



## **Perceived Training Needs of Butchers and Meat Retailers Regarding Meat Handling Practices in Jammu District of Jammu and Kashmir**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author RAB designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author SAK guided the author RAB during whole research period and edited the manuscript. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/IJTDH/2017/36797

Editor(s):

(1) Giuseppe Murdaca, Clinical Immunology Unit, Department of Internal Medicine, University of Genoa, Italy.

Reviewers:

(1) Nana Wenjou, National Polytechnic, Cameroon.

(2) B. S. Frasao, Universidade Federal Fluminense, and Universidade Federal Rural do Rio de Janeiro, Brazil.

Complete Peer review History: <http://www.sciencedomain.org/review-history/21324>

**Original Research Article**

**Received 16<sup>th</sup> September 2017**  
**Accepted 22<sup>nd</sup> September 2017**  
**Published 11<sup>th</sup> October 2017**

### **ABSTRACT**

The hygienic meat handling practices of the butchers and meat retailers, and hygienic status of slaughterhouses and the surrounding are of great importance for both the meat handlers and the consumer. In order to enhance the viability and safety of current consumer protection systems in the region, a significant increase of investment by abattoir/meat business operators in suitable equipment for hygienic slaughtering and proper meat inspection as well as in waste treatment facilities is an urgent requirement. Insufficient skills and knowledge in meat handling practices are a key constrain to ensuring food safety of animal products. Training in the abattoir sector is urgently needed for personnel at abattoirs carrying out slaughtering, sanitary, meat hygiene and technical operations. The present study analyses the perceived training needs of butchers and meat retailers regarding meat handling practices in Jammu district of Jammu and Kashmir. Three Major slaughter houses of Jammu district situated at Nagrota, Old Rehari and Gujjar Nagar were selected for the study. A list of butchers in the selected slaughter houses was prepared. Ten butchers from each

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slaughter house were selected randomly. After preparing the comprehensive list of meat markets operating in Jammu district, three meat markets were selected, and from each selected meat market ten retail meat shops were randomly chosen. From each randomly selected retail meat shop, one person was selected purposively who was actively involved in animal slaughter and sale of meat at retail meat shop. Thus, a total of thirty butchers and thirty retailers were selected in all. Data was collected through interview schedule as well as through observations. The data was coded, classified, tabulated and analyzed using the software; Statistical Package for the Social Science (SPSS 16.0). The presentation of data was done to give pertinent, valid and reliable answer to the specific objectives. Frequencies, percentage, mean and standard deviation were worked out for meaningful interpretation. It was found that all meat handlers (100%) emphasized about the need of basic training provided through either family members or colleagues, whereas 78.33% meat handlers also felt the need for formal training provided through an institutions. Efficient slaughtering, cutting of carcasses, display of carcass/meat, proper packaging of meat and preparing different meat products were the specific area where the majority of meat handlers perceive the need for trainings. Few meat handlers were also willing to receive training about meat associated disease identification and reporting of animal diseases respectively. Result also revealed that majority of meat handlers were willing to undergo short duration training at their own workplace and funded by government.

*Keywords: Butchers; carcass; meat hygiene; meat retailers; slaughtering; training.*

## 1. INTRODUCTION

Rapid increase in the household income, urbanization and changing lifestyle have combined to shift consumption towards non-traditional cereals and value added products, including many derived from livestock. As income rise in relation to the cost of living, consumers generally tend to spend more on protein products of animal origin than before, thus quality of food of animal origin especially meat and meat products is now a days a predominant key for everyone in society [1]. The demand concerns nutritious, tasteful, safe, healthy and affordable food, either fresh or processed. Quality of animals' products could be roughly classified by specialist of animal production into nutritional, technological, sensory, hygienic and sanitary aspect. Although developing countries face increasingly strict sanitary and phytosanitary standards in their export markets, they can maintain and improve market access and improve domestic food safety and agricultural productivity by adopting a strategic approach to food safety, public health and trade [2]. International organizations like Food and Agriculture Organization [3] and World Health Organization (WHO) of United Nations are concerned with the prevention and transmission of human diseases through contaminated food, and with improvement of hygienic production, processing and distribution.

