

Full Paper

The Effect of Socio-demographic Parameters and Economic Crisis on Meat Consumption and Purchasing Patterns among Undergraduates in Sri Lanka: A Study in Eastern University, Sri Lanka.

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Abstract

Even though the university student population is a critical generation in the future of a country, their actual food consumption patterns of this generation are little addressed. Therefore, the objectives of this present study are (1) to identify the effects of socio-demographic variables on meat consumption and purchasing patterns and (2) to investigate the effects of the recent economic crisis on meat consumption among university undergraduates in Sri Lanka. A pre-tested questionnaire was used to gather information from 195 undergraduates. There are 97.44% of respondents consume at least one type of meat. Only 2.56% of respondents do not consume any type of meat. Hence, they were all categorized as vegetarians. 85.13% of respondents have established their meat consumption pattern at the age before 10. The most preferred raw meat type is chicken and the processed meat product is sausages. The majority of respondents purchase both raw meat and processed meat once a week. There is no significant correlation between purchasing frequency and socio-demographic variables. However, Pork, beef, and mutton consumption has a significant correlation with religion. Health, preference, financial capability, and religious matters were the most popular reasons considered during the purchasing of meat. The majority of students are aware of knowledge regarding meat consumption and purchasing. Meat consumption of undergraduates dropped due to the economic crisis particularly families with lower income. Findings from this study may be helpful in properly organizing nutritional programs for undergraduates.

Keywords: awareness, consumption, income, meat, purchasing

Introduction

Meat consumption is one of the most crucial components of the human diet in many ways. One easy method to help the millions of individuals who are at risk of malnutrition improve their nutritional status is to increase their access to nutrient-rich animal-source foods, particularly meat [1]. Meat is an abundant source of proteins and micronutrients that make up a typical balanced diet [2]. Throughout many years of evolution, humans have consumed substantial amounts of lean meat [3]. The per capita meat consumption of Sri Lankans was higher for chicken (10.68 kg per head) followed by beef (1.20 kg per head), pork (0.44 kg per head), and mutton (0.15 kg per head) [4].

The process and actions people take when looking for, choosing, buying, assessing, and discarding things

to meet their requirements and make decisions are indicated by consumer behavior and preference [5, 6]. In order to understand the changes in consumer purchasing behavior and formulate a reliable forecast for the future growth of consumer demand, it is necessary to identify the aspects influencing consumers' patterns of buying meat and meat products [7]. According to Apata [8], a variety of variables might affect a region's preference and consumption pattern of meat and meat products, including culture, socioeconomic status, reference groups, and family decisions. Additionally, Dietz et al., (1995) reported that consumer behavior is influenced by a variety of economic, cultural, social, religious, marketing, and individual aspects [9].

Currently, Sri Lanka is going through a political and economic crisis. This continues with rising inflation and irregular protests across the nation [10]. Consumer behavior regarding the purchase and consumption of goods, particularly food products, is influenced by the economic crisis [11]. According to Slaby (2009), the primary social aspects of the crisis are the following: an increase in the unemployment rate, a decline in household income, changes in consumption patterns, behavioral changes, and serious states of anxiety and depression brought on by concerns about losing their jobs, having trouble finding new jobs, their financial situation getting worse, fearing they will lose their savings, or being unable to pay back loans [12]. The crisis worsens the labor market and people's financial situations, which causes consumption to decline and household consumption structures to deteriorate [11].

