



## Consumer preference towards turkey meat in Mymensingh city

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### ABSTRACT

The paper examined the consumer preference of turkey meat in Mymensingh city area. Purposive sampling technique and face to face interview was carried out among 60 consumers of turkey meat. A five-point Likert scale such as strongly agree = 5, agree = 4 neutral=3, disagree=2 and strongly disagree=1 was applied to measure consumer attitude towards turkey meat. Discriminative Power (DP) value was computed to find out lowest and highest variability of consumer response. Results indicated that the majority of the consumers (55%) strongly agreed that turkey has high price per kg and 46.67% respondents agreed that turkey is very tasty. Highest variability in consumer's response was found that turkey meat is socially unacceptable and processing turkey is complex. Lowest variability of response was that, "turkey meat has a bad smell". The findings also revealed that 51.67% consumers favored turkey meat and 5% consumers highly favored it. Hence, it can be concluded that consumers exhibited favorable attitude towards turkey meat. Consequently, turkey can be deliberated as an innovative source of protein that may play vital role significantly in lessening the gap between animal protein requirement and consumption in Bangladesh.

### INTRODUCTION

Poultry rearing, whether commercial or non-commercial back-yard farming generates different work chances, offers an extra income especially for the rural woman and performances as a vital tool for poverty reduction in Bangladesh. Poultry population is estimated at 337.9 million (DLS, 2019) in Bangladesh. Poultry meat alone contributes 37% of the total meat production and about 22-27% of the total animal protein supply in Bangladesh (Hamid et al., 2017). In recent years, the poultry sector in Bangladesh has achieved adequacy compared to the current market demand (Raha, 2015), but not the standard nutritional requirement (DLS, 2016). Now-a-days, some new species of birds have been familiarized in Bangladeshi poultry scenario and their popularity is increasing day by day. These species are quail, turkey and guinea fowl. Among the species, turkey is a bird which is appropriate for rearing in hot humid climatic condition like Bangladesh. Turkey (*Meleagris gallopavo*) is a large gallinaceous bird of the family *Meleagridae* that is native of North America, domesticated in Europe and are now an important source of food in many parts of

the world. Now-a-days it is very popular in the United States of America, Canada, Germany, Italy, France, Netherlands, and the United Kingdom as well as in Bangladesh (Famous et al., 2019).

Very recently, turkey is introduced poultry species in Bangladesh. Likely, this species meat may be one of the best options for alternative protein source in Bangladesh (Famous et al., 2019). Turkey production is an important and highly profitable agricultural industry with rising global demand for its products (Yakubu et al., 2013). Karki (2005) reported that consumption of turkeys as white meat was rising worldwide and a similar trend also existed in developing countries. In the whole world, the total production of turkey meat was 5.6 million tons in 2012, which was higher than 5.1 million ton in 2003, a decade earlier (FAOSTAT, 2012). So, turkey is raised for meat purpose and has been considered as luxury meat by many consumers (Famous et al., 2019).

Turkey is a very rich source of protein, niacin, vitamin B<sub>6</sub> and the amino acid tryptophan. It is

also contains zinc and vitamin B<sub>12</sub>. The skinless white meat of turkey is low on fat and is an excellent source of high protein. Turkey also contains anti-cancer properties. Apart from the role in protein supply, turkey also has an aesthetic value due to their beauty (Ogundipe and Dafwang, 1980). Moreover, turkey has high dressing percentage that could amount to 87% of slaughter weight (Turkey management guide, 2012).

