

Consumption pattern, consumer attitude and consumer perception on meat quality and safety in Southern India

*Kiran, M., Nithin Prabhu, K., Paramesha, S. C., Rajshekar, T., Praveen, M. P., Punitkumar, C., Puneetha, S. C., Kumar, R., Rahul, Y. and Nagabhushan, C.

Veterinary College Bengaluru, KVAFSU Bidar, Karnataka. India

Article history

Received: 6 March 2017
Received in revised form:
24 March 2017
Accepted: 25 March 2017

Keywords

*Food safety
Religious slaughter
Preference
Frozen meat
Animal welfare*

Abstract

The present study was carried out to understand the awareness, purchasing behaviour and consumer perception and awareness towards meat and meat products quality, safety, regulation, and poisoning. For this, 260 volunteers from Bengaluru district were selected and were surveyed. The study group comprised of 194 males and 66 females. The educational background of respondents was found to vary between uneducated to Post graduate level. The study indicates that close to 50 percent respondents purchased meat directly from butcher shop, while only 13.1 percentages opted frozen meat. The weekly consumption was highest frequency (147) of meat consumption. Majority of respondents (71.5%) used color as indication of meat quality. Gravy type product was most preferred type in home, followed by biryani type and dry type meat products. The willingness to purchase frozen meat (16.9%) and awareness of processed meat (33.1%) indicate huge opportunity for meat industry in future. For major proportion of correspondents (91.5%) animal welfare was not a matter of concern. Fortunately 92.7 percent of respondents have not seen any type of food poisoning attributed to consumption of meat and meat products which may be due to traditional cooking practices in India which destroys majority of meat borne pathogens. Apart from these findings there was high variation in preference towards meat, perception on meat quality, perception towards processed meat. The result of current study gives an idea on the future strategies need to be adopted by meat scientists to understand felt needs of consumers and ways to tackle food safety issues in India. From the view of using marketing tools more effectively and defining new strategies, determination of consumer preferences and the factors affecting them have great importance.

© All Rights Reserved

Introduction

Traditionally meat consumption has been an integral part of human diet. Higher disposable income, urbanization, favourable demographic shifts, improved transportation and consumer perceptions regarding quality and safety are changing Indian food especially meat and meat products consumption patterns. Food safety has emerged as an important global issue with international trade and public health implications. Meat consumption is affected by many factors, such as price, income, nutritional value, flavor, dietary habits, safety, eating quality, the convenience of purchase (Wu and Xiao, 2013; Liang *et al.*, 2014; Zhang *et al.*, 2014), The quantity and quality requirements of Chinese consumers in terms of meat are different between urban and rural residents and regions, and are influenced by price, income, religious beliefs, flavor, nutritional value, dietary habits, safety and eating quality (Yanwei *et al.*, 2016). As per the official Livestock statistics of Department of Animal Husbandary, Government

of India (Livestock census, 2013), the total value of output from livestock sector was Rs. 160,424 crores, out of which the meat group contributed Rs 36,224 crores (22.6 percent).

Food habits and dietary preferences are of considerable interest to a wide variety of scholars. Market analysts want to know about the new eating habits of the Indian middle class. Economists think of food as the measure of well-being. Despite such widespread interest, there have been very few attempts to study the food habits of the Indian population. The findings to be obtained in this survey will also guide the entrepreneurs engaged in meat sector to develop products in line with consumer preferences and expectations, and to carry out research and development targeting consumer demands and preferences.

Materials and Methods

The present investigation was designed to study the awareness and perception of consumers towards

*Corresponding author.
Email: kiranm.321@rediffmail.com

meat in Bengaluru District of Karnataka. The material of this study consists of the data obtained from questionnaire surveys taken face-to-face with consumers. Purposive sampling technique was used for selecting Bengaluru district for data collection. The data was collected with the help of a pretested interview schedule through personal interview of the respondents. The demographic background, meat consumption and purchase pattern details were obtained by direct questionnaire, whereas to know about the awareness of respondents towards meat safety, quality, FSSAI, animal welfare indirect questions were used and recorded. In the survey form, consumers were asked to answer questions on their back ground, mode of meat purchase, awareness on meat safety, food poisoning, perception on processed meat and perception on meat quality. The data obtained through survey forms were recorded and processed in a database formed in MS Excel 2007. The responses were grouped together and presented in the form of frequencies and percentages.

Results and Discussion

Background and demographic details of consumers

Bengaluru has a population of about 8.42 million and a metropolitan population of about 8.52 million, making it the third most populous city and fifth most populous urban agglomeration in India. A demographically diverse city, Bengaluru is the second fastest-growing major metropolis in India (Anonymous, 2008). With a gross domestic product (GDP) of \$83 billion, Bangalore is ranked fourth in India by overall GDP contribution, after only Mumbai, Delhi and Kolkata (Anonymous, 2014).