Universities are defined as communities having overarching unified physical facilities, educational activities, a kind of management, and a variety of services [13]. Furthermore, Ariyawansa (2013) stated that universities aid in the achievement of the following goals: "exchanging knowledge", "resolving social issues as a public service", "executing true and applied research", "training students for academic and professional sectors", "protecting culture", "improve students' physical strength, thinking skills, and controlling emotional feelings", and "improve students' demands including hostel facilities, food, and healthcare services". According to Perera and Madhujith [14], the younger generation in Sri Lanka, who fall within the 18 to 24 age range, frequently starts their higher education at this time by enrolling in universities. Although the majority of university students understood the value of a balanced diet, however, most of them did not follow a nutritional diet [15]. University students have a distinct lifestyle due to a multitude of factors such as leaving the family home, academic interests, the location of the campus and dorms, and restricted financial resources [16]. The proper well-being of university students improves the nation's future tremendously because they comprise a large portion of the population that drives a nation's development. As a result, the university is the best location for meeting the nutritional education needs of the entire young community [17]. However, their actual meat consumption pattern is still under investigation. The consumption and purchasing habits of meat and meat products among Sri Lankan university students have only been the subject of a relatively small number of research [18, 19]. The student community at universities in Sri Lanka is multicultural and multireligious. As a result, the goal of this study was to pinpoint the effect of socio-demographic factors on meat consumption and purchasing behaviors among undergraduates at the University in Sri Lanka and to explore the impact of the economic crisis on recent meat consumption among university students.

Materials and Methods

Undergraduates from all four batches at Eastern University in Sri Lanka were chosen to undertake the research. The judgment sampling method was used to choose and interview 195 respondents from six faculties at Eastern University in Sri Lanka who were staying in the hostel. The current investigation was carried out between 4th June and 25th August 2023. A pre-tested questionnaire was used to collect the data. The questionnaire was mainly based on the Socio-demographic aspects including “sex, age, locality, religion, monthly income of the family, family size, and living provinces”, meat consumption and purchasing attributes such as “preference of raw and processed meat, purchasing frequency, factor considered during the purchasing, awareness about meat consumption and safety measures”, and the effect of the economic crisis on meat consumption and purchasing pattern among undergraduates in Sri Lanka. The questionnaire data was analyzed using descriptive statistics and inferential statistics. The original data were processed using Microsoft Office Excel 2019. The Pearson correlation coefficient was used to examine the association between socio-demographic profile and meat consumption preference and purchasing frequencies. The chi-square test was used to examine the influence of the economic crisis on meat consumption and purchasing frequencies by hypothesizing there would be an impact of the economic crisis on meat consumption and purchasing frequencies. All the inferential statistics were done by SPSS 25.0 software package and the significances were considered at the level of $p < 0.05$.

Results and Discussion

Socio-demographic Characteristics

The list of socio-demographic characteristics of the studied population of undergraduates at Eastern University, Sri Lanka is displayed in Table 1. The sample included students from all four academic levels. The males and females contributed throughout the study at a percentage of 16.93 and 83.07, respectively. This was in line with earlier research that used the University of Ruhuna, Sri Lanka. It was claimed, that over 60% of the population under study was made up of women [17]. The age composition of the population revealed that 86.67% of respondents consisted of the age group 20–24 years and 13.33 % of the population were in the age group 25-29 years. The age of all the respondents is below 30 years. It indicates that all respondents were young people. Most of the undergraduate students who responded to this study represented the rural locality whereas the others represented the urban locality. Most of the respondents were Buddhists. This result was in agreement with Herath and Radampola (2016). Islam, Hindu, and Catholic religions are represented by 20.51%, 15.90%, and 7.18%, respectively. The majority of respondents said that their parents' monthly income is between Rs. 25,000-50,000. According to Herath and Radampola (2016), the majority of the respondents (46.67%) stated that their parental income exceeds the level of Rs. 25,000 per month and 23.33% belong to those who have an income level below Rs. 15,000 per month. On the other hand, 4.62% of respondents said that their parent's monthly income is more than Rs. 100,000. Hence, the present findings for the family income were aligned with the previous findings of Herath and Radampola (2016). The majority of the respondents (38%) said that they have four members in their family. The majority of respondents (27.18%) were from the Eastern province.

