RESEARCH STUDY Open Access

Faktor Dominan Ketahanan Pangan Rumah Tangga Selama Pandemi COVID-19 di Kota Depok Tahun 2020 (Analisis Data Sekunder Tahun 2020)

Dominant Factor of Household Food Security During COVID-19 Pandemic in Depok City in 2020 (Analysis of Secondary Data 2020)

Intan Hidayah * 1, Sandra Fikawati 1

ABSTRAK

Latar Belakang: *Ketahanan pangan adalah keadaan ketika orang-orang memiliki akses fisik maupun ekonomi yang memadai setiap saat untuk memperoleh makanan bergizi dan aman guna memenuhi kebutuhan dan preferensi makannya agar bisa menjalani hidupnya secara aktif dan sehat. Pandemi COVID-19 dapat menyebabkan gangguan ketahanan pangan. Hal ini dikarenakan beberapa orang kehilangan pekerjaan dan pendapatan sehingga tidak mampu lagi memenuhi kebutuhan pangannya.*
Tujuan: *Penelitian ini bertujuan untuk mengetahui faktor dominan yang berhubungan dengan ketahanan pangan rumah tangga selama pandemi COVID-19 di Kota Depok Tahun 2020.*
Metode: *Penelitian kuantitatif ini menggunakan data sekunder dari penelitian cross-sectional* yang dilakukan *oleh Fikawati, Syafiq, dan Mardatillah di Kota Depok bulan Oktober-Desember Tahun 2020. Total sampel pada penelitian ini adalah 259 rumah tangga dengan kriteria inklusi rumah tangga yang memiliki ibu hamil, ibu menyusui, bayi, atau balita. Pengambilan sampel dari penelitian primer dilakukan secara purposive sampling. Peneliti menyebarkan informasi penelitian melalui media sosial dan kader posyandu kemudian melakukan skrining. Responden yang memenuhi syarat skrining akan dikirimkan surat elektronik atau Whatsapp berisi kuesioner penelitian. Data dianalisis menggunakan uji McNemar, kai kuadrat dan regresi logistik ganda.*
Hasil: *Hasil penelitian ini menunjukkan 61,8% rumah tangga di Kota Depok mengalami rawan pangan. Hasil analisis bivariat menunjukkan adanya hubungan signifikan antara pendapatan rumah tangga selama pandemi, pendidikan suami dan istri, jumlah orang berpendidikan tinggi (tamatan perguruan tinggi) dalam rumah tangga dengan ketahanan pangan rumah tangga selama pandemi COVID-19. Faktor dominan ketahanan pangan rumah tangga selama pandemi COVID-19 di Kota Depok tahun 2020 adalah pendidikan istri (OR=3,978) setelah dikontrol oleh pekerjaan utama istri selama pandemi, pendapatan rumah tangga selama pandemi, pendidikan suami*
Kesimpulan: *Rumah tangga dengan istri yang berpendidikan rendah memiliki risiko 4 kali lebih tinggi untuk mengalami rawan pangan dibanding rumah tangga dengan istri yang berpendidikan tinggi.*

Kata Kunci: *Ketahanan Pangan, Pandemi COVID-19, Pendidikan, Pendapatan*

ABSTRACT

Background: Food security is a condition when everybody has adequate physical and economical access at all times to safe and nutritious food to meet their food needs and preferences in order to live an active and healthy life. COVID-19 pandemic can cause food security disruptions. This is because several people have lost their jobs and income so that they are no longer able to meet their food needs.
Objectives: This study aimed to determine the dominant factor related to food security during COVID-19 pandemic in Depok City in 2020.
Methods: This quantitative study used secondary data from a cross-sectional study conducted by Fikawati, Syafiq, and Mardatillah in Depok in October-December 2020. The total of samples for this secondary study were 259 households and the inclusion criteria was households who had a pregnant mother, breastfeeding mother, infant or toddler. Sampling process from the primary research was carried out by purposive sampling. Researchers disseminated research information through social media and *posyandu* cadres and then conducted screening. Respondents who met the screening requirements would be sent an electronic mail or WhatsApp containing a research questionnaire. Data was analyzed using McNamar test, chi-square test and multiple logistic regression test.
Results: This study indicated that 61.8% of households in Depok City experienced food insecurity. The results of the bivariate analysis showed that household income during pandemic, husband's and wife's education, the number of highly educated

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

people (college graduate) in a household significantly related to household food security during COVID-19 pandemic. The dominant factor of household food security during the COVID-19 pandemic in Depok City in 2020 was wife's education (OR=3.978) after being controlled by the wife's occupation during pandemic, household income during pandemic, and husband's education.
Conclusions: Households with low educated wife were at risk to be food insecure 4 times higher than households with highly educated wives.