The demographics of India is remarkably diverse. The background information on age, sex, education and family size of the correspondents are represented in Table 1. The study group comprised of 194 males and 66 females. In Indian condition majority of house hold works related to cooking is done by females but still females were restricted to only cooking, whereas purchase of meat were handled by male by majority of population in India. It was found that some factors related to the sex, age, body weight, place of residence (rural, urban), eating habits and social status of consumers generally have an effect on meat consumption preferences and amount of consumption (Gossard and York, 2003). The major advantage of current study group is that most correspondents (55%) were middle aged (30-44) which makes up major group of population (Census of India 2001) having huge impact on the consumption and purchase of meat and meat products. The education level of

Table 1. Back ground information of correspondents.

Sl. No	Character	Category	Frequency	Percentage
1	Age	16 to 30 Years	73	28.1
		30-44 Years	143	55
		44-58 Years	44	16.9
2	Sex	Male	194	74.6
		female	66	25.4
3	Education	Illiterate	27	10.4
		Primary	44	16.9
		Undergraduate	120	46.1
		Post graduate	69	26.6
4	Family size	Small (3-5)	196	75.4
		Medium (5-8)	40	15.4
		Large (>8)	24	9.2

respondents varied from illiterate (10.4%), primary education (16.9%), undergraduate (46.1%) and post graduate (26.6%) level. As study was carried out in metropolis city like Bengaluru majority (75.4%) of correspondents had small family size (3-5) and very few (9.2%) respondents had large family size (>8).

Meat consumption and purchase pattern of consumers

The Meat consumption and purchase pattern of consumers are represented in Table 2. The most significant finding in the consumption preference for meat by households surveyed was preference towards chicken meat (53.1%) among different types of meat owing to its affordable price, taste, nutritional quality, health conditions, fat content percentage, and ease of preparation (Kiran et al., 2014). The preference towards beef was found to be least (7.3%) which might be attributed to religious sentiments towards cow and controversies surrounding beef consumption and ban in India. No wonder production of poultry meat, of which chicken accounts for 90% in India, is rising at a faster clip than other meats like mutton, beef and pork. Between 2007-08 and 2010-11, poultry meat production grew at a compound annual growth rate of 7.7% compared with 4.9% for mutton and 2.8% for pork, according to the ministry of statistics and programme implementation (OECD, 2010).

Most consumers buy meat from wet market and supermarkets, and education, age, and gender influence where meat is purchased, and as the level of education increases consumers are more likely to buy meat from a supermarket (Li, 2012) but contrary to above statement in current study 46.5% correspondents purchased meat directly from meat shop and only 4.7% of the correspondents purchased from super market in spite of 72.7% being educated

Table 2. Preference and awareness of consumers towards meat quality and safety

Sl. No	Character	Category	Frequency	Percentage
1	Meat of choice (Most preferred)	Mutton	72	27.7
		Chicken	138	53.1
		Beef	19	7.3
		Pork	24	9.2
		Others	7	2.7
2	Mode of purchase	Meat from shop	121	46.5
		Slaughtering in home	39	15.0
		Slaughter in front of eye	66	25.4
		Frozen meat/ Super market	34	13.1
3	Average meat consumption	Daily	19	7.3
		Twice in week	58	22.3
		Weekly	147	56.5
4	Freshness indicator	Color	186	71.5
		Texture	67	25.8
		Others	7	2.7
5	Preferred product type (Most preferred)	Gravy type	143	55
		Dry type	48	18.5
		Biryani	69	26.5

under graduate and above.

The frequency of meat consumption was found to be 7.3%, 22.3%, 56.5% and 13.9% for daily, twice in week, weekly and monthly consumption respectively. Price and income are key factors affecting meat consumption (Liang *et al.*, 2014) creating larger differences in consumption levels between people (Yanwei *et al.*, 2016). Recent studies indicated that consumers are concerned about the safety of meat, but they have poor ability to differentiate meat quality (Li, 2012; Zhang *et al.*, 2014). The same was echoed in response of correspondents majority of whom judged freshness of meat based on its color (71.5%), which was primary factor consumer look in meat (Kiran *et al.*, 2011). The result also pave way for meat processor to adopt strategy to improve fresh meat color to meet consumer demand. Most consumers can only judge meat safety from color and appearance of freshness (Li, 2012). Another interesting finding of the present study is preference of consumer towards gravy type, dry type and biryani type product was found to be 55%, 18.5% and 26.5% respectively. Though we are producing large quantity of meat hardly 3% of meat is subjected to processing. Meat processing industry should develop gravy type products to attract consumers of middle class family who are major proportion of population in India.