Table 1. Summary of socio-demographic characters in the studied population of undergraduates at Eastern University, Sri Lanka

Variables	Types	Percentage (%)
Sex	Male	16.93
	Female	83.07
Age	20-24 years	86.67
	25-29 years	13.33
Locality	Urban	42.05
	Rural	57.95
Religion	Buddhism	56.41
	Christian	7.18
	Islam	20.51
	Hindu	15.90
Monthly income of the family	Less than Rs. 25,000	30.26
	Rs. 25,000- 50,000	37.44
	Rs. 50,000- 75,000	15.38
	Rs. 75,000- 100,000	12.31
	More than Rs. 100,000	4.62
Family size	2	4
	3	11
	4	38
	5	31
	6	13
	7	3

Consumption Pattern of Raw and Processed Meats

The meat consumption pattern of the studied population of undergraduates in Sri Lanka is elaborated in Table 2. There were only 2.56% of the respondents claimed to be vegetarians and abstain from all types of meat. De Silva et al., (2011) revealed that 8.7% of respondents from the Southern province of Sri Lanka claimed themselves as vegetarian. Furthermore, all the vegetarians are female respondents which are closely agreed with the previous findings by Dietz et al., (1995). There were 97.44% of respondents stated that they consume at least one type of meat including chicken, pork, beef, or mutton. According to Jemziys and Sivarajah (2020), The majority of respondents (99.20%) were open to incorporating meat as a food item in their diets [20]. The eleven years of study by Beardsworth and Bryman (2004) revealed that meat avoidance was found to be relatively high early, albeit lately, the pattern seems to be decreasing in rejection of meat [21]. The 85.13% of respondents had started their meat consumption pattern before 10 years of age. De Silva et al., (2011) revealed that 85% of respondents' meat consumption in the Southern Province of Sri Lanka started in their childhood.

Table 2. Meat consumption pattern of the studied population of undergraduates in Sri Lanka

Variable	Variable Frequency (%)		
	Yes	No	
Vegetarian or not	2.56	97.44	
Age of started to eat meat	Age before 10 85.13	Age between 10-20 9.23	Age after 20 3.08

The present study revealed that there were 93% of respondents had their first preference for consumption of chicken followed by beef and mutton. There 24% of respondents had their second preference for the consumption of mutton followed by beef, pork, chicken, and others (Figure 1). Overall, the majority of the students consume chicken meat followed by mutton, beef, pork, and others. The commercial markets in Sri Lanka have a wide variety of red meat and white meat products, including beef, mutton, and chicken. However, compared to the consumption of chicken, beef, and mutton, pork is the driving force behind the global food pattern [22]. In contrast, the present survey found that the Sri Lankan undergraduates prefer chicken, mutton, and beef at varying rates rather than pork. According to the result of De Silva et al., (2011), the most preferred type of meat among the respondents of the southern province of Sri Lanka is chicken. This outcome may be related to the fact that chicken slaughtering is a daily occurrence in Sri Lanka, making chicken available to meet customers. Additionally, less restriction over chicken, than that beef and pork might be another reason for this as well [7].