Keywords: Food Security, COVID-19 Pandemic, Education, Income

*Correspondent:
intanhidayah02@gmail.com
Intan Hidayah
Department of Public Health Nutrition
Faculty of Public Health, University of Indonesia
Published by Universitas Airlangga and IAGIKMI

INTRODUCTION

On December 31, 2019, the World Health Organization (WHO) began receiving reports of pneumonia cases in Wuhan City [1]. The pneumonia disease was named coronavirus disease 2019 (COVID-19) on February 11, 2020 [2]. COVID-19 spreads so fast around the world that WHO declared this outbreak as a pandemic from March 11, 2020 [3]. On January 9, 2021, the number of COVID-19 cases in the world and Southeast Asia reached 87,589,206 and 12,208,095 respectively [4]. In Indonesia, 818,386 people had confirmed COVID-19 and 96,102 of them were from West Java [5]. There were 15,358 confirmed cases of COVID-19 in Depok City in January 2021 [6].

During the COVID-19 pandemic, many people have lost their jobs and income. Based on data from Statistics Indonesia, there was an increase in the open unemployment rate in Indonesia from 5.23% to 7.07% in August 2019 – August 2020. In the same period, there was also a decrease in labor wages in Indonesia by 5.2% from 2.91 million rupiah to 2.76 million[7]. This pandemic condition has the potential to cause food security disturbances in various regions because people have difficulty to meet their food needs [8,9].

According to the Food Agricultural Organization (FAO), food security is a condition when everybody has adequate physical and economic access at all times to safe and nutritious food to meet their food needs and preferences in order to live an active and healthy life[10]. Food security has 4 dimensions, namely: physical food availability, physical and economic access to food, food utilization, and stability of the other three dimensions over time [10]. If a household is not able to fulfill all dimensions properly, the household will experience food insecurity[10].

Food insecurity should always be avoided because it can cause various adverse effects on health. Food insecurity can make pregnant women experiencing excessive or inadequate pregnancy weight gain, anemia, and chronic lack of energy [11–14]. Breastfeeding mothers who are food insecure are at risk of experiencing the perception of insufficient breast milk [15]. In addition, food insecurity also has a negative impact on infant and young child feeding practice (IYCF) which is characterized by not achieving the duration of exclusive breastfeeding for 6 months, minimum dietary diversity (MDD), minimum meal frequency (MMF), and minimum acceptable diet (MAD)[16–18]. Another impact of food insecurity is the increased risk of stunting, underweight, wasting in children under five years [19–22].

This study aimed to determine the dominant factors related to household food security during the COVID-19 pandemic in Depok City. The election of Depok City as the research location was due to the second highest number of confirmed cases of COVID-19 in West Java [6]. This study observed households who had a pregnant woman, breastfeeding mother, infant, or toddler. Pregnant women are a vulnerable group because they have increased nutritional needs to support the growth and development of their fetus. If the nutritional needs are not met during a critical period, there will be abnormalities in the function and structure of the infant's organs that are difficult to repair [23–25]. Breastfeeding mothers also experience increased nutritional and fluid requirements to support the breastfeeding process and milk production [25,26]. Infants and toddlers experience very rapid growth and development so that they require adequate nutritional intake [24,26].

METHOD

This quantitative research used cross-sectional design. The data used was secondary data from the research entitled "Situation of Family Food Security and Coping Mechanisms in COVID-19 Pandemic Situation in Urban and Semi-Urban Areas" from Fikawati, Syafiq, and Mardatillah conducted in Depok in October-December 2020 [27]. The data used consisted of data on answers to the Household Food Insecurity Access Scale (HFIAS) questionnaire, the husband's and wife's occupation before and during pandemic, husband's and wife's income before and during pandemic, husband's and wife's education, receiving of assistance from government, respondent's age, and the number of dependent members in household before and during pandemic. The current secondary research was carried out in March-June 2021.

Depok is a city that borders the Province of the Special Capital Region of Jakarta in the north, Bogor in the east and south, and South Tangerang in the west[28]. The population in this study were all households in Depok City in 2020. The sample in this study was all households in Depok City in 2020 which were recorded in the primary

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

study and met the inclusion and exclusion criteria. The inclusion criteria in this study were households who had a pregnant woman, breastfeeding mother, infant, or toddles. The exclusion criteria in this study were respondents who did not fill out the online questionnaire completely. The total sample of this secondary research was 259 households. The test power of the research was calculated using a two-sided hypothesis test for two populations and based on previous research [29]. The power in this study was 84,85%. This indicated that the power in this study was sufficient because the minimum power expected was 80.0%.

