More Meat, More COVID-19 Cases? Comparative Study between USA and China in Importing Mutton

Maslichah Mafruchati

Department of Veterinary Anatomy, Faculty of Veterinary Medicine, Universitas Airlangga, Mulyorejo, C Campus, Surabaya, (60115), Indonesia
Email: maslichah-m@fkh.unair.ac.id

ABSTRACT

Mutton is known as a source of fat. Too much fat can cause high blood pressure and hypertension which is more vulnerable to get infected by COVID-19. This study has a purpose to observe if there is a correlation between meat consumption and the number of COVID cases in the USA and China. This study is a quantitative type method with secondary data as a sample. The samples are divided into two groups, report of mutton consumption, and report of positive coronavirus cases. The result shows that the total import number of mutton does not have any negative impact on COVID cases. Rather, the total number of imports itself could reduce the number of active case. It can be concluded that the higher the total number of mutton imports, the lower of active case of COVID-19.

INTRODUCTION

Meat can be processed into a variety of delicious and appetizing dishes. Meat becomes the main product in dairy consumption toward society. Meat is often used as a source of protein for people who have hard work and children in growing period. Besides, the iron content in meat can provide health benefits for people who have anemia, because it can help to produce more red blood cells. However, too much in consuming meat can be bad for health (Quintana Pacheco et al., 2018). Meat from sheep, or called as mutton, has more saturated fat than others which is hard to be digested by the body (Ivanović et al., 2016). This saturated fat contains a lot of LDL or low-density lipoprotein that will accumulate on the walls of blood vessels and block the blood circulation. Stroke is one of the diseases which are caused by blockage of blood vessel around the brains. If the LDL is accumulated in the artery, it will cause a heart attack. People who have the habit of consuming Saturated fat will be at risk of developing hypertension by 7.72 times than people who do not normally consume saturated fat (Siri-Tarino et al., 2010). People with hypertension are more vulnerable to get infected by COVID-19 than those who do not (Singh et al., 2020). The American Heart Association (AHA) records that people with high blood pressure may have a greater risk of complications if they are infected with the Covid-19 virus. Hypertension is an asymptomatic or silent killer that could damage important organs including the brain, heart, kidneys, large to small blood vessels. As a result, it reduces the immunity system for the body significantly as the functions of one or several organs are disrupted (Vicenzi et al., 2020).

United States of America (USA) becomes the country with the highest number of COVID cases in the world. One of the reasons it is due to the high number of population in the country, along with the late implementation of stoppage in allowing people from overseas in entering the country. Another reason because of the high number of hypertension in the USA. Among 5700 patients of COVID in the USA have more than 50% of hypertension rate, similar to the hypertension reported rate in China, the country with the first-rate of COVID cases (Geldsetzer, 2020). Luckily, the world is entering the 4th industrial revolution now, where any information in each country is connected through the internet (Wardhana, 2020). Big data is used to store and share information across the globe to solve the problem faster and more efficiently. As the COVID-19 become global pandemic, researchers and health experts around the world can do collaborative action easily to study the characteristic of the virus, the symptoms of the suspect, as well as the best medication to be conducted (Wang et al., 2020). Based on the background above, this study has a purpose to observe if there is a correlation between meat consumption and the number of COVID cases in the USA and China.

MATERIAL AND METHOD

This study is a quantitative research using secondary data as the source. The subjects of this study are the USA as the country with the biggest COVID case number, and China as the first country which experienced the pandemic. The samples are divided into two groups, report of mutton consumption, and report of positive coronavirus cases. The duration of the sample is taken from until June 2020. The duration of the sample of the USA is taken from January to June 2020 (Lin and Hou, 2020).

The samples are taken from several official website. The sales value of mutton in China data is taken from mla.com.au. The data of mutton consumption of the USA are taken from the United States Department of Agriculture (USDA) official website. The data about COVID number of cases are taken from worldometer website. The data are presented in the table based on the report taken from source websites (Prasetyo Adi Nugroh, 2020). The data about active COVID cases in worldometer are taken every 22nd of each month based on the maximum incubation period of COVID-19 in patients (Masrur et al., 2020). COVID-19 active cases in China

report started in January 2020, while the USA started to February 2020 (Lin and Hou, 2020).