In the context of meat hygiene, safety is defined in terms of appropriate application of measures

to protect public health, and achievement of any quantitative outcome for hazards control that may be required. Suitability is defined in terms of meat having been produced in a hygienic manner, and meeting any non-safety quantitative standards that may be identified [3]. In many developing countries, lack of appropriate slaughtering facilities, skill and unsatisfactory slaughtering techniques are causing unnecessary losses of meat as well as valuable by-products from animal carcasses [4]. The hygienic meat handling practices of the butchers and meat retailers, and hygienic status of slaughterhouses and the surrounding are of great importance for both the meat handlers and the consumer. In order to enhance the viability and safety of current consumer protection systems in the region, a significant increase of investment by abattoir/meat business operators in suitable equipment for hygienic slaughtering and proper meat inspection as well as in waste treatment facilities is an urgent requirement. Insufficient skills and knowledge in meat handling practices are a key constrain to ensuring food safety of animal products. Training in the abattoir sector is urgently needed for personnel at abattoirs carrying out slaughtering, sanitary, meat hygiene and technical operations. Thus, sufficient skills and knowledge in meat handling by personnel engaged in unorganized meat production will improve safety and suitability of meat which will lead to increased marketability and consumption, finally resulting into better socio-economic status of all personnel engaged either in animal rearing, trade or processing of

meat. The present study analyses the perceived training needs of butchers and meat retailers regarding meat handling practices in Jammu district of Jammu and Kashmir.

## 2. MATERIALS AND METHODS

The present study was carried out to analyse the perceived training needs of butchers and meat retailers regarding meat handling practices in Jammu district of Jammu and Kashmir. Three slaughter houses of Jammu district situated at Nagrota, Old Rehari and Gujjar Nagar were purposefully selected for the study. A list of butchers in the selected slaughter houses was prepared. Ten butchers from each slaughter house were selected randomly. After preparing the comprehensive list of meat markets operating in Jammu district, three meat markets were selected, and from each selected meat market ten retail meat shops were randomly chosen. From each randomly selected retail meat shop, one person was selected purposively who was actively involved in animal slaughter and sale of meat at retail meat shop. Thus, a total of thirty retailers were selected in all. The data was collected by the researcher from the study area with the help of interview schedule. The responses obtained were recorded and only one respondent was interviewed at a time, so that others were not influenced by the reply of that particular respondent. The data was coded, classified, tabulated and analyzed using the software; Statistical Package for the Social Science (SPSS 16.0). The presentation of data was done to give pertinent, valid and reliable answer to the specific objectives. Frequencies, percentage, mean and standard deviation were worked out for meaningful interpretation.

## 3. RESULTS AND DISCUSSION

### 3.1 General Socio-personal Profile of Meat Handlers

The details of socio-personal profile of butchers and meat retailers were presented in Table 1. In the present study it was found that majority of the meat handlers (63.33%) were from middle aged group and only males were involved in this profession. Similar finding were also observed by Ngore et al. [5], Thakur et al. [6], Junaidu et al. [7] and Umar et al. [8] who reported that this business is a gender sensitive (a male domain business) and that majority were in their active ages. Most of butchers and retailers belonged to general and other backward castes respectively,

while majority of butchers and retailers (66.66%) were Muslims. Most of respondents (41.66%) were illiterate, where as 28.33 % were having medium education and 30 % respondents had high education which clearly indicates that meat handlers have less knowledge and awareness about meat hygiene and associated health hazards. The findings were also in agreement with the findings of Umar et al. [8] and Ngore et al. [5]. Cent percent respondents were having meat retailing as major occupation, whereas majority of butchers (83.33%) and meat retailers (60.00%) had butchery work at slaughter house as their subsidiary occupation, while 20.00% had no subsidiary occupation. It was found that, none of the respondents had ever received a formal training at any institution. Overwhelming proportions (86.66%) of respondents have received informal training through family members and 13.33% from their colleague. Similar finding were observed by Ngore et al. [5] who reported that most of the respondents had meat retailing /butchery as their main occupation and 90% of the respondent had not received any formal training. Majority of respondents (78.33%) were from middle income family and they were earning income between Rs.10, 000 to Rs.15, 000 monthly from meat handling profession. A significant portion of respondents (56.66%) had 5 to 15 years of experience in their work, while (56.66%) of respondents had medium (6 to 10 hrs.) workload. These finding were in agreement with the finding of Thakur et al. [6], Junaidu et al. [7] and Umar et al. [8] who observed that that most of the meat handlers have 11-20 years experience.