The sampling process in the primary research was carried out by purposive sampling. Primary researchers distributed screening questionnaires through social media and *Posyandu* cadres. Respondents were asked to fill out a screening questionnaire. The primary researcher then checked the respondent's personal data. The research questionnaire link was sent by the primary researcher to respondents who met the criteria via electronic mail or WhatsApp. Then, the respondent filled the agreement in the informed consent section and continued by filling out the research questionnaire. When respondent filled the informed consent, they did not provide their signature as a form of their consent. Respondents' consent was done by pressing the "agree" or "disagree" button. If the respondent pressed the disagree button, the process of filling out the questionnaire automatically cannot be continued. The sampling process in the secondary research was carried out by taking all households recorded in the primary study and met the inclusion and exclusion criteria.

The dependent variable of this study was household food security during the pandemic. The independent variables were household socioeconomic factors consisting of husband and wife's occupation during pandemic; the number of workers in household during pandemic; household income during pandemic; husband's and wife's education; number of highly educated people in household; receiving food assistance, cash and electricity subsidies from government. Other independent variables were household demographic factors which consisted of respondent's age and the number of dependent members in a household during pandemic. The independent variables were further analyzed to find out what factors were related to household food security during pandemic. Other variables such as husband and wife's occupation before pandemic, household income before pandemic, and the number of dependent members in household before pandemic were also analyzed to obtain information on socioeconomic and demographic factors before pandemic. This information can be used to determine whether there were significant differences between before and during pandemic. The variables before pandemic explained the socioeconomic and demographic conditions of the household before March 2020, while the variables during pandemic explained the socioeconomic and demographic conditions of the household since March 2020. The determination of March 2020 as the start of variable assessment during pandemic because the first COVID-19 case in Indonesia was found in March 2020[30].

The assessment of household food security was carried out using HFIAS. This questionnaire consisted of nine questions about the household's eating conditions in the last month. Each answer had a certain weight for determining the food security score. The answer of never, seldom, sometimes and often were weighted 0, 1, 2 and 3 respectively. These weights were summed to obtain a food security score. Respondents with a score of 0-1, 2-7, 8-14, and 15-27 were classified as food secure, mild food insecurity, moderate food insecurity and severe food security respectively [31]. This research categorized household food security into food insecure and food secure. Food insecure was the composite of mild food insecure, moderate food insecure and severe food insecure. HFIAS validation had been carried out by Ashari, Khomsan, and Baliwati in South Sulawesi, Indonesia [32].

The number of workers and highly educated people in the household was determined based on the respondents' answers regarding the husband's and wife's occupation and education. If there was none, only the husband, or only the wife who worked, then the number of workers in the household was < 2. If the husband and wife worked, the number of workers in the family was 2. If there was none, only the husband, or only the wife graduated from college, then the number of highly educated people in the household was < 2. The number of highly educated people in the household was 2 if the husband and wife graduated from college.

Data processing and analysis was done using Statistical Package for the Social Sciences (SPSS) 26 software. Data analysis consisted of univariate, bivariate, and multivariate. Univariate analysis was performed with frequency distribution. This study also described the differences in socioeconomic and demographic factors between before and during the pandemic with the McNamar test. Bivariate analysis was carried out using the chi-square test. Multivariate analysis was performed using multiple logistic regression test. The results of the analysis were declared as significant if the p value < 0.05. The measurement of the association between exposure and outcome was carried out using an odd ratio (OR), although the usage of OR could result in an overestimation of the prevalence ratio (PR) when prevalence > 10%[33]. The current secondary research received an ethical review from the Committee for Research Ethics and Public Health Service at Faculty of Public Health, University of Indonesia with number 160/UN2.F10.D11/PPM.00.02/2021.

RESULTS AND DISCUSSION

Most of the households consumed less variety of food in the last month (60.6%). In addition, 17.7% of households could not eat anything at mealtime. Sleeping in hunger at night was also experienced by 14.3% of households. Moreover, 6.5% of households did not eat anything a day and night because there was not enough food (Table 1).

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

Table 1. Frequency Distribution of Household Based on HFIAS Answers

No	Indicator	Never (%)	Seldom (%)	Sometimes (%)	Often (%)
1	Worried about not having enough food	45.6	19.7	26.6	8.1
2	Not be able to eat the type of food you like	43.6	17.8	26.3	12.4
3	Ate a less variety of food due to lack of resources	39.4	17.0	30.1	13.5
4	Ate some foods that you really don't want to eat	57.9	13.9	20.5	7.7
5	Ate less food than needed	51.0	14.7	26.3	8.1
6	Ate less food a day	54.4	13.5	24.3	7.7
7	Not eat anything at mealtime	82.2	5.8	10.0	1.9
8	Slept in hunger conditions at night	85.7	4.2	9.3	0.8
9	Not eat anything a whole day and night	93.4	2.3	4.2	0

Table 2 indicated that the majority of households experienced food insecurity during the pandemic (61.8%). The food insecurity in Depok during the pandemic was higher than several studies conducted in Indonesia before pandemic. Research in Kebon Kelapa Village, Central Bogor District in 2013 showed that 37% of households experienced food insecurity[34]. Research in Teluk District, Bandar Lampung City in 2019 stated that food insecure households were 53% [35].

