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## **DIFFERENCES IN VEGETABLE AND FRUIT CONSUMPTION BETWEEN MALE AND FEMALE FARMERS: DATA ANALYSIS OF THE INTEGRATED NON-COMMUNICABLE DISEASES (NCD) JENGGAWAH PUBLIC HEALTH CENTER, JEMBER REGENCY 2021**

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### **ABSTRACT**

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To prevent the incidence of non-communicable diseases and maintain the health status of the Indonesian population, the Indonesian government created the Integrated Non-Communicable Disease Development Post program (Directorate General of Disease Control and Environmental Health, 2014). In general, the purpose of this study was to analyze the differences in the consumption of vegetables and fruit between male and female farmers in the Jenggawah sub-district, Jember district. This research can be used as a source of information regarding farmers' consumption of vegetables and fruit and the differences when viewed by gender. The research design was comparative quantitative with a retrospective approach using secondary data. In this study, an analysis of the difference in consumption of vegetables and fruit was carried out on male and female farmers. This study analyzes secondary data from performance reports on the implementation of PTM Posbindu in the work area of sJenggawah Health Center in 2021, namely February-June and August-October. Based on the results of the research discussed in this study, it was found that there were differences in the consumption of vegetables and fruit between male farmers and female farmers at the PTM Posbindu Puskesmas Jenggawah. The majority of male farmers were identified as having poor eating behavior on the type of fiber per day. Men should eat at least 37 grams of fiber per day based on the nutritional adequacy rate table. Most female farmers (69%) were identified as having good eating behavior, namely 30g of fiber per day, per the nutritional adequacy rate table.

#### **Keywords:**

Fruits and vegetable consumption, Non-communicable disease, Posbindu

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### **BACKGROUND**

Adequate intake of fruits and vegetables is considered an essential option for disease prevention and

optimal health. Increasing evidence shows that consuming fruits and vegetables prevents weight gain and reduces the incidence of type 2 diabetes and the risk of cancer, certain eye diseases, dementia, and

osteoporosis. In a recent multi-country Prospective Urban and Rural Epidemiology (PURE) study involving low-, middle- and high-income countries, consumption of higher portions of fruits and vegetables indicated a reduced risk for cancer and cardiovascular mortality. An increased fruit and vegetable consumption proportion is also linked to a decrease in all-cause mortality (Oyebode et al., 2014).

Non-communicable diseases have become the leading cause of death worldwide due to delays in handling non-communicable diseases that do not have specific clinical signs that make a person unaware of the situation (Direktorat Lingkungan RI., 2014). There are almost 71% of deaths in the world and 36 million deaths per year due to non-communicable diseases (Kementerian Kesehatan RI, 2020). Hypertension and diabetes are included in the non-communicable diseases that continue to increase. In Southeast Asia, 1/3 of the population suffers from hypertension (Kalsum, Lesmana & Pertiwi, 2019), while increasing diabetes makes Indonesia number 7 in the world (Nugroho, Kurniasari & Noviani, 2019). It can be concluded that diabetes and hypertension are non-communicable diseases that often occur and are found especially in Indonesia.

Hypertension and diabetes are health problems of non-communicable diseases that are also susceptible to occur in farmers, including rural communities and at-risk populations. This problem is due to many factors, including economic, physical, workload, lifestyle, and sociodemographic characteristics (Susanto & Rahmawati, 2020). In Indonesia, the prevalence of diabetes mellitus is 1.2% of the population with farmer jobs, and in East Java, it is 1.62% (Risksedes, 2020). In a study conducted by (Saputri, Setiuani & Astoria, 2018) using puskesmas data, 41 farmers who suffered from type 2 diabetes mellitus, where about 70.73% were female. While the prevalence of farmers with hypertension in Indonesia is 7.46%, and in East Java, the population with farmer occupations is the second most affected with hypertension, which is 15.04%. In a study conducted by (Andriani et al., 2020), farmers in the work area of the puskesmas with hypertension were found to be 131 of which 54.2% were male. It can be concluded that there are differences in the prevalence of hypertension and diabetes between the male and female sexes.