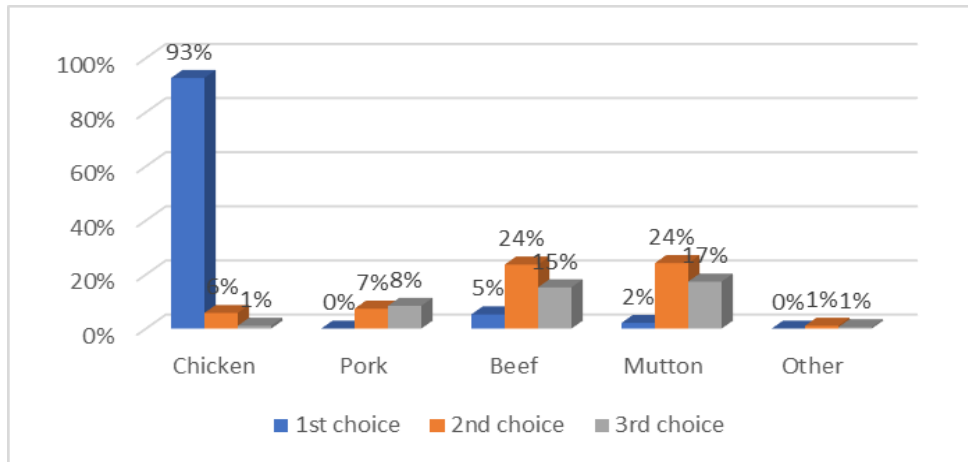


Figure 1. Preference for raw meat consumption among university students

Preference for processed meat products among university students is shown in Figure 2. There was 61% had their first preference for sausage as the processed meat product followed by meatballs, barbeque, ham, cured whole bacon, and salami represented by 42, 23, 7, 3, and 3%, respectively. Fast food has been increasingly popular among young people due to its convenience [23], low cost [24], and tasty dishes [25]. The significant changes in the public’s socio-demographic and socioeconomic status, including their lifestyle, age, education, and income, are motivating people to place a higher priority on processed foods [26]. However, 26% of respondents did not prefer any type of processed meat product. According to the result of De Silva et al., (2011), 42% of respondents said they never purchased any kind of processed meat. According to the result of Ortiz-Moncada (2019), the majority of Spanish undergraduates were

recommended processed meat products rather than fresh meat [27].

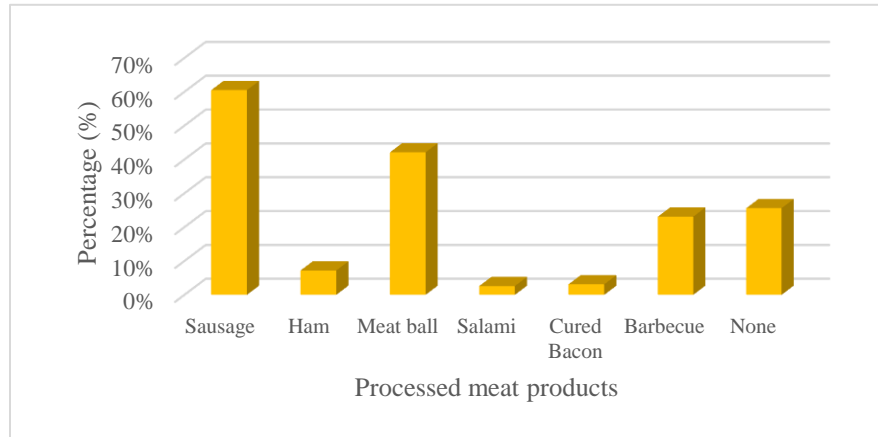


Figure 2. Preference for processed meat products among university students

Purchasing Pattern of Raw and Processed Meats

The meat purchasing frequency of undergraduates is shown in Table 3. The majority of respondents purchased raw meat once a week whereas the minority of respondents purchased raw meat daily. The result of Kiran (2018) indicated that the weekly intake of meat was the most common [28]. However, De Silva et al., (2011), reported that 29% of customers buy meat weekly, while 43% buy meat two or three times per each month. There was 37% of respondents purchased processed meat products once a week whereas 3% of respondents purchased processed meat products daily. These findings were closely similar to the findings of De Silva al., (2011).

Table 3. Meat purchasing frequency of the studied population of undergraduates in Sri Lanka

Variable	Variable frequency (%)				
Raw meat purchasing frequency	Daily	Once a week	Twice a week	Once a month	2/3 times per month
	2	42	28	14	11
Processed meat purchasing frequency	Daily	Once a week	Twice a week	Once a month	2/3 times per month
	3	37	18	27	15

The majority (57%) of respondents considered health during the purchasing of meat followed by preference (49%), financial capability (38%), religious matters (23%), availability (21%), and welfare and quality (18%), respectively (Figure 3). Price, earnings, taste, and preferences are the main factors influencing the pattern of meat consumption and purchasing [29]. The refraining from eating meat might be due to opposition to animal slaughter, religious views, and financial concerns [7].