Research on food security that was carried out during pandemic in other countries also showed high rates of food insecurity. Research in Bangladesh showed that food insecure households during pandemic were 88.68% [36]. A study in Wuhan, China showed that 94% of households were food insecure in March 2020 [37].

The high number of food insecurity in various regions, both abroad and domestically, including Depok in 2020 was due to the COVID-19 pandemic situation [38]. Leddy et al stated that the government implemented various policies to reduce the spread of COVID-19 including the implementation of distance learning, closing several businesses in non-essential sectors, and implementation work from home. The policies make several people have to lose their jobs. In addition, some employed people suffered a reduction in working hours and a decrease in income[9]. This eventually makes it difficult for them to meet their household food needs [9].

Table 2. The result of Categorical Data Analysis and McNamar Test

Variable	Before Pandemic n (%)	During Pandemic n (%)	P Value
Household food security			
Food insecure	N/A†	160 (61.8)	N/A
Food secure	N/A	99 (38.2)	
Husband's occupation			
Unemployed	8 (3.1)	18 (7.0)	0.031*
Employed	248 (96.9)	238 (93.0)	
Wife's occupation			
Unemployed	87 (33.6)	115 (44.4)	<0.001**
Employed	172 (66.4)	144 (55.6)	
Number of workers in household			
< 2	96 (37.1)	125 (48.3)	<0.001**
2	163 (62.9)	134 (51.7)	
Household income			
< minimum salary wage (< 4.2 million rupiahs)	159 (61.4)	186 (71.8)	<0.001**
≥ minimum salary wage (≥ 4.2 million rupiahs)	100 (38.6)	72 (28.2)	
Husband's education			
Low (< college)	N/A	207 (80.9)	N/A
High (≥ college)	N/A	49 (19.1)	
Wife's education			
Low (< college)	N/A	208 (80.3)	N/A
High (≥ college)	N/A	51 (19.7)	
Number of highly educated people in household			
< 2	N/A	229 (88.4)	N/A
2	N/A	30 (11.6)	
Receiving of food assistance from government			
Yes	N/A	182 (70.3)	N/A
No	N/A	77 (29.7)	
Receiving of cash from government			
Yes	N/A	69 (26.6)	N/A
No	N/A	190 (73.4)	

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

Variable	Before Pandemic	During Pandemic	P Value
	n (%)	n (%)	
Receiving of electricity subsidies from government			
Yes	N/A	43 (16.6)	N/A
No	N/A	216 (83.4)	
Respondent's age			
≤ Median (≤ 31 years old)	N/A	150 (57.9)	N/A
> Median (> 31 years old)	N/A	109 (42.1)	
Number of dependent members in household			
Big (> 4)	63 (24.3)	71 (27.4)	0.021*
Small (≤ 4)	196 (75.7)	188 (72.6)	

†: not available
*p<0,05
**p<0,001

There was an increment in unemployed husbands between before pandemic and during pandemic from 3.1% to 7.0%. Unemployed wife also increased from 33.6% to 44.4%. Households who had < 2 workers also experienced an increase from 37.1% to 48.3%. The results of the McNamar test analysis stated that the husband's and wife's occupation and the number of workers in the household before and during the pandemic were significantly different. This study is in line with research in Yogyakarta which stated that there was an increase in the number of unemployment between before and during the pandemic from 17.2% to 22.1% [39]. Research in Austin, Texas showed that 46% of families experienced a job loss, disruption or reduction [40].

Household income before and during the pandemic were also significantly different. Households with income < minimum salary wage experienced an increase from 61.4% before pandemic to 71.8% during pandemic. This result is in line with a study in Yogyakarta which stated that households with a monthly income of < IDR 1,000,000.00 increased from 6.6% to 13.1% since the COVID-19 pandemic [39]. In Nigeria, there were 47.9% of respondents who experienced a decrease in income and 8.4% of respondents who did not have any income during COVID-19 pandemic [41].

Companies sometimes implement various adjustments to work rules related to the COVID-19 pandemic, such as: working from home for some or all employees, reducing working hours, temporarily stopping office activities. Moreover, some companies were forced to completely stop their activities and lay off their employees[42]. As a result, some people had to lose their jobs so that their incomes were reduced.