RESULT AND DISCUSSION

Table 1. Total China mutton import

Month	Total of mutton import (Tonnes)
Nov/19	500-520
Dec/19	520-550
Jan/20	500-540
Feb/20	470-500
Mar/20	730-750
Apr/20	680-700
May/20	630-650
June/20	700-730

Source: https://www.mla.com.au/

The table above shows that March is the month where China imported mutton most, while January is the least. The first case of COVID-19 in China started in November 2019, but started to get serious in January, as the COVID-19 started to spread globally. It can be inferred from the table above that China is quite high in importing mutton meat which is recognized as meat with high fat.

Table 2. Number of active cases of Covid-19 in China

Day/Month/Year	Total active cases of COVID - 19
22 Jan 2020	554
22 Feb 2020	52.093
22 Mar 2020	5120
22 Apr 2020	1005
22 May 2020	82
22 Jun 2020	349

Source: https://www.worldometers.info/

The table above shows that the number of COVID cases reached its peak in February. The number of active cases increased a hundred times higher than in January. But China amazingly decreased the number ten times lower in the next month, then reduced again several times lower. China as the new country where COVID-19 was started has been locked down in its country in February to prevent the infection become worsening (Wang and Xie, 2020). As a result, China now is more prepared in dealing with COVID-19 cases than any other country in the world. It can be inferred from the real data on the internet that China now is almost free from the COVID-19 case and excluded from the top list of the countries with a high number of active cases (Huang et al., 2020).

If compared to table 1, the rising number of active COVID cases in China with the number of imports is not related at all. The number of mutton imports in February is much lower than March, but the active COVID case increased sharply. Whereas March as the month with the highest number of imports has ten times lower of active COVID case than February. May is the least active case than the other month, although the number of imports is higher than in February. It can be concluded that despite mutton bring harmful effects to people, mutton can give good nutrition needed to maintain health (Oyadeyi et al., 2017). Mutton is an excellent source of heme iron or iron substance from animal, which is superior to iron obtained from plant (non-heme) sources. Heme iron is absorbed

significantly better than non-heme iron, to support the synthesis of red blood cells inside the body (Siri-Tarino et al., 2010). The consumption of heme iron from mutton can meet the requirement of nutritional goals for anemia. Moreover, mutton, contains *glutathione* which could help the ingestion process of fiber to prevent free radiation which could harm human organs (Dabbagh-Moghadam et al., 2017). Many people falsely recognize mutton as a part of goat meat/chevon, despite some striking differences, such as its fragrance. Mutton is commonly obtained from lamb or sheep which has 12 months of age or younger, while goat meat is obtained from older animals (Islam et al., 2018). Meat from mutton is tenderer than the meat from goat due to differences in the size and fibers of the meat. As a result, mutton can be digested easier than goat meat which is helpful for elders who have a weaker digestion system than young people (Hwang et al., 2018).

Table 3. Total USA mutton import

Date	Total of mutton import (pounds)
Feb/20	12.900
Mar/20	17.408
Apr/20	10.921
May/20	6.294
Jun/20	2.505
July/20	2.147

Source: https://www.ers.usda.gov/

The table above shows that the USA biggest month of import case was in March, while the last one was in July. The USA uses a standard of measurement of weight in pounds, different from Asian and European countries.