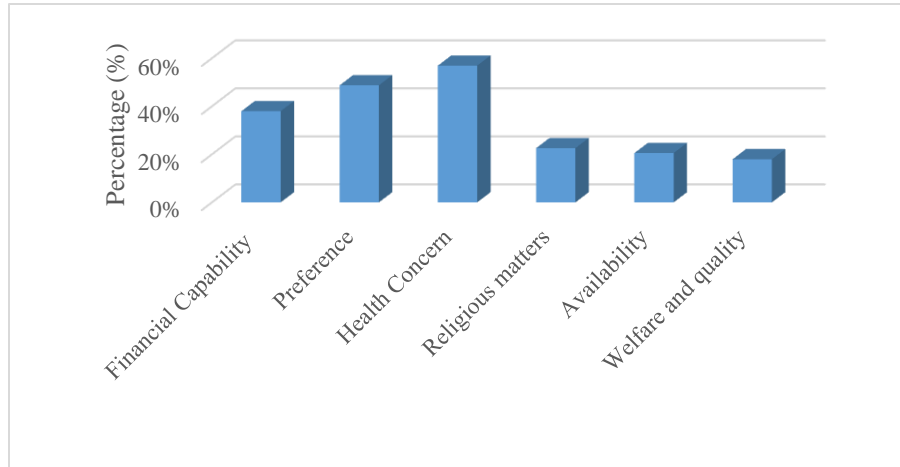


Figure 3. Factors considered during the purchasing of raw and processed meat

Correlation Matrix between Socio-demographic Factors and Meat Consumption Attributes and Purchasing Pattern

The correlations between socio-demographic factors and raw meat consumption as well as the frequency of raw and processed meat purchases are shown in Table 4. Pearson correlation test showed that there was no significant correlation ($p > 0.05$) between the purchasing frequency and socio-demographic variables tested during the present survey factors like age, sex, locality, religion, monthly income of the family, family size, and province of undergraduates. The findings of Ortiz-Moncada [27], demonstrate that there are differences in compliance with the suggestions for fresh and processed meat consumption with sex. However, most of the women reached the requirements for raw meat, on the other hand, most men reached the suggestions for meat that has been processed. Pork, beef, and mutton consumption has a significant correlation ($p < 0.05$) with religion. No Hindu undergraduates consume beef. On the other hand, Muslim undergraduates did not consume pork. According to Pettinger et al., (2004), religious beliefs have a significant impact on people's meat consumption habits. However, there was no significant correlation between pork, beef, and mutton consumption and other socio-demographic factors including age, locality, monthly income, and family size. Moreover, there was no significant correlation between chicken meat consumption and socio-demographic factors. Additionally, pork consumption was significantly correlated with the sex of the respondents as well mutton consumption was significantly correlated with the province of respondents. There were no women who followed Islam or Hinduism who consumed pork. However, De Silva et al., (2011) reported no Buddhist female respondents from the southern province consumed beef. The habits of individuals regarding meat consumption were unaffected by their place of residence [7].

Table 4. Correlation for socio-demographic factors with meat purchasing frequency and preference

Socio-demographic factors		Raw meat purchasing frequency	Processed meat purchasing frequency	Preference for meat types				
				Chicken	Pork	Beef	Mutton	Others
Age	r	-0.084	0.043	-0.044	-0.075	-0.027	0.027	0.014
	p	0.249	0.552	0.538	0.300	0.708	0.703	0.842
Sex	r	0.069	0.068	0.011	0.267**	0.087	0.105	0.096
	p	0.347	0.343	0.879	0.000	0.224	0.145	0.181
Locality	r	0.135	0.088	0.061	0.105	0.076	0.060	-0.039
	p	0.064	0.220	0.396	0.142	0.288	0.402	0.592
Religion	r	-0.022	-0.026	-0.060	0.193**	-0.263**	-0.375**	-0.028
	p	0.764	0.720	0.403	0.007	0.000	0.000	0.695
Monthly income of the family	r	-0.147*	-0.100	-0.019	-0.053	-0.093	-0.122	-0.083
	p	0.043	0.165	0.790	0.460	0.197	0.089	0.250
No. of family members	r	-0.035	-0.101	0.095	0.112	-0.181*	-0.134	-0.064
	p	0.631	0.160	0.185	0.120	0.011	0.062	0.371
Province of respondents	r	0.025	0.023	0.009	-0.085	0.126	0.231**	0.015
	p	0.735	0.754	0.901	0.238	0.078	0.001	0.834