This study also stated that there was a significant difference between the number of dependent members in a household before and during pandemic. Households with a large number of dependent members increased from 24.3% before the pandemic to 27.4% during the pandemic. This is because many people have lost their jobs during the pandemic. Those who lose their jobs finally having no income so their living needs must be accommodated by other household members

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

Table 3. The Result of Bivariate Analysis

Variable	Household Food Security During Pandemic				Total		OR (95% CI)	P Value
	Food Insecure		Food Secure					
	n	%	n	%	n	%		
Husband's occupation during pandemic								
Unemployed	15	83.3	3	16.7	18	100	3.322	0.088
Employed	143	60.1	95	39.9	238	100	(0.936-11.786)	
Wife's occupation during pandemic								
Unemployed	69	60.0	46	40.0	115	100	0.874	0.691
Employed	91	63.2	53	36.8	144	100	(0.528-1.446)	
Number of workers in household during pandemic								
< 2	77	61.6	48	38.4	125	100	0.986 (0.597-1.628)	1.000
2	83	61.9	51	38.1	134	100		
Household income during pandemic								
< minimum salary wage (< 4.2 million rupiahs)	135	72.6	51	27.4	186	100	5.082 (2.843-9,086)	< 0.001***
≥ minimum salary wage (≥ 4.2 million rupiahs)	25	34.2	48	65.8	73	100		
Husband's education								
Low (< college)	146	70.5	61	29.5	207	100	7.380	< 0.001***
High (≥ college)	12	24.5	37	75.5	49	100	(3.605-15.107)	
Wife's education								
Low (< college)	148	71.2	60	28.8	208	100	8.017	< 0.001***
High (≥ college)	12	23.5	39	76.5	51	100	(3.929-16.357)	
Number of highly educated people in household								
< 2	156	68.1	73	31.9	229	100	13.890	< 0.001***
2	4	13.3	26	86.7	30	100	(4.676-41.262)	
Receiving of food assistance from government								
Yes	118	64.8	64	35.2	182	100	1.536	0.156
No	42	54.5	35	45.5	77	100	(0.894-2.642)	
Receiving of cash from government								
Yes	44	63.8	25	36.2	69	100	1.123	0.800
No	116	61.1	74	38.9	190	100	(0.634-1.987)	
Receiving of electricity subsidies from government								
Yes	29	67.4	14	32.6	43	100	1.344	0.506
No	131	60.6	85	39.4	216	100	(0.672-2.690)	
Respondent's age								
≤ Median (≤ 31 years old)	99	66.0	51	34.0	150	100	1.527	0.131
> Median (> 31 years old)	61	56.0	48	44.0	109	100	(0.920 – 2.536)	
Number of dependent members in household during pandemic								
Big (> 4)	43	60.6	28	39.4	71	100	0.932	0.918
Small (≤ 4)	117	62.2	71	37.8	188	100	(0.532 – 1.631)	

****p*<0,001

Table 3 showed that there was a significant relationship between household income during the pandemic and household food security during the pandemic. Households with income < minimum salary wage have a greater proportion of food insecurity than households with income ≥ minimum salary wage. This result is in line with Fitzpatrick et al's research which stated that households with annual income < $25,000.00

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

had a 3 times higher risk of experiencing food insecurity than households with annual income > $150,000.00 [43]. Research in Porto, Portugal also stated that households with inadequate income were 23.3 times more likely to experience food insecurity [44]. In South Buru Regency, Maluku, households with income < minimum salary wage had a 1.71 times higher risk of experiencing food insecurity than households with income ≥ minimum salary wage [45].

Low incomes can increase the risk of food insecurity. Low income is also an obstacle for households to achieve food security conditions. This is because low income affects one of the financial accesses that households should have, namely purchasing power. Low-income households usually find it difficult to buy food of adequate quality and quantity. This condition can make household members experience hunger [46].

Education was also a factor that was related significantly to household food security during the pandemic. Households with a low educated husband, low educated wife, the number of highly educated people < 2 have a greater proportion of food insecurity. This is in line with Mortazavi et al's study which proved that an illiterate household head had a 6 times higher risk of experiencing food insecurity with hunger than a household head who graduated from university [47]. Research in Ilam Province, Iran also stated that a wife who did not graduate from high school was more likely to experience food insecurity than a wife who had graduated from high school [48].

Low educated husband and wife generally have limited working skills. On the other hand, high-paying jobs usually require skills that they do not have. They finally found difficulty to get high-paying jobs. This condition then makes their household's purchasing power for food not enough [47,49–51].