Since turkey is recently popularized in Bangladesh, the farmers are not well conscious about various aspects of rearing such as feeding, housing, prevention and disease management, standard growth pattern, feed efficiency and incubation of hatching eggs (Asaduzzaman et al., 2017). Due to unknown reasons, it has not been explored in Bangladesh as well as other developing countries. In fact, turkeys are adaptable to a wide range of climatic conditions and can be raised successfully almost anywhere in the world if they are well fed and protected against diseases and predators (Jahan et al., 2018). As rearing turkey is a completely new and slowing practice in Bangladesh, there have been very few studies on whether it is actually preferred by the consumers. Knowing the consumer attitude towards turkey meat is essential to raise the popularity of turkey meat and promote turkey among the consumers in Bangladesh. Therefore, the present study was aimed to find out whether turkey meat is preferred or not by consumers. Withal, the present results of this study provide valuable information to policy makers of Government and Department of Livestock Services to proceed required initiatives with the purpose of this alternative meat source can progress as well-known consumer choice and prosper as an industry in addition to expand widely.

## **MATERIALS AND METHODS**

### **Selection of the study area**

Mymensingh city area in Bangladesh was purposively selected for the study as it is a city with growing demand and huge potential for turkey meat.

### **Sample selection and data collection**

Selected samples consisted of 60 normal consumers. Primary data for the study was collected from the month of August to September, 2019.

### **Methods of data collection**

Necessary data had been collected by the researcher himself by using questionnaire through face to face interview. In addition, the researcher also collected data from several previous research works, web information, several journals and magazines. Before beginning the interview, each respondent was given a brief description about the purpose of the study. Then the questions were asked with a simple style with explanation of each question.

### **Processing and tabulation of data**

After collection of data from the field, all data for the present study were edited, coded, tabulated, summarized and processed for analysis. The data had been transferred into MS Excel sheet from the interview schedules. Finally, required numbers of tables had been prepared and results were obtained by using various statistical techniques.

### **Analytical techniques**

Descriptive statistics like frequency, percentage and mean, ranking etc. were used to examine the different attributes. Five-point Likert scale was applied to measure the consumer's attitude towards turkey meat consumption. To apply the Likert scale, a series of items have been taken that expressed a wide range of attitudes, from extremely positive to extremely negative. Each item calls for checking one of five fixed alternative expressions such as "strongly agree", "agree", "neutral", "disagree" and "strongly disagree". In this five-point continuum, weights of 5,4,3,2,1 for favorable items to turkey meat consumption and 1,2,3,4,5 for unfavorable items to turkey meat consumption were assigned. The direction of weighting being determined by the favorableness or un-favorableness of the scale items used in the frame. After that a total score for each respondent is calculated by summing the value of each item that checked. Item analysis has been done to select the item for final scale. With item analysis, each item is subjected to analysis

and measurement of its ability to separate the high value from the low; this is called the discriminative power (DP) of item (Nachmias and Nachmias, 1992). Discriminative power is calculated by following formula:

$$DP=Q_1-Q_3$$

Where,  $Q_1$  = range above the upper quartile and  $Q_3$  = range below the lower quartile

The DP value was computed for each of the scale items and those with the largest DP values are the items that best determinate among individuals expressing deferring attitudes toward the measured attitudes. In calculating the DP, sum the scored items for each respondent and place the scores in an array, usually from lowest to highest. Next, compare the range above the upper quartile (Q) with that below the lower quartile (Q), and the DP value is calculated as the difference between the weighted means of the scores above Q and of those that fall below Q consumers' expression was checked for twelve scale items. The twelve statements (five positive and seven negative) have been taken to measure consumers' attitude toward turkey such as 1) five positive statements: (i) turkey is available in everywhere, (ii) they are very tasty, (iii) meat is easy to cook, (iv) it can be a good choice for occasions and (v) turkey meat is very tender; 2) seven negative statements: (i) it has a high price per Kg, (ii) turkey meat is socially unacceptable, (iii) consuming turkey goes against religion, (iv) elderly people do not like the taste of turkey, (v) preservation of turkey meat is not easy, (vi) turkey meat has a bad smell and (vii) processing turkey is complex.