### 3.2 Perceived Training Needs of Butchers and Meat Retailers

#### 3.2.1 Perceived need for training

A perusal of Table 2 indicates that all meat handlers emphasized about the need of basic training provided through either family members or colleagues, whereas 78.33% meat handlers also felt the need for formal training provided through an institutions. This shows that they wish to gain skills from institutes apart from basic training provided by their family members and colleagues. They felt that new information is required to sustain the stiff competition. Similar finding have been observed by Otupiri et al. [9] who reported that majority of respondents were willing to undergoes for formal training to increase their meat handling practices efficiency. Tables 2 further explain the specific area in

which the meat handlers perceive the need for trainings. Majority (72.34% and 91.48%) of the respondents preferred training for efficient slaughtering and cutting of carcass, whereas 29.98% and 25.53% of meat handlers were also willing to receive training about meat associated disease identification and reporting of animal diseases respectively, as they feel this could help in controlling the spread of various zoonotic diseases. Similar findings were reported by Mathew et al. [10]. Table 2 also unveils that 64.00%, 76.00% and 80.00% of the retailers were more willing to receive training about display of carcass/meat, proper packaging of meat and preparing different meat products. Similarly findings have been observed by Sahay et al. [11] who reported that the majority of meat handlers felt the need for formal training provided through an institution. Few meat handlers were

also willing to receive training about meat associated disease identification and reporting of animal diseases respectively. Similarly Magdaa et al. [12] observed that due to lack of knowledge about scientific and hygienic meat handling practices many meat handlers were carrier of many zoonotic disease and thus most of meat handlers were willing to undergo formal training. Also observed that efficient slaughtering, cutting of carcasses and preparing different meat products were the specific area where the majority of meat handlers perceive the need for trainings. Oluwafemi et al. [13] that training, practical oriented workshops and seminars among butchers will improve their skill and meat handling practices. Junaidu et al. [7] reported that training regarding importance hygiene in abattoir by the public health personnel within the abattoir was felt by 97% of respondents.

**Table 1. Socio-personal profile of butchers and meat retailers**

Particulars		Butchers n=30	Meat retailers n=30	Total N=60	
Age	Young (< 30 years)	10 (33.30)	08 (26.70)	18 (30.00)	
	Middle (30-50 years)	18 (60.00)	20 (66.66)	38 (63.33)	
	Old (> 50 years)	02 (6.70)	06 (20.00)	08 (13.33)	
	Gender	Male	30 (100.00)	30 (100.00)	60 (100.00)
		Female	0 (0.00)	0 (0.00)	0 (0.00)
Caste	General	11 (36.70)	08 (26.70)	19 (31.66)	
	OBC	08 (26.70)	10 (33.30)	18 (30.00)	
	SC	03 (10.00)	03 (10.00)	06 (10.00)	
	ST	08 (26.70)	09 (30.00)	17 (28.33)	
	Religion	Sikh	02 (6.70)	04 (13.30)	06 (10.00)
Hindu		08 (26.70)	06 (20.00)	14 (23.33)	
Muslim		20 (66.70)	20 (66.70)	40 (66.66)	
Education	Low	15 (50.00)	10 (33.30)	25 (41.66)	
	Medium	09 (30.00)	08 (26.70)	17 (28.33)	
	High	06 (20.00)	12 (40.00)	18 (30.00)	