Table 4. Final Model of Multivariate Analysis

Variable	P Value	OR	95% CI
Wife's occupation during pandemic	0.154	0.647	0.356 – 1.177
Household income during pandemic	< 0.001**	3.251	1.693 – 6.241
Husband' education	0.007*	3.144	1.372 – 7.205
Wife's education	0.001*	3.978***	1.722 – 9.186

*p<0,01
**p<0,001
*** the highest OR value

The initial model of multivariate analysis was carried out by including the variables of husband's and wife's occupation during pandemic; household income during pandemic; husband's and wife's education; receiving of food assistance, cash, electricity subsidies from government; respondent's age; and the number of dependent members in household during pandemic. The number of highly educated people in the household was not included in the initial model of multivariate analysis because there was multicollinearity with the husband's and wife's education which was characterized by the value of tolerance < 0.4 and Variance Inflation Factor (VIF) > 2.5 [52,53]. The final model of multivariate analysis showed that wife's education (AOR=3.978; 95% CI=1.722-9.186) was the dominant factor related to household food security after being controlled by the wife's occupation during pandemic, household income during pandemic, husband's education as a confounding variable. Households who had a low educated wife were at a risk of experiencing food insecurity 4 times higher than households who had a highly educated wife.

A wife is usually more responsible for food provision at home, starting from the procurement of food ingredients to serving at the dinner table. In carrying out this role, the wife must be able to utilize the resources she has. The available money needs to be managed as efficiently as possible to buy food stuff. Food can be stored properly so it doesn't go stale and can be eaten again later. The available yard can be used to grow vegetables or raise animals. However, low educated wife are less able in making decisions in the use of existing resources [47,50,54].

The current research had some limitations. The first limitation was the absence of information related to the prevalence trend of food insecurity. The next limitation was not being able to see a causal relationship between the independent and dependent variables. These two things were because this study used a cross-sectional research design. The last limitation was that this research was not able to reach targets who did not have internet access because this research used an online questionnaire.

CONCLUSION

The dominant factor related to household food security during the COVID-19 pandemic in Depok City was wife's education. Household with a low educated wife had a risk of food insecurity 4 times higher than a household with a highly educated wife. Future research is expected to add other independent variables that have not been studied in the current study including home ownership, land ownership and area, livestock ownership, smoking habits and coping strategies. The next research is also expected to be able to measure household food security periodically within a certain period of time in order to see trends in changes of household food security during the pandemic.

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

ACKNOWLEDGEMENT

Acknowledgments are conveyed to all parties who have played a role in collecting data for this study in Depok City, West Java.

