

Duck Meat, Delicious yet low in Unsaturated Fat; Comparative Study between Duck Meat Consumption in ASEAN toward the Number of COVID Cases

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ABSTRACT

Duck is a source of protein as well as one of the most delicious poultry meats. Duck meat has useful nutrition as well as dangerous cholesterol COVID-19 can worsen the diseases caused by cholesterol. This study has an aim to observe if there is any correlation between duck meat consumption and production toward COVID-19 case. This study uses secondary data as the primary source of data for research. The sample are 5 ASEAN with potential duck market such as Indonesia, Philippine, Vietnam, Cambodia, and Thailand. The sample is divided into three, the number of duck meat production, meat consumption, and number of COVID-19 cases. The result shows that the number of consumptions correlates with the number of deaths. Thus, how processing duck into dishes also affects the cholesterol rate of the meat. The more cholesterol, the worse for the body and can lead to death as a result of COVID-19. the number of productions does not correlate with the COVID-19 case, but to the Numbers of consumption.

Keywords: Cholesterol, Covid-19, Duck, Death.

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INTRODUCTION

Red meat is one of the sources of protein that is needed for growth and replaces injured muscle tissues. Red meat is popular as the main dish in every part of the world, especially for festival. Red meat is considered an important ingredient besides staple food such as rice, wheat, corn, cassava, and cereal to add delicious taste so that it can boost food appetite. Red meat also a source of iron which is needed to stimulate the blood vessel to create more red blood cells (Cashman & Hayes, 2017).

Popular red meat includes mammals and poultry. Mammals such as cows, buffalos, sheep, goats, and pigs have supplied a huge amount of red meat in the global market. Poultry consists of meat from walking birds or domestic fowl such as duck broiler chicken, swan, quail, duck, pigeon, and turkey (Surai *et al.*, 2017). Poultry is not supplied as much as mammals per animal. But the reproduction rate of poultry which is several times higher than cattle of mammals makes poultry more available in the market (Alagawany *et al.*, 2019).

Duck is one of the poultry which has less unsaturated fat. Duck a considered domesticated bird that cannot fly, different from wild duck. Duck has more savory flavor than other poultry such as broiler chicken, quail, turkey, and pigeon. Moreover, duck has nutrition which can increase the immunity system of the body (Banaszak *et al.*, 2020)

ASEAN has a strong agricultural sector which are reflected in their gross domestic product, as well as a total of export product from agriculture. Moreover, in 5 years, ASEAN domestic product from the agriculture sector has been considerably increased, especially the product of basic needs (Esquivias, 2017). Based on the background above, this study has a purpose to observe if there is a correlation between the number of duck meat

production and consumption in ASEAN toward COVID-19 cases in ASEAN.

MATERIAL AND METHOD

This study considered a quantitative study, using secondary data as the main source of the data sample. The data are taken from the free statistic website which can be taken by the public. The samples are divided into two types, report of duck production, and the number of positive COVID-19 cases in each country. The duration of the sample of duck consumption report started from 2014 to 2018, counted as 5 years period to see the progress of the duck consumption rate. The duration of COVID-19 data is started from the beginning of 2020 until recently in October 2020 (Schmid *et al.*, 2017)

The data of the duck production are gathered from ourworldindata.org. Our World Data Company provides various data on global product consumption such as food, manufacture, natural resources, and technology. the number of COVID-19 case which is taken from the Worldometer website as the information provider of Global COVID-19 data (Wardhana, 2020). The data about COVID-19 are a total of death cases, a total of positive cases, and total recovered, from the new year until the 2nd of November 2020. The data of duck meat and the number of COVID-19 cases will be presented in the table (Wyness, 2016).

There are 5 countries data of duck production used as samples. Those are Indonesia, Thailand, Vietnam, Philippine, and Cambodia. Those countries are selected because they have the biggest GDP and export rate in the agricultural sector (Esquivias, 2017).