Table 4. Number of active cases of Covid-19 in USA

Day/month/year	Total active cases of COVID - 19
22 Jan 2020	5
22 Feb 2020	29
22 Mar 2020	34.885
22 Apr 2020	727.027
22 May 2020	1.103.724
22 Jun 2020	1.240.665
22 July 2020	2.028.008

Source: https://www.worldometers.info/

The table above shows that the number of active case of COVID kept increasing each month in the USA. The highest month is Jun, where the active case reached more than 1,2 million. January as the new month of the year is the least of active case. If table 4 is compared to table 3, it can be seen that there is no correlation between the significant increase in the number of active cases with the number of import of mutton in the USA. In table 3 March was the month with the biggest number of total imports of mutton. But the active case was far lower than in July which has the biggest number of active case. On the

contrary, July was the least number in total imports but the highest number of active case. It can be concluded that the least total import of mutton, the higher the active cases was.

Mutton contains anti-inflammatory properties. Therefore, consuming mutton can inhibit inflammation in the blood vessels and stabilize the heart rate. COVID-19 can cause an immune response which could trigger inflammation throughout the body. Inflammation affects blood circulation and reduces the amount of oxygen to the heart (McAfee et al., 2010). Inflammation also causes artery walls to narrow due to the presence of fatty acids, causing blood clots. Clogged blood vessels can cause a heart attack. As a result, COVID-19 can accelerate inflammation faster which could end patients life, especially for elders (Rothan and Byrareddy, 2020).

The supply of mutton in daily consumption is good enough as anti-inflammation to prevent lack of oxygen and heart attack. Moreover, mutton from younger sheep such as lamb contains L-carnosine. In 100 grams of lamb, the average contains 400 mg of L-Carnosine, higher than beef which is only 365 mg. L-Carnosine is a compound that contains two amino acids (proteins), namely beta-alanine and histidine (Qi et al., 2018). L-carnosine has anti-atherosclerotic effects that can prevent the body against cardiovascular disease. Besides, L-Carnosine can reduce the glycation of sugar and protein in the body (Koeth et al., 2013). China has done strict regulation to cope with the COVID-19 such as built numerous temporary hospitals for patients of COVID-19, and banned any trip which has overseas route. Different from the USA which claimed no COVID case in the early year of 2020. Moreover, the chaos and demonstration as a result of the George Floyd case causes the dissemination of COVID much faster (Yamey and Gonsalves, 2020). Even though China has the biggest number of population in the world, the keys to implementing correct medical protocol is the key to prevent more dissemination of virus (Wu et al., 2020).

CONCLUSION

Based on the result above, it can be concluded that the total import number of mutton does not have any negative impact on COVID cases. Rather, the total number of imports itself could reduce the number of active case. The data above shows that even though July was the least number in importing mutton in the USA, the active case was increased several times. Similar to the USA, the data about China's total import of mutton also has no negative impact on active cases. Mutton, itself has some health benefits which can help the body to prevent being infected by coronavirus.