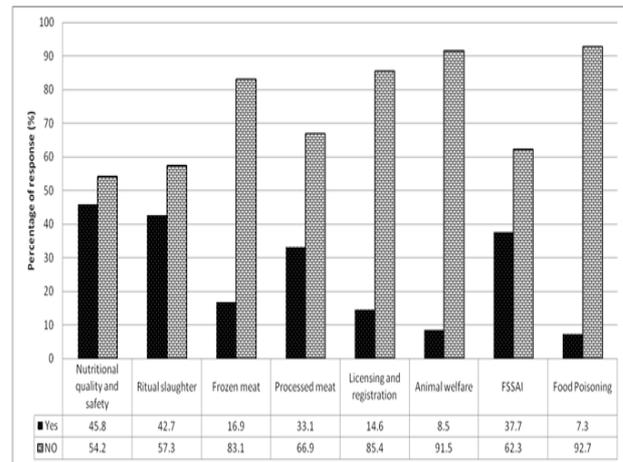


Figure 1. Graphical representation on consumer awareness towards meat safety, quality and regulations

Consumer awareness

Graphical representation on consumer awareness towards meat safety, quality and regulations is shown in Figure 1. Food safety is a scientific discipline describing handling, preparation and storage of food in ways that prevent food-borne illness. Food safety has emerged as an important global issue with international trade and public health implications. In present study more than half (54.2%) respondents were unaware about food safety and quality.

Ritual slaughter as the name suggests is based on religious tenets of a particular religion. The current data indicated that ritual slaughter has influence (57.3%) on purchasing decision of consumer. Religion as an aspect of culture influences consumer attitude and behavior in general (Pettinger *et al.*, 2004), and food purchasing decisions and eating habits in particular (Mullen *et al.*, 2000). Although religions may impose strict dietary laws, the numbers of people following them may vary considerably.

Meat food products- subjected to drying, curing cooking, smoking, seasoning, flavouring, freezing or any other method akin to above methods are called as processed food. Surprisingly, about 66.9% correspondents were unaware of processed meat available in market though study was done in metro city like Bengaluru. Technological advances in food sector and social changes introducing new food habits necessitate stringent food safety programs, as increased production, urbanization, industrialization and migration have introduced new food safety problems into our food supply. Subjective norms are a key factor in understanding Indian consumers' new food purchase decisions regardless of their level of innovation. Specifically, subjective norms are found to have direct effects on attitudes, intention to buy, and purchase behavior for new processed food products (Choo *et al.*, 2004).

Though animal activist around globe make huge sound about animal welfare surprisingly for majority (91.5%) correspondents animal welfare activities like transportation, stunning, on farm handling had any influence on meat purchasing decision of consumers. A conflict relating to animal products suggests that consumers are liable to relegate animal welfare aspects of quality to the sphere of regulation, whilst focusing on price and on experience attributes such as appearance and taste (McEachern *et al.*, 2002). Davidson *et al.* (2003) also found that animal welfare as a meat choice criterion ranks behind appearance and price.

In order to ensure that the food sectors match up to the best global standards, the Government of India enacted an integrated food law called the Food Safety and Standards Act in August 2006 and in addition Food Safety and Standards Authority of India was established under the Food Safety and Standards Act, 2006 which is the regulating body related to food safety and laying down of standards of food in India (<http://www.fssai.gov.in/>). This authority set standards and license the manufacture of food products which are healthy and safe. A current survey indicated that only 37.7% of respondents were aware about FSSAI and its role, while 85.4% were unaware/not concerned about licensing and registration of shops selling meat. These consumers pay close attention to meat safety based on information from television, newspapers and the internet. In his study, Richardson (1994) reported that habits, taste qualities, opinions and risks regarding health (cholesterol, fat, etc.), determinants such as label and brand, and factors such as advertisement, promotion, and advice (of physicians, family, and friends) played a role on meat consumptions.

The consequences of unsafe food can be dangerous to health. Unsafe food is reported to causes more than 200 diseases due to harmful bacteria, viruses, parasites or chemical substances, which include simple diarrhoea to deadly cancers. Annually 2 million peoples are estimated to be killed by food and water borne diarrhoeal disease mostly affecting children through out world. In India an estimated 4,00,000 children below five years age die each year due to diarrhoea. Though most food-borne diseases are sporadic and often not reported in India, a nation-wide study carried out recently, reported an alarming 13.2% prevalence at household level. Most positive thing from present study is low incidence of food poisoning cases encountered attributed to meat in recent time (3 years period), which might be attributed to cooking practices of India.