Diabetes mellitus and hypertension are non-communicable diseases caused by several factors, one of which is a lifestyle factor of lack of consumption of vegetables and fruit. Factors that influence the consumption of vegetables and fruit include the number

of family members, family economic status, education level, family work status and gender (Hanani et al., 2016). Gender is a biological factor of an individual that cannot be modified; physiologically, there are differences in the structure and function of hormones between men and women (Guyton & Hall, 2011). Hormones can affect mood in food choices. In addition, gender is related to cooking skills; according to (Tani et al., 2020) women have higher cooking skills which can affect the habit of consuming healthy food. Therefore, knowing the factors of differences in the consumption of vegetables and fruit among farmers can help in efforts to increase the consumption of vegetables and fruits by farmers, which is expected to reduce the risk factors for PTM in Indonesia.

As an effort to prevent the incidence of non-communicable diseases and maintain the health status of the Indonesian population, the Indonesian government created the Integrated Non-Communicable Disease Development Post program (Directorate General of Disease Control and Environmental Health, 2014). Posbindu PTM is a form of activity for early detection and monitoring of risk factors for non-communicable diseases that are carried out in an integrated, routine, and periodic manner with the help of the community's role (Fuadah, 2018). There are 10 forms of activities from Posbindu, including measuring weight and height, checking lung function, checking blood sugar, checking cholesterol, counseling, exercising together, and interviewing activities to explore information related to risk factors for non-communicable diseases, one of which is a lifestyle of vegetable consumption and fruit (Directorate General of Disease Prevention and Control, 2019).

A preliminary study based on the results of the report from the PTM Posbindu at the Jenggawah Health Center starting from July - September 2019 found that cases of female farmers with non-communicable diseases, hypertension and diabetes increased every month, this was inversely proportional to the case of male farmers who experienced a decline. Where in July, 75% of the patients were female farmers and 25% male farmers, for August, 83% were female farmers and 17% were male farmers, and for September, all sufferers were female farmers. Based on these data, it was found that there were differences in patients with non-communicable diseases, which were more female farmers than male farmers. One of the risk factors for non-communicable diseases is the lifestyle of consuming vegetables and fruits.

For this reason, researchers want to examine

whether there are differences in the consumption of vegetables and fruits by male and female farmers in the working area of the Jenggawah Health Center, Jember Regency.

## METHOD

The research design was comparative quantitative with a retrospective approach using secondary data. In this study, an analysis of the difference in consumption of vegetables and fruit was carried out on male and female farmers. The research location was carried out in the work area of the Jenggawah Health Center, Jember Regency, East Java Province, taking time from September 2020 to September 2021. The population used were PTM Posbindu participants from 3 Pustu working areas of the Jenggawah Health Center (Cangkring, Jenggawah, and Wonojati). Whose names are registered at the Posbindu activities in 2021, totaling 286 people. The sample of this research is the data of farmers who are registered in the PTM Posbindu activities in 2021 and are in accordance with the inclusion and exclusion criteria.

There were 108 participants identified with non-farmer jobs, 35 data participants who were not in the age range 15-59 years, and there were 38 data with visits not in 3 consecutive months (data collection for 3 consecutive months based on book reference criteria). A sample of 105 farmer data was obtained in 2021. In this study, the first analysis used was univariate to describe the data on the characteristics of respondents that had been obtained, such as age, education, marital status, history of PTM, and gender. Then proceed with bivariate analysis.

This research is a research conducted together with the research team of the Family and Health Care Study. The ethical test in this study was carried out with the Family Health care Studies research team at the Faculty of Dentistry, University of Jember, with letter number 978/UM25.8/KEPK/DL/2020. This study uses secondary data analysis; hence researchers need informed consent or approval from the Jenggawah Health Center, Jember Regency.

## RESULT

The Jenggawah Health Center has 3 health centers in Cangkring Village, Jenggawah Village and Wonojati Village. 1 nurse in charge manages the PTM Posbindu at the Jenggawah Health Center. The situation of COVID-19 pandemic has disrupted the activities of the PTM Posbindu at the Jenggawah Health Center so that the PTM Posbindu activities in 2021

were only carried out for 8 months, namely February-June and August-October. In February, there were 109 visits, March 94 visits, April 105 visits, in May 109 visits, June 107 visits, August 100 visits, September 68 visits, and October 106 visits. There was a decrease in the number of visits by PTM posbindu participants in 2021 compared to 2019 before the Covid-19 incident.