r-Pearson correlation

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

State of awareness regarding meat consumption

Figure 4 depicts the level of knowledge and awareness among university students on meat consumption. There were 75 and 69% of the respondents were well aware of the high-quality protein content, and the micro-nutrient content of the meat, respectively. Following this, there were 58% of students aware that lean meat protein may support heart health. There was only 18% of the respondents claimed that they were completely unfamiliar with the Hazard Analysis and Critical Control Points (HACCP) system, which regulates the safety of foods, especially with meat and animal products. The majority of the students disagreed with the statements that the consumption of beef and pork is very harmful to health (38%) and consumption of chicken is less harmful to health (39%). However, 48% of respondents stated that overconsumption of meat causes illnesses. The findings of Ortiz-Moncada [27], Overweight (BMI more than 30) was found to increase with fresh meat intake. There was 40% of the students agreed with the statement that the consumption of meat is essential to satisfy the daily nutrient requirements of people. Even though 38% of the students stated that meat can be replaced by other food items. According to Apata [8], a large percentage of respondents disagreed vehemently that no constraints related to meat preference or consumption would prevent them from eating meat.

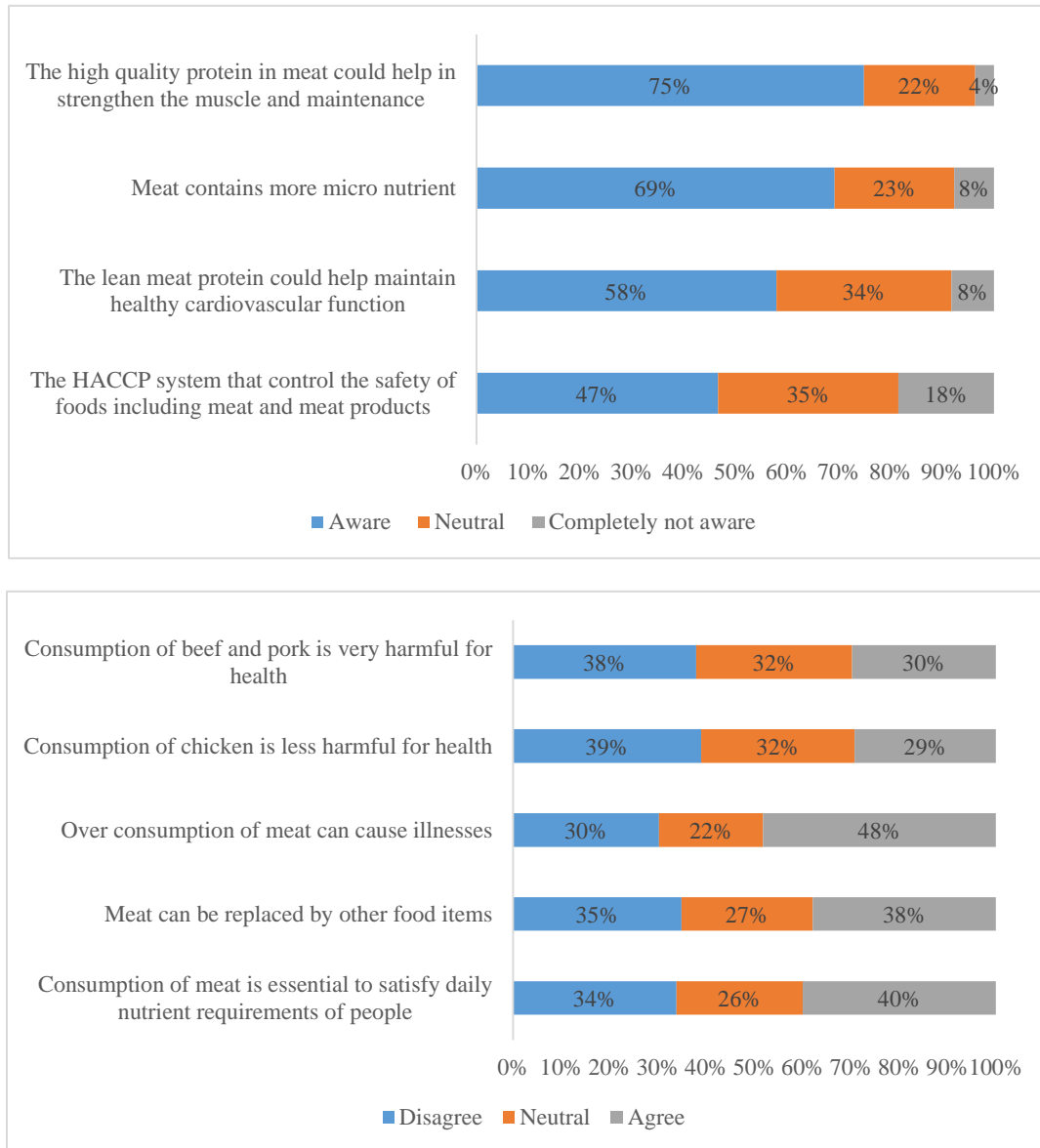


Figure 4. Level of knowledge and awareness among university students on meat consumption

Correlation Matrix for Different Variables with Awareness Regarding Meat Consumption and Purchasing