RESULT AND DISCUSSION

Table 1 Total of Duck Meat production in ASEAN during 2014-2018

Country	Year	Total of production (tonnes)
Cambodia	2014	9336
	2015	9336
	2016	9411
	2017	9901
	2018	10.007
Indonesia	2014	33178
	2015	34854
	2016	41867
	2017	43156
	2018	44059
Philippine	2014	34610
	2015	33940
	2016	33823
	2017	32752
	2018	32934
Thailand	2014	56178
	2015	54070
	2016	49292
	2017	53180
	2018	52181
Vietnam	2014	97546
	2015	94857
	2016	101466
	2017	105207
	2018	107444

Source: ourworldindata.org

The table above shows that Vietnam has the biggest number in duck meat production. Approximately, 72 million ducks are slaughtered in Vietnam in 2010. it means that duck is popular as local food. Moreover, duck has more resilient to disease than broiler chicken or quail, makes it a favorable poultry by farmer

Vietnam has various distinct duck dishes for domestic and overseas tourists. One of them is Bún măng vịt. It is the duck soup with bamboo shoot mixed with fresh herbs such as ginger, perilla, cilantro, and mint (Dao, 2019). According to a study by Mao *et al* using 2.2 grams of ground ginger per day on 41 participants with type 2 diabetes, 2 grams of powdered ginger per day, ginger successfully lowered HbA1c, a marker of long-term sugar levels, showing a decrease of 10% and blood sugar levels by 12%. in 12 weeks (Mao *et al.*, 2019). Ginger is also needed during the pandemic of COVID-19. Fresh ginger has antiviral against Respiratory Syncytial Virus as a

cause of infection in the respiratory tract. Respiratory Syncytial Virus causes symptoms such as shortness of breath, dry cough, headache, fever, and not feeling well like flu (Anwar *et al.*, 2018).

Another distinct dish is Tiet Canh vit, made from duck meat and blood. It also uses Vietnamese coriander, lemon leaves, basil, and mint as the ingredient (Nguyen-Viet *et al.*, 2019). Vietnamese coriander has many health benefits such as to treat diarrhea, flu, and works as an anti-fungal for ointment against fungus in toes, as well as an antidote for snakebite (Lego *et al.*, 2017). Moreover, mint is good to boost the digestive system, since 75% of the immunity system of the body depends on the condition of the digestive system As a result, the dish is popular to be consumed as an alternative treatment to increase the immunity system against COVID-19 which is mainly attack respiratory system (Brahmi *et al.*, 2018).

Table 2. Total of Duck Meat Consumption in ASEAN during 2014-2017

Country	Year	Total of consumption (kilos)
Cambodia	2014	1.72
	2015	1.66
	2016	1.74
	2017	2.34
Indonesia	2014	6.40
	2015	6.62
	2016	7.42
	2017	7.19

Philippine	2014	12.56
	2015	13.04
	2016	13.78
	2017	13.87
Thailand	2014	12.95
	2015	12.67
	2016	13.25
	2017	14.49
Vietnam	2014	13.28
	2015	15.16
	2016	13.52
	2017	12.33

The table above shows that the number of consumptions far below the number of productions. Philippine, Thailand, and Vietnam are still competitive as the top country both in producing, as well as consuming duck. Moreover, the number of productions is counted in thousands of tonnes, while the number of consumptions is counted in kilograms, lower than 50 kilos. It means that duck consumed very little in ASEAN itself, despite abundance stock. One of the reasons because duck has a high price in the market, so that only wealthy class could afford in purchasing it (Lusk & Tonsor, 2016). Another reason is because duck is the favored commodity of export outside ASEAN. Duck in the global market reached 19 billion dollars in profit in 2018. As a result, the price of duck suddenly raised because of the export demand. Moreover, duck supply is not as much as broiler chicken, because duck cannot grow as fast as chicken.

Duck is also commonly raised as egg producer, not as a meat supplier like broiler chicken which can be slaughtered at young ages (Sasmal *et al.*, n.d.). Duck is raised more for egg producers because its egg has more nutrition and benefit than chicken's egg. One of the benefits is eggs from ducks contain more albumin than chicken eggs. Albumin or white egg is the main raw material that is always needed in the process of making cakes, cakes, or ice cream (Kuźniacka *et al.*, 2020). Albumin not only can make the dough texture softer and crunchier but also give it a more savory and delicious taste. For nutrition, duck eggs contain more omega 3 acids than chicken eggs. Omega-3 contained in duck eggs is about 71.4 milligrams, while chicken eggs are only 37 milligrams. Omega -3 is important for the growth of brain cells, especially for children under age (Banaszak *et al.*, 2020).

