saharan West African countries is on the increase and may represent a source of human rabies exposures and infections. In addition researched literatures on rational for dog consumption are scanty except news paper tales. It is therefore necessary to understand the social and cultural drivers of dog meat slaughter and consumption as a necessary step in preventing rabies transmission.

2 Materials and Methods

Three hundred respondents were intended, but only one hundred and fifty five volunteers (146 males and 9 females) consisting of dog butchers, consumers and those dog owners who leave around the slaughter points who volunteered were recruited in the survey.

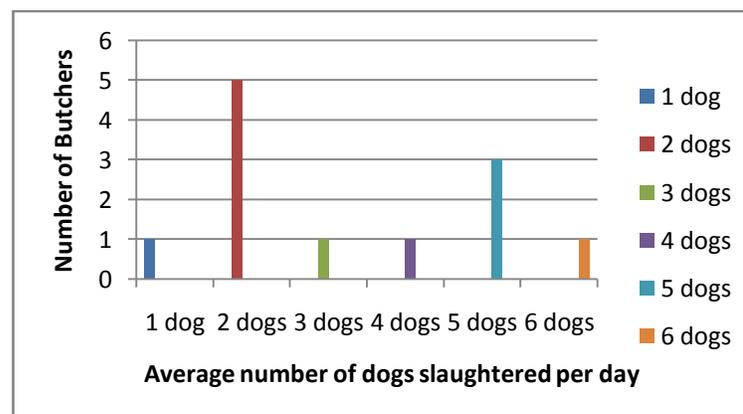


Figure 1. Average number of dogs slaughtered by dog butchers per day in Niger State, Nigeria

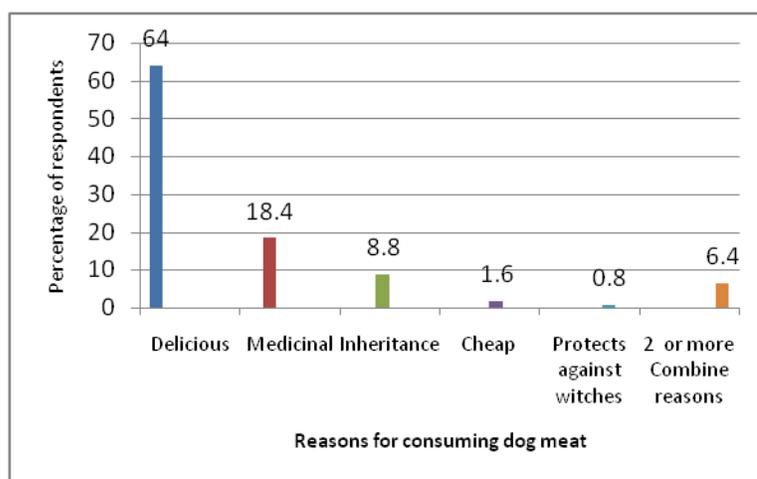


Figure 2. Reasons for dog meat consumption in Niger Sate, Nigeria

Table 1. Summary of demographic information of dog meat consumers in, Niger State, Nigeria

Occupation	Number of dog meat consumers (%)	Vaccination against Rabies	Source of dog for slaughter
Civil Servants	51(40.8)	$\phi\phi$ Never	*Only consume
Business	24(19.2)	ϕ Never	*Only consume
Students	22(17.6)	Never	*Only consume
Famers	7(5.6)	Never	*Only consume
Private practitioners	6(4.8)	Never	*Only consume
Hunters	3(2.4)	Never	*Only consume
Dog butchers	12(9.6)	Never	**Households
Total	125(100)	Never	

Key: $\phi\phi$ = one respondents bitten by dog and vaccinated 21 years earlier, the other bitten but not vaccinated 8 years earlier.

ϕ = one respondent bitten by dog and vaccinated 19 years earlier .

* = do not slaughter dogs, ** = slaughter and consume dog meat.