The 2019 PTM Posbindu report data in July-September showed that 368 farmers participated in PTM Posbindu activities. The number of non-communicable diseases of hypertension and diabetes increases every month, especially among female farmers. In July, 75% of patients with hypertension and diabetes were female farmers, and 25% were male farmers, August, 83% of patients with hypertension and diabetes were female farmers, and 17% were male farmers, and for September, all patients with hypertension and diabetes were farmers. There is a need for further research related to the factors associated with hypertension and diabetes in farmers.

According to the manual for Posbindu PTM cadres (2019), vegetable and fruit consumption is grouped into two, namely sufficient consumption of vegetables and fruit if consuming 5 servings/day, and less consumption of vegetables and fruit if consuming <5 servings/day. Measurement of sufficient consumption of vegetables and fruit for male farmers and female farmers based on KMS data from Posbindu PTM is presented as follows picture 1.

Measurements of sufficient fruit and vegetable consumption among male and female farmers based on KMS data from Posbindu PTM are figure 2.

In Figure 1 it can be seen that as many as 35 female farmers (69%) and as many as 16 male farmers (56%) consume vegetables and fruit is sufficient or  $\geq 5$  servings/day. The results of the data analysis show that there is a difference where the number of male farmers who consume less vegetables and fruit is more than female farmers in the working area of the Jenggawah Health Center.

Measurements of less fruit and vegetable consumption among male and female farmers based on KMS data from Posbindu PTM are figure 2.

Figure 2 shows differences in vegetable and fruit consumption between male and female farmers in the working area of the Jenggawah health center as evidenced by a p-value of 0.021 which, if p-value  $< 0.05$ , means  $H_a$  is accepted. Based on the results of the OR, it is known that female farmers have a risk of 2.7 times consuming sufficient vegetables and fruit ( $\geq 5$  servings/day) compared to male farmers (95% CI = 1.230-6.078).

Table 1. Characteristics of PTM Posbindu Farmers in the Work Area of Jenggawah Health Center, Jember Regency, in 2021

Respondent Characteristics	Md (P25-P75)	n	%
Age	41 (35-48)		
Gender:			
Male		46	43,8
Female		59	56,2
Education:			
Elementary School		59	56,2
Junior and Senior High School		43	41,0
Bachelor Degree		3	2,9
Marital Status:			
Married		105	100
Divorced		0	0
PTM History:			
Yes		59	56,2
No		46	43,8

Table 2. Differences in Vegetable and Fruit Consumption Between Male Farmers and Female Farmers in the Working Area of Jenggawah Health Center, Jember Regency, in 2021

Gender f(%)	Consumption of Vegetables and Fruits by Farmers		Total f (%)	<i>p-value</i>	OR (95% CI)
	≥5 servings/day	<5 servings/day			
Male	16 (15,2%)	30 (28,6%)	46 (43,8%)	0,021	2,734 (1,230-6,078)
Female	35 (33,3%)	24 (22,9%)	59 (56,2%)		