#### Calculation of mean score value of each item

Mean value of each statement helps us to understand consumer's preference towards turkey meat. Mean score value of each item is calculated by following formula:

Mean = Score value for each statement / Number of total respondents

Sample Standard Deviation=

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{N-1}}$$

Where,  $\sigma$  = Standard Deviation of response for each statement

$x_i$ = Score of individual response for the statement

$\bar{x}$  =Mean value of that statement

N= Number of respondents

## RESULTS AND DISCUSSION

### Likert scale aggregation

Table 1 depicts that the 6th statement (it has high price per kg) gained highest "strongly agree" response (55%) from the consumer. 10th statement gained highest "agree" response meaning 50% respondent thought "Preservation of turkey meat is not easy". 11th statement had highest "disagree" response (51.67%) i.e. 51.67% respondents disagreed with the statement "turkey meat has a bad smell" and 30% respondents strongly disagreed with the statement that "consuming turkey meat goes against religion". Among five positive statements, the second statement "turkey is very tasty" had gained highest "agree" response (46.67%). According to first statement, 40% respondent agreed that "turkey is available in the study area". 43.33% respondent agreed that turkey meat is easy to cook. Moreover, 36.67% respondents agreed that turkey meat can be a good choice for occasions and 41.67% respondents strongly agreed that turkey meat is tender. Related survey was also done by Chitrabigai et al. (2015) who indicated that 27.80 per cent consumers had high preference, 33.40 per cent consumers had moderate preference, 14.4 per cent consumers had less preference and not preferred by 14.44 per cent of the consumers towards alternate poultry meat.

### Calculation of mean score value and discriminative power (DP) of each statement

Table 2 revealed that the highest mean score was attained by the fifth statement (turkey meat is very tender). So, consumer's perception toward this statement was most positive and influential than the other statements. The second highest mean score was gained by the eighth statement that is

consuming turkey goes against religion. The third highest mean score turkey is very tasty. The lowest mean score was gained by the sixth statement “it has high price per kg”. Thus, the higher weighted average value indicated favor to any statement and lower weighted score value depicted low favor to any statement. Eight of the individual statements

have mean score values higher than 3, that means in considerable amount of the cases consumers had shown their favorable attitudes towards turkey meat in the study area. Thus it can be concluded that overall attitudes of the consumer towards turkey meat was favorable.

**Table 1:** Consumer preference using Likert scale

Statement	Response					Total
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
It is available everywhere	0	24(40)	24(40)	9(15)	3(5)	189
Turkey is very tasty	10(16.67)	28(46.67)	14(23.33)	6(10)	2(3.33)	218
Meat is easy to cook	7(11.67)	26(43.33)	14(23.33)	13(21.67)	0	207
It can be a good choice for occasions	8(13.33)	22(36.67)	7(11.67)	14(23.33)	9(15)	186
Turkey meat is very tender	25(41.67)	23(38.33)	8(13.33)	4(6.67)	0	249
It has high price per kg	33(55)	14(23.33)	8(13.33)	5(8.33)	0	105
Turkey meat is socially unacceptable	1(1.67)	26(43.33)	11(18.33)	19(31.67)	3(5)	177
Consuming turkey goes against religion	0	2(3.33)	17(28.33)	23(38.33)	18(30)	237
Elderly people do not like the taste of turkey	2(3.33)	18(30)	15(25)	15(25)	10(16.67)	193
Preservation of turkey meat is not easy	5(8.33)	30(50)	13(21.67)	9(15)	3(5)	155
Turkey meat has a bad smell	0	8(13.33)	15(25)	31(51.67)	6(10)	215
Processing turkey is complex	19(31.67)	29(48.33)	8(13.33)	3(5)	1(1.67)	118
Total	310	746	462	512	219	

Source: Field Survey, 2019; Note: Figures in the parentheses indicates percentage.