REFERENCES

1. Dabbagh-Moghadam, A., Mozaffari-Khosravi, H., Nasiri, M., Miri, A., Rahdar, M., Sadeghi, O., 2017. Association of white and red meat consumption with general and abdominal obesity: a cross-sectional study among a population of Iranian military families in 2016. Eat. Weight Disord. Anorexia, Bulim. Obes. 22, 717–724.
2. Geldsetzer, P., 2020. Knowledge and perceptions of COVID-19 among the general public in the United States and the United Kingdom: A cross-sectional online survey. Ann. Intern. Med.
3. Huang, Y., Lin, C., Wang, P., Xu, Z., 2020. Saving China from the Coronavirus and Economic Meltdown: Experiences and Lessons. Available SSRN 3570696.
4. Hwang, Y.-H., Bakhsh, A., Ismail, I., Lee, J.-G., Joo, S.-T., 2018. Effects of intensive alfalfa feeding on meat quality and fatty acid profile of Korean native black goats. Korean J. food Sci. Anim. Resour. 38, 1092.
5. Islam, M.J., Sayeed, M.A., Akhtar, S., Hossain, M.S., Liza, A.A., 2018. Consumers profile analysis towards chicken, beef, mutton, fish and egg consumption in Bangladesh. Br. Food J.
6. Ivanović, S., Pavlović, I., Pisinov, B., 2016. The quality of goat meat and it's impact on human health. Biotechnol. Anim. Husb. 32, 111–122.
7. Koeth, R.A., Wang, Z., Levison, B.S., Buffa, J.A., Org, E., Sheehy, B.T., Britt, E.B., Fu, X., Wu, Y., Li, L., 2013. Intestinal microbiota metabolism of L-carnitine, a nutrient in red meat, promotes atherosclerosis. Nat. Med. 19, 576–585.
8. Lin, L., Hou, Z., 2020. Combat COVID-19 with artificial intelligence and big data. J. Travel Med.
9. Masrur, A., Yu, M., Luo, W., Dewan, A., 2020. Space-time patterns, change, and propagation of COVID-19 risk relative to the intervention scenarios in Bangladesh. Int. J. Environ. Res. Public Health 17, 5911.
10. McAfee, A.J., McSorley, E.M., Cuskelly, G.J., Moss, B.W., Wallace, J.M.W., Bonham, M.P., Fearon, A.M., 2010. Red meat consumption: An overview of the risks and benefits. Meat Sci. 84, 1–13.
11. Oyadeyi, O.S., Oyinlola, O.O., Olusola, O.O., 2017. Comparative assessment of beef, chevon and mutton biltong cured with ocimum gratissimum paste.
12. Prasetyo Adi Nugroh, I.M.N., 2020. Depiction of connection between library and information science in articles published by universitas airlangga's academics. Int. J. Innov. Creat. Chang. 12, 963–976.
13. Qi, B., Wang, J., Ma, Y., Wu, S., Qi, G., Zhang, H., 2018. Effect of dietary β-alanine supplementation on growth performance, meat quality, carnosine content, and gene expression of carnosine-related enzymes in broilers. Poult. Sci. 97, 1220–1228.
14. Quintana Pacheco, D.A., Sookthai, D., Wittenbecher, C., Graf, M.E., Schübel, R., Johnson, T., Katzke, V., Jakszyn, P., Kaaks, R., Kühn, T., 2018. Red meat consumption and risk of cardiovascular diseases—is increased iron load a possible link? Am. J. Clin. Nutr. 107, 113–119.
15. Rothan, H.A., Byrareddy, S.N., 2020. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. J. Autoimmun. 102433.

16. Singh, A.K., Gupta, R., Misra, A., 2020. Comorbidities in COVID-19: Outcomes in hypertensive cohort and controversies with renin angiotensin system blockers. Diabetes Metab. Syndr. Clin. Res. Rev.

17. Siri-Tarino, P.W., Sun, Q., Hu, F.B., Krauss, R.M., 2010. Saturated fat, carbohydrate, and cardiovascular disease. Am. J. Clin. Nutr. 91, 502–509.

18. Vicenzi, M., Di Cosola, R., Ruscica, M., Ratti, A., Rota, I., Rota, F., Bollati, V., Aliberti, S., Blasi, F., 2020. The liaison between respiratory failure and high blood pressure: evidence from COVID-19 patients. Eur. Respir. J.

19. Wang, C.J., Ng, C.Y., Brook, R.H., 2020. Response to COVID-19 in Taiwan: big data analytics, new technology, and proactive testing. Jama 323, 1341–1342.

20. Wang, X., Xie, X., 2020. Research on the Uniqueness and Characteristic Development of University Library Cultural Services: Practices at Wuhan University Library. Int. J. Libr. Inf. Serv. 9, 52–65.

21. Wardhana, A.K., 2020. Information search trends about sharia: a comparation study between business-industry genre with book-literature genre. J. Halal Prod. Res. 3, 35–42.

22. Wu, J.T., Leung, K., Bushman, M., Kishore, N., Niehus, R., de Salazar, P.M., Cowling, B.J., Lipsitch, M., Leung, G.M., 2020. Estimating clinical severity of COVID-19 from the transmission dynamics in Wuhan, China. Nat. Med. 26, 506–510.

23. Yamey, G., Gonsalves, G., 2020. Donald Trump: a political determinant of covid-19.