Table 3. Number of COVID-19 case in ASEAN

Country	Total of death case	Total of active case	Total of recovered
Indonesia	14044	55792	345566
Thailand	59	133	3596
Philippine	7269	29301	348830
Cambodia	0	9	283
Vietnam	35	82	1063

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

The table above shows that Indonesia has the biggest number in 3 criteria of COVID-19 cases. Although Indonesia people consume duck meat lower than other, the number of COVID-19 case is the highest among those 6 countries. Indonesia also one of the lowest countries in duck production among 6 countries above. Philippine is the biggest in any number of COVID-19 cases. The table above also shows that Cambodia has zero death in death cases. Cambodia has the lowest number both in production as well as consumption in duck meat than other countries above. Even though duck fat is lower than beef, duck fat can trigger diabetes (Banaszak *et al.*, 2020). Besides, duck fat has a savory taste when compared to other poultry or even meat from mammals when processed by frying, so that it can further trigger appetite. As a result, the consumption of duck meat will be more, thus triggering various complications, such as vision problems, infections, kidney failure, and heart failure (Zhou *et al.*, 2018). COVID-19 can make diabetes worsening and led to the death of the suffered person. Cambodia which has zero

death and only 9 active cases means that they are not interested in consuming duck. But the interesting fact that the Philippine has the biggest number in 3 types of COVID-19 case, even though that Thailand and Vietnam have quite the same number in consumption. The table above also shows that Indonesia which has the 2nd lowest number of duck meat consumption has the biggest Numbers of death cases, but lower in recovered cases than Philippine. It can be inferred from the table above that although duck meat has many benefits, the way to process it into dishes has a significant impact on the cholesterol rate and fat (Hsu *et al.*, 2020). Although the Philippine has big number of death cases, it also has a bigger number of recovered cases, bigger than Indonesia. The bigger number of recovered rates means that the country has better medical treatment toward COVID19 or has many alternatives of herb and remedy to be used as treatment. Philippine has distinct duck dishes for domestic and overseas tourists. One of them is the fertilized embryo of a duck known as balut. It is like a normal egg but with an embryo inside. The taste similar

to chicken soup but with a stronger flavor (Alejandria *et al.*, 2019). Balut contains more protein and iron since it was the embryo of a duck inside the egg, rather than a normal egg. Balut has low fat and rich in protein which is needed for the recovery process (De Vergara *et al.*, 2020). In Indonesia, duck is commonly cooked by fried it first, rather than steamed or boiled. This will make the skin crunchy and the meat becomes oilier to get a stronger flavor. The skin of duck has more fat than other poultry (Febriani, 2015). Thus, duck meat which is fried with bulk oil which is used to fry several times before can increase the cholesterol level inside duck meat several-fold. The cholesterol will be accumulated inside the artery and can clog the blood circulation, causes sudden heart attack. Food with used fried oil will also increase the diabetic level significantly (Özcan *et al.*, 2019).

Thailand also has a few numbers in the death case. Thailand duck is used in dishes contains broth with soy milk or roasted with chili. One of the most famous dishes is Thai orange duck which used soy milk as broth. The duck itself is boiled so that it won't contain too much oil and fat. Duck meat is mixed with bamboo shoots as a vegetable to balance the heavy taste of duck (Padoongpatt, 2017).

Duck meat has many benefits, but the incorrect way to cook it will cause more fat to be accumulated. Duck skin, innards, and meat from the thigh has the biggest cholesterol content. Meat on a duck thigh contains about 70-80 mg. The maximum limit of cholesterol intake in the body per day is only around 300 mg (Peng *et al.*, 2020). this does not include if the duck meat is fried in bulk oil. Consequently, the remaining cholesterol will be stored in the walls of the arteries (Daniels *et al.*, 2017)

CONCLUSION

Based on the result above, it can be concluded that the number of consumptions of duck meat affect the number of death case in a country. The number of productions does not affect the number of deaths, but the number of consumptions, since the more supply available, the more consumption is. The result above also shows that the way to process duck meat into dishes affects the health, which leads to death, infected by COVID-19, or recovered. It can be seen from Indonesia which has lower number of consumption but has the highest number of deaths. Vietnam consumes more duck than Indonesia but has a lower death rate because the duck dishes mainly use herb, and the meat is processed not by frying.

ACKNOWLEDGEMENT

This study does not use any participant as the main sample. it uses secondary data from a website that provides a free sample of secondary data. This study is conducted by following ethical research principles based on the regulation of the research ethics committee. The authors guarantee that there will be no conflict of interest in the future related to this study. The university will cover the processing charge of the journal, while any of the operational costs have been paid using the author's funds.

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