The correlations between awareness about meat consumption with variable characters are shown in Table 5. There was no significant correlation ($p>0.05$) between awareness regarding meat consumption and variables including sex, religion, and meat purchasing frequency. However, there was a significant correlation between the statements such as meat can be replaced by other food and Overconsumption of meat can cause illnesses. Meat can be replaced by other food and the consumption of chicken is less harmful to health while meat can also be replaced by beef and pork which is very harmful to health. Moreover, Jemziya and Sivarajah (2020) reported that a considerable percentage of the population was aware of health problems related to eating habits, such as heart disease, obesity, cancer, kidney failure,

and others [20].

Table 5. Correlation for awareness about meat consumption with variable factors

Variables/Awareness		Sex	Religion	Raw meat purchasing frequency	Processed meat purchasing frequency	Meat can be replaced by other food
HACCP system	r	0.021	-0.031	0.106	0.067	0.134
		0.765	0.668	0.144	0.352	0.063
The lean meat protein helps to maintain healthy cardiovascular function	r	-0.037	0.000	-0.031	0.105	0.024
		0.605	0.995	0.667	0.142	0.738
Meat contains more micronutrients	r	-0.081	-0.085	0.137	0.113	0.046
		0.260	0.240	0.059	0.117	0.528
Consumption of meat is essential to satisfy daily nutrient requirements of people	r	-0.042	0.072	0.074	0.051	0.469**
		0.558	0.315	0.312	0.477	0.000
Overconsumption of meat can cause illnesses	r	0.078	-0.018	-0.007	0.036	0.518**
		0.281	0.805	0.924	0.619	0.000
Consumption of chicken is less harmful to health	r	0.019	0.033	0.028	0.084	0.462**
		0.795	0.645	0.706	0.244	0.000
Consumption of beef and pork is very harmful to health	r	0.016	0.023	0.000	0.073	0.278**
		0.826	0.747	0.995	0.311	0.000