Particulars		Butchers n=30	Meat retailers n=30	Total N=60
Occupation	Working as butchers in slaughter houses	0 (0.00)	0 (0.00)	0 (0.00)
	Meat retailing	30 (100.00)	30 (100.00)	60 (100.00)
	Both	0 (0.00)	0 (0.00)	0 (0.00)
Subsidiary Occupation	Working as butchers in slaughter houses	25 (83.30)	18 (60.00)	43 (71.66)
	Meat retailing	0 (0.00)	0 (0.00)	0 (0.00)
	Marketing of meat animals	01 (3.30)	03 (10.00)	04 (6.66)
	Cooking	01 (3.30)	0 (0.00)	01 (1.66)
	No subsidiary occupation	03 (10.00)	09 (30.00)	12 (20.00)
	Gross monthly family income	Very low (< Rs.10,000)	0 (0.00)	01 (3.30)
	Low (Rs. 10,000-15,000)	09 (30.00)	02 (6.70)	11 (18.33)
	Medium (RS. 15000-20000)	21 (70.00)	26 (86.70)	47 (78.33)
	High (>Rs.20000)	0 (0.00)	01 (3.30)	01 (1.66)
Income from butchering and meat retailing	Very low (< Rs.10000)	01 (3.30)	0 (0.00)	01 (1.66)
	Low (Rs10000-15000)	9 (30.00)	11 (36.70)	20 (33.33)
	Medium (Rs. 15000-20000)	20 (66.70)	18 (60.00)	38 (63.33)
	High (> Rs20000)	0 (0.00)	01 (3.30)	01 (1.66)
	Experiences in years	< 5yeras	04 (13.30)	08 (26.70)
	5-15years	20 (66.70)	14 (46.70)	34 (56.66)
	> 15years	06 (20.0)	08 (26.7)	14 (23.33)
Workload	Low (< 6 hrs)	04 (13.30)	03 (10.00)	07 (11.66)
	Medium (6 to 10 hrs.)	19 (63.30)	15 (50.00)	34 (56.66)
	High (> 10 hrs.)	07 (23.30)	12 (40.00)	19 (31.66)
	License	With valid license	02 (6.70)	0 (0.00)
	Without valid license	28 (93.30)	30 (100.00)	58 (96.66)
Training	By colleague	05 (16.70)	03 (10.00)	08 (13.33)
	By family members	25 (83.30)	27 (90.00)	52 (86.66)
	Trained at institution	0 (0.00)	0 (0.00)	0 (0.00)

**Table 2. Distribution of respondents according to perceived need for training\***

<b>Statement</b>	<b>Butchers (n=30)</b>	<b>Meat retailers (n=30)</b>	<b>Total (N=60)</b>
Basic training is needed	30 (100.00)	30 (100.00)	60 (100.00)
Formal training by an institution is needed	22 (73.30)	25 (83.30)	47 (78.33)
<b>Areas preferred for formal training</b>	<b>Butchers (n=22)</b>	<b>Retailers (n=25)</b>	<b>Total (n=47)</b>
Efficient slaughtering	17 (77.30)	17 (68.00)	34 (72.34)
Cutting of carcass	18 (81.80)	25 (100.00)	43 (91.48)
Meat hygiene practices	05 (22.70)	16 (64.00)	21 (44.68)
Meat associated disease identification	08 (36.40)	06 (24.00)	14 (29.78)
Reporting of animal disease	07 (31.80)	05 (20.00)	12 (25.53)
Display of carcass/meat	0 (0.00)	16 (64.00)	16 (34.04)
Storage and refrigeration of leftover meat	0 (0.00)	08 (32.00)	08 (17.02)
Proper packaging of meat	0 (0.00)	19 (76.00)	19 (40.42)
Preparing different meat products	0 (0.00)	20 (80.00)	20 (42.55)

(Values in parenthesis indicate percentage)

\* Multiple responses

### **3.2.2 Duration of institutional training preferred**

Table 3 clearly points out that majority (48.33%) of respondents preferred seven days training, while 45.00% of butchers preferred fifteen days training. It was found that majority 53.30% of retailers preferred short day training (7days) because they felt their shop should not close for longer time. General background of meat handlers clearly shows that all respondents were having meat retailing as major occupation and, their daily family requirement solely depends on this profession and thus they cannot undergo long duration training programmes. Similarly findings have been observed by Sahay et al. [11].