Table 2. Educational and marital status of the 12 dog butchers in Niger State, Nigeria

Variable	No. Primary Cert	No. Secondary Cert	No. Tertiary Cert	Total
Butchers	1 (0.3%)	11 (99.7%)	0	12
Variable	No. Married	No. Divorced	No. Single	Total
Butchers	8 (66.7%)	1 (0.3%)	3 (25%)	12

Note: Total household size of butcher was 68 persons (1 : 6. butchers : household size).

They completed knowledge, attitude and practices structured questionnaires (on their demography and rational for dog meat consumption). Such questions included: age, sex, occupation, marital status, education, household size, number of dogs slaughter per day, sources of dogs for slaughter, eat dog meat, ever bitten by a dog, ever vaccinated against rabies, why do you eat dog meat?

The information on number of dogs slaughtered on our visits was also recorded; as there is no formal record keeping on slaughter processes in all the points. Collected information were spread on Microsoft excel, 2010 and EPI INFO version 7.1.0.6 was used to analyze the data.

3 Results and Discussion

The results revealed that 125 (80.6%) of the respondents consumed dog meat (4 females and 121 males). Only 12 (9.6%) were actually engaged in dog butchering while others were from different occupations (Table 1). All the dog butchers identified that they purchased their dogs for slaughter from households within and outside their territories, not by personal breeding with dogs being transported in cages (Plate 1). Of over 250 tribes in Nigeria, demographic information shows 42 various tribes were represented in this survey. Despite their knowledge on rabies none of the respondents were vaccinated against human rabies except 2 who were previously bitten by suspected rabid dogs, the 3rd bitten victim was never vaccinated. On educational and marital status of the dog butchers, it shows that 11 (91.6%) of butchers holds secondary school certificates, one with primary school certificate and none goes to tertiary institution (Table 2). Similarly, 8 (66.7%) were married; 3 were single and 1 divorced his wife (Table 2). On number of dogs slaughtered per day lowest was 1 dog and highest was 6 dogs (Figure 1). Upon evaluating why dog meat was consumed, 80 (64%) respondents answered that the meat was delicious, 23 (18.4%) claimed to consume it for medicinal purposes, 11 (8.8%) that they inherited the practice from their parents, 2 (1.6%) thought it was a cheap source of protein, 1(0.8%) respondent believed that its consumption protected against the witches and 8 (6.4%) mentioned two or more of these reasons combined (Figure 2). Four hundred and seventy one dogs were slaughtered for human consumption during this period. Out of the total, 252 (53.5%) were males; and 408 (86.6%) were below the age of 5 years. It was observed that dog meat were usually par boiled then smoked roasted and sold within the same vicinity of slaughter (Plate 2). Finally, it was observed that dogs experience so much torture from suffocation before slaughter (Plate 3) apart from keeping them captive for several days before slaughter (Plate 1).



Plate 1. Purchased dogs in cage for transportation



Plate 2. Dog meat roasted for human consumption.