r-Pearson correlation

** Correlation is significant at the .01 level

* Correlation is significant at the .05 level

Impact of Economic Crisis on Recent Meat Consumption

There was a significant association observed between the monthly income of the respondent’s family and the impact of the economic crisis in Sri Lanka on the recent meat consumption ($\chi^2 = 93.091, p = 0.000, n = 195$) where all the respondents whose monthly income of family less than Rs. 25,000 reported that their meat consumption dropped during the economic crisis in Sri Lanka. A significant component that influences consumption level is household income, which is anticipated to have had a favorable impact [8]. The result of Abdalla (2013) demonstrated that in terms of income, most of the participants said it had declined since the start of the financial crisis and consumption of red and white meat both also fell [30]. The respondent’s family who made less than the minimal monthly income of Rs. 25,000 may find it difficult to eat meat because their income was so low and the high purchasing price of meat. Figure 5 shows the changes in meat consumption during the economic crisis in Sri Lanka. 82% of respondents expressed that their meat consumption dropped during the crisis, while only 2% of the respondents

reported that their meat consumption was enhanced during the economic crisis. There was no significant impact of the economic crisis on chicken meat ($\chi^2 = 0.250, p = 0.883, n = 195$) and beef ($\chi^2 = 2.518, p = 0.284, n = 195$) consumption.

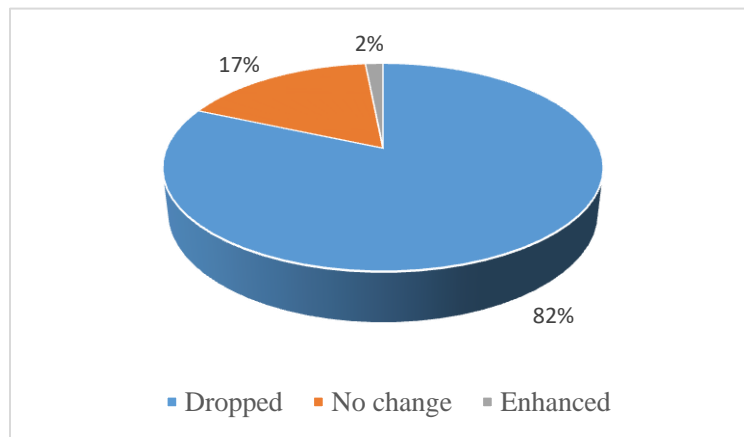


Figure 5. Change in meat consumption during the economic crisis in Sri Lanka

However, there was a significant association between the economic crisis with pork ($\chi^2 = 6.132, p = 0.047, n = 195$) and mutton ($\chi^2 = 7.857, p = 0.020, n = 195$) consumption. There were 63.16% and 68.63% of respondents reported that their pork and mutton dropped during the crisis, respectively. Kosicka-Gebaska and Gebski [11], reported that people pay more attention to the price of buying due to the economic crisis and Kosicka-Gebaska and Gebski [11] concluded that consumers reduced the level of meat consumption, increasing the level of consumption of cheap meat, and reducing the consumption of expensive meat due to economic crisis.

Conclusion

Most of the undergraduates consume both raw and processed meat. Religion is the most important socio-demographic factor that affects meat consumption, particularly the consumption of pork and beef. Meat consumption of undergraduates dropped due to the economic crisis particularly families with lower income. However, undergraduate awareness of the nutrient value of meat was satisfactory. The varieties of raw meat and processed meat products are especially crucial to avoid unbiased meat consumption by undergraduates. Conclusively, this study helps to organize proper nutritional programs to enhance the knowledge regarding meat consumption of university students. However, the present study did not concentrate considerably on the availability and diversity of meat products in the Sri Lankan university canteen. It will be suggested that the student meat consumption behavior on availability and diversity of meat product in the university canteen needs to be studied. Furthermore, future studies will be suggested to investigate the consumption and purchasing patterns of other food items by university undergraduates to draw an impactful image of whether they are having a balanced nutritious during their university career.

Conflicts of Interest

All the authors of this study state that there is no conflict of interest.

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