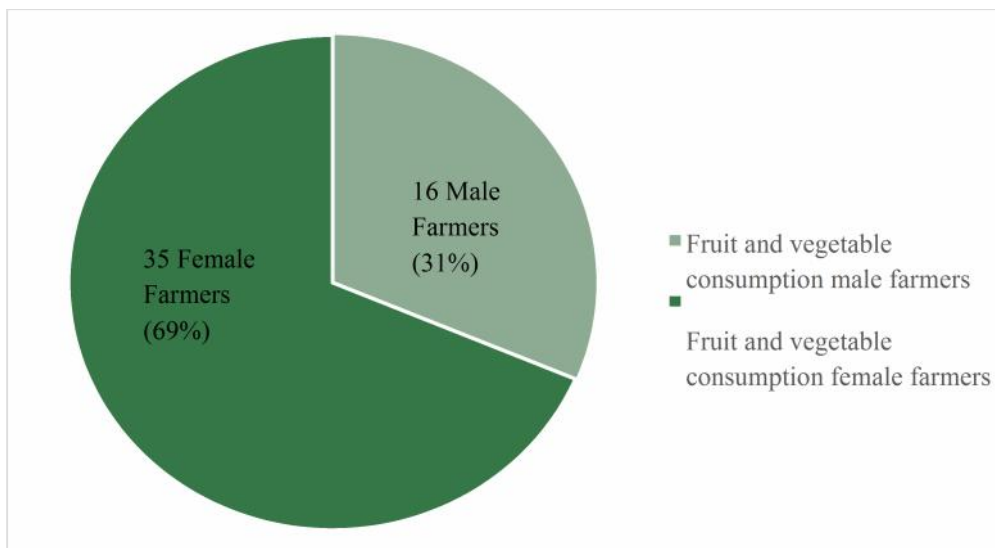
## DISCUSSION

The consumption of vegetables and fruit by male and female farmers in the work area of the Jenggawah Health Center, Jember Regency, was significantly different with a *p-value* of 0.021 through the chi-square test where *p-value* < 0.05 concluded that  $H_a$  was accepted, i.e., there was a difference. The results of this study align with research conducted by (Karim et al., 2017) which states that gender is a factor that can affect the consumption of vegetables and fruit. Consumption of vegetables and fruit is a risk factor for health problems due to PTM. Therefore, it is necessary to control a healthy lifestyle with sufficient consumption of vegetables and fruit and regular health checks to health services through PTM posbindu.

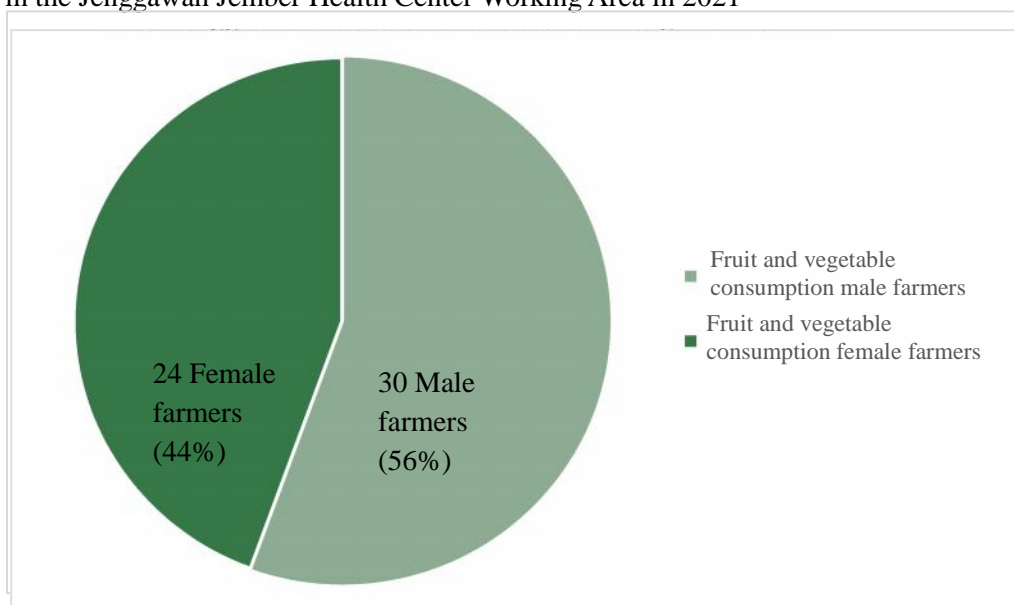
The results showed that female farmers had 2.7 times the chance of consuming enough vegetables and fruits compared to male farmers (95% CI = 1.230-6.078). Many factors can affect this condition. However, the analysis of respondents' characteristics on the consumption of vegetables and fruits by farmers shows that there is an influence of age, education and history of PTM. These factors cause dif-

ferences in the consumption of vegetables and fruit by male and female farmers. The results showed that the difference in consumption of vegetables and fruit by male and female farmers was influenced by education, where male farmers with the last education at SD/SLTP had 8.1 times the probability of experiencing less vegetable and fruit consumption than female farmers (*p-value* = 0.005); OR = 8.050; 95% CI = 1.628-39.800) (Adebayo et al., 2017).