REFERENCES

1. WHO. *Novel Coronavirus (2019-nCoV) Situation Report - 1*. *WHO Bulletin* (2020).
2. WHO. *Novel Coronavirus(2019-nCoV)*. *WHO Bulletin* (2020).
3. WHO. WHO Director-General's Opening Remarks at the Media Briefing on COVID-19 - 11 March 2020. (2020).
4. WHO. WHO Coronavirus Disease (COVID-19) Dashboard. (2021).
5. Gugus Tugas Percepatan Penanganan COVID-19. Peta Sebaran. (2021).
6. Pusat Informasi & Koordinasi COVID-19. Sebaran Kasus COVID-19 di Jawa Barat. (2021).
7. BPS. *Berita Resmi Statistik: Keadaan Ketenagakerjaan Indonesia Agustus 2020*. (2020).
8. FAO, IFAD, UNICEF, WFP & WHO. *Food Security and Nutrition in the World: Transforming Food Systems for Affordable Healthy Diets*. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* (FAO, 2020).
9. Leddy, A. M., Weiser, S. D., Palar, K. & Seligman, H. A conceptual model for understanding the rapid COVID-19-related increase in food insecurity and its impact on health and healthcare. *Am. J. Clin. Nutr.* **112**, 1162–1169 (2020).
10. FAO. *An Introduction to the Basic Concepts of Food Security*. (FAO Food Security Programme, 2008). doi:10.1057/9780230589780_35.
11. Demétrio, F., Teles, C. A. de S., Dos Santos, D. B. & Pereira, M. Food insecurity in pregnant women is associated with social determinants and nutritional outcomes: A systematic review and meta-analysis. *Cienc. e Saude Coletiva* **25**, 2663–2676 (2020).
12. Nurdini, E. D. & Mahmudiono, T. Hubungan Status Ketahanan Pangan Rumah Tangga dengan Anemia pada Ibu Hamil (Studi di Desa Bektiharjo Kecamatan Semanding Kabupaten Tuban). *Media Gizi Kesehat. Masy.* **9**, 17–22 (2020).
13. Wulansari, A. Ketahanan Pangan Rumah Tangga dan Kejadian Kurang Energi Kronis (KEK) pada Ibu Hamil Suku Anak Dalam Desa Bungku Kabupaten Batanghari. *J. Akad. Baiturrahim Jambi* **9**, 92–97 (2020).
14. Sari, R. D. P. *et al.* Food Security And Household Expenditure Impact On Nutritional Status On Pregnancy : A Cross Sectional Study In Rural Area. *Eur. J. Mol. Clin. Med.* **07**, 1–8 (2020).
15. Webb-Girard, A. *et al.* Food insecurity is associated with attitudes towards exclusive breastfeeding among women in urban Kenya. *Matern. Child Nutr.* **8**, 199–214 (2012).
16. MacHaria, T. N., Ochola, S., Mutua, M. K. & Kimani-Murage, E. W. Association between household food security and infant feeding practices in urban informal settlements in Nairobi, Kenya. *J. Dev. Orig. Health Dis.* **9**, 20–29 (2018).
17. Agbadi, P., Urke, H. B. & Mittelmark, M. B. Household food security and adequacy of child diet in the food insecure region north in Ghana. *PLoS One* **12**, 1–16 (2017).
18. Owais, A. *et al.* Household food security and infant feeding practices in rural Bangladesh. *Public Health Nutr.* **19**, 1875–1881 (2016).
19. Agho, K. E. *et al.* Moderate and severe household food insecurity predicts stunting and severe stunting among Rwanda children aged 6–59 months residing in Gicumbi district. *Matern. Child Nutr.* **15**, 1–10 (2019).
20. Betebo, B., Ejajo, T., Alemseged, F. & Massa, D. Household Food Insecurity and Its Association with Nutritional Status of Children 6-59 Months of Age in East Badawacho District, South Ethiopia. *J. Environ. Public Health* **2017**, (2017).
21. Nepali, S., Simkhada, P. & Davies, I. G. Association between wasting and food insecurity among children under five years: Findings from Nepal demographic health survey 2016. *BMC Public Health* **20**, 1–7 (2020).
22. Musyadadah & Adiningsih, S. Hubungan Ketahanan Pangan Keluarga dan Frekuensi Diare dengan Stunting pada Balita di Kampung Surabaya. *Amerta Nutr. J.* 257–262 (2019) doi:10.2473/amnt.v3i4.2019.
23. Whitney, Ellie. Rolfes, Sharon, R. *Understanding Nutrition*. (Cengage Learning, 2016).
24. Brown, J. E. *et al. Nutrition Through the Life Cycle*. (Cengage Learning, 2017).
25. Kementerian Kesehatan Republik Indonesia. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2019 tentang Angka Kecukupan Gizi yang Dianjurkan Untuk Masyarakat Indonesia*. (2019).
26. Nix, S. *Williams' Basic Nutrition and Diet Therapy*. (Elsevier Inc., 2017).
27. Fikawati, S., Syafiq, A. & Mardatillah. *Situasi Ketahanan Pangan Keluarga dan Coping Mechanism dalam Kondisi Pandemi COVID-19 di Wilayah Urban dan Semi Urban Tahun 2020*. (Laporan Penelitian, 2020).
28. BPS Kota Depok. *Kota Depok dalam Angka 2020*. vol. 6 (2020).
29. Lemeshow, H. J. S., W, D., Klar, J. & Lwanga, S. K. *Adequacy of Sample Size in Health Studies*. (John Wiley & Sons Ltd, 1990).
30. WHO. *Coronavirus Disease 2019 (COVID-19) Situation Report - 1*. *WHO Indonesia Situation Report* (2020).
31. Coates, J., Swindale, A. & Bilinsky, P. *Household Food Insecurity Access Scale (HFIAS) for Measurement of Household Food Access : Indicator Guide (v.3).* (FHI 360/FANTA, 2007).
32. Ashari, C. R., Khomsan, A. & Baliwati, Y. F. Validasi HFIAS (Household Food Insecurity Access Scale) dalam Mengukur Ketahanan