**Table 2:** Mean scores for consumer perception

Statement no.	Mean	Standard deviation	Ranked by mean
5	4.15	0.90	1
8	3.95	0.85	2
2	3.63	0.99	3
11	3.58	0.85	4
3	3.45	0.96	5
9	3.21	1.15	6
1	3.15	0.86	7
4	3.1	1.32	8
7	2.95	1.01	9
10	2.58	1.01	10
12	1.96	0.90	11
6	1.75	0.98	12

After calculating the total score for each respondent, DP value was calculated for the purpose of “item analysis”. Calculation of DP value is shown in Table 3 which revealed that weighted total and weighted mean for the high 25% were 56 and 3.73, respectively for statement

1. For low 25% weighted total and weighted mean were 46 and 3.07, respectively. After calculation it was depicted that the DP value was 0.66. In case of other statements (from statement 2 to 12), DP value of each statement has been calculated separately (Table 3).

**Table 3:** Calculation of DP value

Group	Number of consumers in group	5	4	3	2	1	Weighted total	Weighted mean	DP=(Q <sub>1</sub> -Q <sub>3</sub> )
Statement 1									
High (25%) Q1	15	0	11	4	0	0	56	3.73	0.66
Low (25%) Q3	15	0	4	8	3	0	46	3.07	
Statement 2									
High (25%) Q1	15	5	7	3	0	0	62	4.13	0.20
Low (25%) Q3	15	2	10	3	0	0	59	3.93	
Statement 3									
High (25%) Q1	15	7	5	3	0	0	64	4.26	1.06
Low (25%) Q3	15	1	5	5	4	0	48	3.20	
Statement 4									
High (25%) Q1	15	3	8	1	3	0	56	3.73	1.13
Low (25%) Q3	15	1	4	2	5	2	39	2.60	
Statement 5									
High (25%) Q1	15	13	1	1	0	0	72	4.80	0.60
Low (25%) Q3	15	6	6	3	0	0	63	4.20	
Statement 6									
High (25%) Q1	15	1	7	2	5	0	41	2.73	1.33
Low (25%) Q3	15	10	4	1	0	0	21	1.40	
Statement 7									
High (25%) Q1	15	0	1	3	9	2	57	3.80	1.40
Low (25%) Q3	15	1	8	5	1	0	36	2.40	
Statement 8									
High (25%) Q1	15	0	0	2	5	8	66	4.40	0.33
Low (25%) Q3	15	0	0	3	8	4	61	4.07	
Statement 9									
High (25%) Q1	15	0	2	2	4	7	61	4.07	1.07
Low (25%) Q3	15	0	5	6	3	1	45	3.00	
Statement 10									
High (25%) Q1	15	0	6	2	4	3	49	3.27	1.07
Low (25%) Q3	15	0	12	3	0	0	33	2.20	
Statement 11									
High (25%) Q1	15	0	2	1	9	3	58	3.87	0.14
Low (25%) Q3	15	0	0	5	9	1	56	3.73	
Statement 12									
High (25%) Q1	15	0	7	4	3	1	43	2.87	1.40
Low (25%) Q3	15	8	7	0	0	0	22	1.47	

Here, Weighted total =  $\sum$  (Score of the response\* Number of respondents who provided the response)

Weighted mean = Weighted total / Number of consumers in the group

The DP value is computed for each of the scale items and the items with the highest DP values were selected. These were the items that had greater ability to separate from the highest 25% to the lowest 25%. These statements showed larger bipolar results with strongly agree and strongly disagree end points. All the DP values are shown

in Table 4 where the statements are arranged in descending order. If two or more statements have same DP value then statements are based on the value of weighted mean of quartile one, Q1. Statement that had higher quartile one weighted mean was placed higher in ranking statements that had same DP value.