Higher education is more likely to consume healthy foods such as vegetables and fruit. Education is always associated with the level of knowledge, and knowledge is the basis for the formation of attitudes and behavior in food selection (Kurniawan, 2017). Women with higher education are more likely to lead a healthy lifestyle by choosing healthy foods such as vegetables and fruit than men. Men still often choose foods that make them full and high in protein, such as consuming meat, and women more often consume high-fiber foods, such as vegetables and fruit (Lombardo et al., 2019). The provision of health education is needed so that farmers better understand the importance of vegetables and fruit for health so that there are no differences between male and female farmers regarding food choices and both have



Picture 1. The Proportion of Consumption of Vegetables and Fruits is Sufficient for Male and Female Farmers in the Jenggawah Jember Health Center Working Area in 2021



Picture 2. The Proportion of Consumption of Vegetables and Fruits is Less among Male and Female Farmers in the Working Area of the Jenggawah Health Center

sufficient consumption of vegetables and fruits.

Consuming vegetables and fruit following the recommendations positively impacts health conditions because consumption of vegetables and fruit is included in one of the risk factors for PTM (WHO, 2018). However, the results of this study indicate that farmers who consume vegetables and fruit as recommended, namely >5 servings/day are 48.5%. In contrast, farmers with less vegetable and fruit consumption are <5 portions/day by 51.5%. This is possible because of the knowledge factor, as farmers still think vegetables and fruit are less critical and are rarely included in the daily diet (Pakpahan & Ayubi, 2017). This is in line with Kyeremeh's research (2020)

that residents in rural Ghana spend funds on staple foods, fruit and vegetables are not included in priority foods. Other studies say that consuming enough vegetables and fruit can provide protection for the body etables and fruit can provide protection for the body through existing content with mechanisms such as lowering blood pressure, antioxidant stress, etc. (Yazew & Daba, 2020). However, according to (Widani, 2019), there are some fruits with too high a sugar or fructose content, so if consumed in excess, it can pose a risk of PTM, namely diabetes mellitus. Therefore, as a form of effort to maintain the health condition of the farmer's body, it is necessary to apply a healthy lifestyle by consuming sufficient and

not excessive fruit and vegetables.

Consuming sufficient vegetables and fruit for farmers is a preventive effort for PTM (WHO, 2018), to support these efforts it is necessary to support and motivation from the family who are components and the closest environment (Susanto, 2012). Friedman (2010) describes the 5 tasks of family health, one of which is that the family plays a role in making the right decisions regarding daily food consumption, including the consumption of vegetables and fruit. In this study, all samples with marital status were married. Through the formation of families, they can provide reciprocal relationships by reminding each other and providing support for healthy lifestyles and routine checks at the PTM Posbindu.

Through the Community-Based Occupational Health Promotion Program (COPH), nurses can develop several plans that can be implemented as preventive and promotive efforts related to occupational diseases in farmers (Susanto et al., 2020). In addition, family health nurses can focus on family efforts in solving problems and maintaining the health of family members. Health workers such as nurses can create activities with the community to create interesting food menus made from vegetables and fruit in the surrounding environment so that there is an interest in vegetables and fruit. Agricultural areas with low levels of education need promotive and preventive efforts from nurses related to healthy lifestyle habits in the family and community environment to reduce PTM risk factors.

The nursing implications that can be carried out are health education related to risk factors, causes and consequences of lack of consumption of vegetables and fruits, which are risk factors for PTM. Nursing implications that can be done, namely 1) counselors: nurses can be a forum for farmers to complain about health problems that are being felt and provide consultation on decision making and family motivation of farmers in increasing consumption of vegetables and fruit as recommended >5 servings/day; 2) educator: nurses provide information related to consumption of vegetables and fruits which are one of the risk factors for PTM to farmers directly or through health cadres. Then, the cadres are expected to be able to provide health education to farming families about the importance of consuming sufficient vegetables and fruits >5 servings/day as one of the risk factors for PTM; and 3) caregiver: nurses provide intensive services in the form of primary, secondary, and tertiary prevention efforts through PTM posbindu activities.

## CONCLUSION

Based on the research results discussed in this study, there are differences in the consumption of vegetables and fruit between male and female farmers at the PTM Posbindu at Jenggawah Health Center (p-value = 0.021). The consumption behavior of male farmers was identified as less good, namely <22gr fiber a day which should be 37gr fiber a day. In contrast, the consumption behavior of female farmers was identified as good, namely 30g of fiber a day. Support and motivation are needed from family, closest people, and health workers, especially family health nurses, to improve consumption behavior and increase the consumption of vegetables and fruit for male farmers.

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