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**

Pangan: Kasus pada Rumah Tangga Perkotaan dan Perdesaan di Sulawesi Selatan. *Penelit. Gizi dan Makanan* **42**, 11–20 (2019).
33. Fonseca Martinez, B. A. *et al.* Odds ratio or prevalence ratio? An overview of reported statistical methods and appropriateness of interpretations in cross-sectional studies with dichotomous outcomes in veterinary medicine. *Front. Vet. Sci.* **4**, 1–8 (2017).
34. Utami, N. H. & Sisca, D. Ketahanan Pangan Rumah Tangga Berhubungan dengan Status Gizi Anak Usia di Bawah Dua Tahun (Baduta) di Kelurahan Kebon Kalapa, Kecamatan Bogor Tengah, Jawa Barat. *J. Gizi Indones.* **38**, 105–114 (2017).
35. Wardani, D. W. S. R., Wulandari, M. & Suharmanto, S. Hubungan Faktor Sosial Ekonomi dan Ketahanan Pangan terhadap Kejadian Stunting pada Balita. *J. Kesehat.* **11**, 287 (2020).
36. Das, S. *et al.* Acute food insecurity and short-term coping strategies of urban and rural households of Bangladesh during the lockdown period of COVID-19 pandemic of 2020: Report of a cross-sectional survey. *BMJ Open* **10**, (2020).
37. Zhang, Y., Yang, K., Hou, S., Zhong, T. & Crush, J. Factors determining household-level food insecurity during COVID-19 epidemic: a case of Wuhan, China. *Food Nutr. Res.* **65**, 1–12 (2021).
38. Food Security Information Network. *2020 Global Report on Food Crises*. (2020).
39. Purnasari, N., Juwitangtyas, T. & Sabarisman, I. Household food security during Covid-19 pandemic in Daerah Istimewa Yogyakarta, Indonesia. *Sustinere J. Environ. Sustain.* **4**, 132–143 (2020).
40. Abrams, S. A., Avalos, A., Gray, M. & Hawthorne, K. M. High Level of Food Insecurity among Families with Children Seeking Routine Care at Federally Qualified Health Centers during the Coronavirus Disease 2019 Pandemic. *J. Pediatr. X* **4**, 100044 (2020).
41. Iheme, G. O. *et al.* Food consumption and coping strategies of urban-households in Nigeria during the COVID-19 pandemic lockdown. *World Nutr.* **11**, 35–50 (2020).
42. Wolfson, J. A. & Leung, C. W. Food insecurity and COVID-19: Disparities in early effects for us adults. *Nutrients* **12**, 1–13 (2020).
43. Fitzpatrick, K. M., Harris, C., Drawve, G. & Willis, D. E. Assessing Food Insecurity among US Adults during the COVID-19 Pandemic. *J. Hunger Environ. Nutr.* **00**, 1–18 (2020).
44. Maia, I., Monjardino, T., Lucas, R., Ramos, E. & Santos, A. C. Household food insecurity and socio-demographic determinants in young adults: findings from a Portuguese population-based sample. *Int. J. Public Health* **64**, 887–895 (2019).
45. Titaley, C. R., Sallatalohy, N. M. & Adam, F. P. Status Ketahanan Pangan dan Faktor Sosio-Ekonomi pada Masyarakat Pesisir Kabupaten Buru Selatan Food Security Status and Socio-Economic Factors of The Coastal Community in Buru Selatan District. *J. agriTECH* **40**, 1–12 (2020).
46. Vahabi, M. & Damba, C. Perceived barriers in accessing food among recent Latin American immigrants in Toronto. *Int. J. Equity Health* **12**, 1 (2013).
47. Mortazavi, Z. *et al.* Household Food Insecurity in Southeastern Iran: Severity and Related Factors. *Int. J. Food Sci.* **2017**, (2017).
48. Sharifi, N., Dolatian, M., Mahmoodi, Z., Abadi, F. M. N. & Mehrabi, Y. The relationship between social support and food insecurity in pregnant women: A cross-sectional study. *J. Clin. Diagnostic Res.* **11**, IC01–IC06 (2017).
49. Ekhlaspour, P., Foroumandi, E., Ebrahimi-Mameghani, M., Jafari-Koshki, T. & Arefhosseini, S. R. Household food security status and its associated factors in Baft-Kerman, IRAN: a cross-sectional study. *Ecol. Food Nutr.* **58**, 608–619 (2019).
50. Omuemu, V. O., Otasowie, E. M. & Onyiriuka, U. Prevalence of food insecurity in Egor local government area of Edo State, Nigeria. *Ann. Afr. Med.* **11**, 139–145 (2012).
51. Asesefa Kisi, M., Tamiru, D., Teshome, M. S., Tamiru, M. & Feyissa, G. T. Household food insecurity and coping strategies among pensioners in Jimma Town, South West Ethiopia. *BMC Public Health* **18**, 1–8 (2018).
52. Allison, P. D. *Logistic Regression Using SAS: Theory and Application*. (SAS Institute Inc, 2012).
53. Allison, P. When Can You Safely Ignore Multicollinearity? *Statistical Horizons* (2012).
54. Pujilestari, T., Haryanto, T. & Airlangga, U. Determinants of Household Food Security in West Nusa Tenggara, Indonesia. *Econosains* **18**, 24–38 (2020).

Received: 26-10-2021. Accepted: 26-11-2021. Published online: 27-11-2021.
doi: 10.20473/amnt. V5i2SP.2021. 30-38. **Joinly Published by IAGIKMI & Universitas**