**Table 4:** Statements ranked according to DPvalue

Statement	DP value	Rankedby DP value
Turkey meat is socially unacceptable	1.4	1
Processing turkey is complex	1.4	2
It has high price per Kg	1.33	3
It can be a good choice for occasions	1.13	4
Elderly people do not like the taste of the turkey	1.07	5
Preservation of turkey meat is not easy	1.07	6
Meat is easy to cook	1.06	7
It is available everywhere	0.66	8
Turkey meat is very tender	0.60	9
Consuming turkey goes against religion	0.33	10
Turkey is very tasty	0.20	11
Turkey meat has a bad smell	0.14	12

The highest DP value was 1.4 for the statement “turkey meat is socially unacceptable” (Table 4). That means this statement was much more influential than the other statements and the difference between two end points namely “strongly agree” and “strongly disagree” was greater. A higher DP value of course indicates more strongly agree weights in the highest 25% than the lowest 25% summated scores. The lowest DP value was 0.14 for the statement “turkey meat has a bad smell” indicating lowest separability between the highest 25% and the lowest 25% summated scores of consumer responses.

### Consumer preference on turkey meat

From the calculation of the total score value of individual, favorableness and un-favorableness of

turkey consumption is presented in Table 5. The consumers were categorized into four types such as highly favored attitudes on turkey meat (Range value 49-60), favorable attitudes on turkey meat (Range value 37-48), disfavored attitudes on turkey meat (Range value 25-36) and highly disfavored attitudes on turkey meat (Range value 12-24). From Table 5, it is observed that about 51.67% consumers expressed their favorable attitude and 5% consumers showed highly favorable attitude on turkey meat and remaining consumers exposed disfavored attitudes on turkey meat. This result is consistent with Iqbal (2018) where 57.5% consumers were favorable attitude on consuming turkey meat. Besides, different authors in various countries also conducted studies which are associated with consumer preference towards other meat. Likely, result of Vignesh et al. (2019) agreed with present findings where they revealed that 78.89 % of the respondents were favored towards Japanese quail meat and 21.11 % of the household consumers were not favored towards quail meat. Majority of the consumers (57.75 %) considered the available Japanese quail meat price was nominal while 18.31 % of the consumers felt it was too high. However, in this study, 41.67% consumer disfavored and 1.67% consumer highly disfavored turkey meat. The underlying reasons behind disfavoring turkey are, turkey is a foreign bird, and people do not know much more about turkey, do not like its meat, and taste, belief in rumor about turkey that it is a species of vulture etc. This study carried out with a small sample population of 60 people whom were selected purposively that's why results may found not be representative of the total population. Better study with higher number of sample population with random sampling may give better understanding of the present situation.

**Table 5:** Favorableness and un-favorableness of consumers

Score	Particulars	No. of consumer	Percentage
12-24	Highly disfavored attitudes on turkey meat	1	1.67
25-36	Disfavored attitudes on turkey meat	25	41.67
37-48	Favorable attitudes on turkey meat	31	51.67
49-60	Highly favored attitudes on turkey meat	3	5
Total		60	100

Accepting the limitation of this study however, this study will facilitate policy makers to get a deeper look at the current consumer opinion about turkey meat. This study will also support researchers to be involved on this subject.

## CONCLUSION

Turkey bird is gradually gaining popularity in Bangladesh due to its lean meat and good productivity under harsh environment. They could therefore contribute substantially in narrowing the gap between animal protein requirement and consumption in Bangladesh. The findings revealed that most of the consumers thought that turkey has high price per kg, preservation of turkey meat is not easy and processing turkey meat is complex. Moreover, highest variability in consumers response were towards the statements “Turkey meat is socially unacceptable” and “Cooking the meat takes much more time than other meat”. Lowest variability of response was towards the statement “Turkey meat has a bad smell” as almost all the respondents disagreed with the statement. However, this study indicated consumers are willing to consume turkey meat and had great potentiality. That’s why local producers may raise their production of turkey bird to fulfill the present consumer market demand. From the study it was also found that 51.67% consumer favored turkey meat and 5% consumer highly favored it, so better promotion and agricultural facilities may support to create a new poultry sector and market in Mymensingh city.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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## AUTHORS CONTRIBUTION

Conceptualization, S. Y.; supervision, S. Y.; methodology, N.S.; manuscript editing, M.I.H.; data collection, N.S.; data arrangement, N.S.; investigation, N.S.; writing original draft preparation, N.S.; writing review and editing, S.Y.

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