### **3.2.3 Preferred place for training**

An analysis of Table 4 displays that majority of meat handlers (50%) preferred training at their own workplace because they felt it infeasible to discontinue their business during training period. A significant proportion (30%) also felt that meat plant at an institution would be more suitable for

imparting training as it would be easy to provide necessary inputs in terms of material and instruments by trainer. It was also found that 56.70% of butchers preferred training at their own workplace because they felt it seamless in going to institution owing to their illiteracy and lower social status. Similarly findings have been observed by Sahay et al. [11] that majority of meat handlers were willing to undergo short duration training at their own workplace.

### **3.2.4 Distribution of the expenses of training opinioned by respondents**

As evident from Table 5 that majority of meat handlers (88.33%) opinioned that government should provide training expenses the reason may be that they would not be unable to pay too high expenses of training. It was found that 10% butchers and 13.30% meat retailers felt that expenses should be shared equally between government and beneficiaries. Similarly findings have been observed by Sahay et al. [11] that majority of meat handlers were willing to undergo short duration training at their own workplace and funded by government.

**Table 3. Distribution of respondents according to their response to duration of institutional training preferred**

Duration of training preferred	Butchers (n=30)	Meat retailers (n=30)	Total (N=60)
7 days	13 (43.30)	16 (53.30)	29 (48.33)
15 days	15 (50.00)	12 (40.00)	27 (45.00)
1 month	02 (6.70)	02 (6.70)	04 (6.66)

(Values in parenthesis indicate percentage)

**Table 4. Distribution of respondents according to preferred place for training**

Preferred Place for training	Butchers (n=30)	Meat retailers (n=30)	Total (N=60)
Own workshop	17 (56.70)	13 (43.30)	30 (50.00)
Private meat plant	05 (16.70)	07 (23.30)	12 (20.00)
Meat plant at an institution	08 (26.70)	10 (33.30)	18 (30.00)

(Values in parenthesis indicate percentage)

**Table 5. Distribution of respondents according to their opinion regarding expenses of training**

Expenses for training	Butchers (n=30)	Meat retailers (n=30)	Total (N=60)
Total by government	27 (90.00)	26 (86.70)	53 (88.33)
Total by beneficiary	0 (0.00)	0 (0.00)	0 (0.00)
Fifty percent by beneficiary and fifty percent by government	03 (10.00)	04 (13.30)	07 (11.66)

(Values in parenthesis indicate percentage)

#### 4. CONCLUSION

The meat business is mainly male dominated activity. Majority of the respondents belonged to middle aged group. Most of them were illiterate. Mainly male members of general and other backward castes were found in this profession. Majority had 5 to 10 years of experience and medium workload. None of them had received any formal training. All the respondents had meat retailing as major occupation while butchery work at slaughter houses as the subsidiary occupation. Majority of the respondents were from middle income family and they were earning income between Rs.10, 000 to Rs.15, 000 monthly from meat handling profession. It was found that all meat handlers emphasized about the need of basic training provided through either family members or colleagues, whereas 78.33% meat handlers also felt the need for formal

training provided through an institutions. Efficient slaughtering, cutting of carcasses, display of carcass/meat, proper packaging of meat and preparing different meat products were the specific area where the majority of meat handlers perceive the need for trainings. Few meat handlers were also willing to receive training about meat associated disease identification and reporting of animal diseases respectively. Result also revealed that majority of meat handlers were willing to undergo short duration training at their own workplace and funded by government. In order to enhance the viability and safety of current consumer protection systems in the region, a significant increase of investment by abattoir/meat business operators in suitable equipment for hygienic slaughtering and proper meat inspection as well as in waste treatment facilities was an urgent requirement. Insufficient skills and knowledge in meat production

practices were a key constrain to ensuring food safety of animal products. Training in the abattoir sector was urgently needed for personnel at abattoirs carrying out sanitary, meat hygiene and technical operations.

## CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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*Peer-review history:*  
The peer review history for this paper can be accessed here:  
<http://sciedomain.org/review-history/21324>