Conclusion

There are numerous factors affecting the amount of meat consumption, which has an important place in human nutrition. Regional development differences, socioeconomic and demographic factors, seasons, food safety and quality, personal tastes and habits, product price, and opinions regarding human health are generally thought to be the major factors that have an effect on the demand for meat. In conclusion, it is possible for processing companies to increase their market shares by selling products at amounts and with qualities in line with consumer preferences in domestic consumption and foreign trade, and to use advertisement, promotions and other marketing tools more effectively towards consumer demand only if the consumer preferences, purchasing habits and factors affecting them can be revealed and presented. The result of current study gives an idea on the future strategies need to be adopted by meat scientists to understand felt needs of consumers and ways to tackle food safety issues in India.

Acknowledgement

Authors acknowledge all the correspondents for sparing the valuable time and sharing the information required for above study.

References

- Anonymous, 2008. India's 10 fastest growing cities. Retrieved on March 27 2016 from Rediff News . <http://us.rediff.com/money/2008/feb/06sld2.htm>.
- Anonymous. 2014. India's top 15 cities with the highest GDP. Retrieved on April 2 2016 from Rediff news. <https://in.finance.yahoo.com/photos/the-top-15-indian-cities-by-gdp-1348807591-slideshow/the-top-15-indian-cities-by-gdp-photo-1348807049.html>.
- Census of India. 2001. Retrieved on August 8 2016 from Census. <https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&>
- Choo, J., Jae-Eun, C. and Pysarchik, D. T. 2004. Antecedents to new food product purchasing behavior among innovator groups in India. *European Journal of Marketing* 38(5/6): 608- 625
- Davidson, A., Schröder, M. J. A. and Bower, J. A. 2003. The importance of origin as a quality attribute for beef: results from a Scottish consumer survey. *International Journal of Consumer Studies* 27(2): 91–98.
- Food Safety and Standard Authority of India. *Gazette of India: Extraordinary, Part-III Sec 4, p.374-2.5*. Retrieved on July 28 2016 from fssai website <http://www.fssai.gov.in/>
- Gossard, H. M. and York, R. 2003. Social structural influences on meat consumption. *Human Ecology*

Reviews 10(1): 1–9.

- Kiran, M., Sudhakar Reddy, K., Kondal Reddy, K., Madhav Rao, T. and Naveena, B. M. 2011. Effect of blade tenderization and ammonium hydroxide marination on textural properties and microstructure of spent hen meat. *Fleischwirtschaft International* 5:71-80.
- Kiran, M., Naveena, B. M., Sudhakar Reddy, K., Kondal Reddy, K. and Madhav Rao, T. 2014. Effect of ammonium hydroxide on textural and ultrastructural properties of spent hen meat. *International Food Research Journal* 21(5):2049-2054.
- Li, F. 2012. A study on behavior of consumer's purchase quality safety beef – based on the survey in Jilin province (Master's thesis). Retrieved on March 27 2016: <http://www.cnki.net/KCMS/detail/detail.aspx?QueryID=4&CurRec=1&recid=&filename=1013126799.nh&dbname=CMFD201301&dbcode=CMFD&pr=&urlid=&yx=&v=0NjRSTCtmWWVkbUZ5MjQemtWcjNNVkyYkhiSzZ>
- Liang, D., Li, T. and Gai, L. 2014. Characteristics and influencing factors of rural residents beef consumption. *Food and Nutrition in China* 20(5): 50-52.
- Livestock Census. 2013. Ministry of Agriculture, Department of Animal Husbandry, Dairy and Fisheries. Retrieved on April 24 2016. <http://dahd.nic.in/sites/default/files/19%20th%20Livestock%20%202012.pdf>
- McEachern, M. G. and Schröder, M. J. A. 2002. The role of livestock production ethics in consumer values towards meat. *Journal of Agricultural and Environmental Ethics* 15(2): 221–237
- Mullen, K., Williams, R. and Hunt, K. 2000. Irish descent, religion and food consumption in the west of Scotland. *Appetite* 34(1): 47–54.
- OECD. (2010). Organisation for Economic Co-operation and Development Economic Survey of India. Retrieved on April 2 2016 from OECD <http://www.oecd.org/india/>
- Pettinger, C., Holdsworth, M. and Gerber, M. 2004. Psychosocial influences on food choice in Southern France and Central England. *Appetite* 42(3): 307–316.
- Richardson J. N. 1994. UK consumer perceptions of meat. *Proceedings of Nutrition Society* 53: 281–287.
- Wu, Q. and Xiao, H. 2013. Characteristics and influence factors of mutton consumption of China's urban and rural residents. *Agricultural Outlook* 8: 71-75.
- Yanwei, M., Hopkins, D. L., Zhang, Y. and Luo, X. 2016. Consumption Patterns and consumer attitudes to beef and sheep meat in china. *American Journal of Food and Nutrition* 4(2): 30-39.
- Zhang, H., Sun, S. and Feng, Y. 2014. Analysis of mutton consumption habit and buying behavior in urban and rural area. *Xinjiang State Farms Economy* 1: 46-51