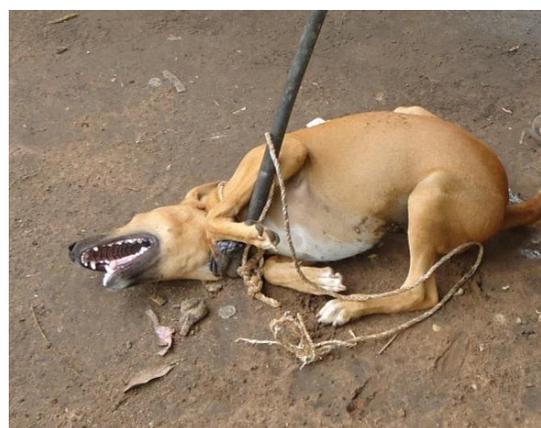


Plate 3. Cruel treatment of dog before slaughter

It has been estimated that over 18 million dogs are being slaughtered annually worldwide for human consumption (WSPA, 2012). This present finding may suggest that the figure could well have been underestimated. Because in this study area (and of course the whole country Nigeria) no such records of dog slaughters were being kept, especially that consumption of dogs is not recognized by the authorities. In other words the 471 dogs recorded to have been slaughtered in this study were based on those slaughters at the time of our visits and with accepted consent of the butchers who gave us details of each dog slaughtered. Particularly, as much as six dogs are being slaughtered by an individual butcher. Over eighty percent of the participants consumed dog meat; this could probably be because of the design of the study which was bias towards people who consumed dog meat by distributing the questionnaires only at the slaughter points. Hence the result does not represent the view, knowledge and practices of the whole population. It has been shown in the result that the consumption of dog meat spread across almost all the occupational/professional groups (not necessarily equally) with the highest percentage observed with the civil servants (table

1). This outcome suggests the continuous and wide acceptance of dog meat amongst the occupational groups in Nigeria. The major question here is why? From this study; it shows that about two third (64%) majority of dog meat consumers ate the meat because it was delicious as claim by some tribe in some parts of India (Anon, 2004; Mao, 2010) which could have answered the question above. In addition 18.4% claimed its medicinal properties which tally with what was reported earlier for Nigerian dog meat consumers (Murray, 2007; Willy, 2007).

All the high risk groups (though aware of rabies) were not vaccinated against rabies Pre-exposure prophylaxis (Pre-EP), except for two who were earlier bitten by suspected rabid dogs and given Post –exposure –prophylaxis (PEP). Even then, the 3rd bitten victim for some reasons did not received PEP suggesting that if exposed to the virus could come down with rabies. Ordinarily consumption of well cooked dog meat will not cause exposure to the virus because of the inactivation of the virus at cooking temperature. However, source of infection could come from the contaminated utensils and sales tables used at the slaughter and sales points. It should be noted that all the butchers sourced/purchased their dogs from households within and outside their vicinity not by personal breeding (which could not be profitable). Hence, there is every assumption that those dogs could be unwanted from the owners whom have seen illnesses or abnormalities with the dogs hence selling or giving out for slaughter. Such abnormalities may include (not limited to) rabies (dumb or furious). Especially, some reports of rabies antigen in the brains of some apparently healthy dogs slaughtered for human consumption in north east and north western Nigeria (Ajayi et al., 2006, Garba et al., 2010). Additionally, in a report from Vietnam; interestingly, 5 human rabies patients did not have any history of dog or cat bites, but they had an experience of butchering dogs or cats, or consuming their meat (Anh et al., 2011). Rabies virus was also detected in 2 of the 100 sick dogs from slaughterhouses (Anh et al., 2011). Similarly, all the rabies virus isolates found in Nigeria (David et al., 2008), Burkino-Faso (De Benedictis et al., 2010) and Vietnam (Anh et al., 2011) were associated with transboundary spread from Cameroon, Mauritania and China respectively. This further elucidates the risks associated to dog trade/slaughter, caging and torture of dogs destined for human consumption which are serious problem that needs government intervention at all level (WSPA, 2013). The low level of educational status of the butchers may affect the strategic interventions for the control of rabies. Especially, with family burden of 1:6 (butcher: household size), this could drive the butchers to go for any dog (even sick or rabid) under the quest to solve family financial ego.

In conclusion, despite their rational for dog meat consumption as a delicacy and for medicinal purposes, the practices of dog trade (across various localities), slaughter and consumption were detrimental to dogs as well as the control of rabies. Particularly, the purchase from households and shipment to slaughter points could aid in the spread of the virus in

particular and the disease across the sub-region. The outcome from this study on the practices of purchase, shipment and slaughter/consumption of dogs from within and outside their territory is a pointer to an evolving epidemiological situation that could aid in the spread of rabies

AcknowledgementThe authors acknowledged the useful suggestions offered in the final presentation of this research by Dr. Osinubi, MOV, Dr. Sergio R and Dr. Ashutosh, W of Rabies Program, Centers for Disease Control and Prevention, Atlanta, USA.

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