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The Effect of Anxiety on Farmers' Compliance in Implementing COVID-19 Preventive Health Protocol in Daily Life: A Case Study in Rural Java

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Abstract

The outbreak of COVID-19 has affected virtually all aspects in almost every country. However, economically it does not directly affect the agricultural sector that plays an essential role as the community's food provider. Nonetheless, to maintain food security during the pandemic, farmers' health should be treated as a serious issue in order to make sure that it would not affect their productivity. Thus, food production can continue to run. This study explores farmers' anxiety in regards to their compliance in implementing the COVID-19 preventive health protocol in their daily lives in Java's rice producer areas. Ordered Logistic Regression is applied to estimate their level of compliance. In general, it can be concluded that farmers in rural Java lack of discipline in obeying the protocol. Based on the case study, the anxiety is linked positively to the compliance. Anxious farmers are far more obedient in implementing the health protocol. At the same time, farmers' anxiety must be overcome, because anxiety may affect the mental health of farmers

Keywords: COVID-19, Anxiety, Farmers, Health Protocol

1. Introduction

COVID-19 is a contagious disease caused by a new type of coronavirus with typical symptoms of fever, weakness, cough, seizures, and diarrhea (WHO, 2020; Wu et al., 2020; Repici et al., 2020). This virus spreads quickly from human to human through direct close contact by airborne transmission (Li et al., 2020; Rothe et al., 2020; Morawska& Cao, 2020). In December 2019, several patients with mysterious pneumonia were reported for the first time in Wuhan, China (Phelan, Katz, &Gostin, 2020), followed by cases of COVID-19 in other countries (Singhal, 2020; Yooko et al., 2020). Meanwhile, in Indonesia, the first outbreak was announced to have occurred in early March 2020, reporting two patients infected by the virus. In no time, the cases rapidly increased (Figure 1). Coronavirus cases in Indonesia from early March to late September have not shown a decline, with a total death toll of 10740 people.

This pandemic has hit almost all sectors there are. Economy suffers the most serious impacts. The Central Bureau Statistics of Indonesia (BPS) reported that Indonesia's economic growth in the second quarter of 2020 was minus 5.32%. In the previous quarter it was reported growing only by 2.97%, decreasing considerably from 5.02% in the same period of 2019. This weakening economic performance has affected labor situation in Indonesia. The slowing down of businesses has forced companies to cut down activities to reduce losses. Layoffs are inevitable. Unemployment also rises in the informal sector. Restrictions of social activities have hurt the economy badly.

Since early March 2020, Indonesian government has taken various countermeasures to reduce the impacts of the diseases in many different sectors. A new normal policy was enforced to save both sides; people's economy and health. However, community respond in very diverse ways. Some are obedient to take the preventive measures, but others are just downright ignorant. Compliance with health protocol becomes a serious issue. The awareness of the importance of the protocol is relatively low in all levels of society despite the intensive socialization of the new habits as recommended by the WHO, such as using masks,

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washing hands, avoiding crowds and maintaining physical distance, including while at the work place (Cirrincione et al., 2020).

Financial pressure and fears of being exposed to the coronavirus could trigger mental disturbance, such as anxiety, depression, and stress. Confusing and inconsistent government's policies to cope with the pandemic may intensify this burden. As stated by Craske & Stein (2016), anxiety, in particular, can be caused by environmental, emotional, and physical factors. The massive spread of false information (hoaxes) and misleading conspiracy theories could also contribute to this mental anxiety.

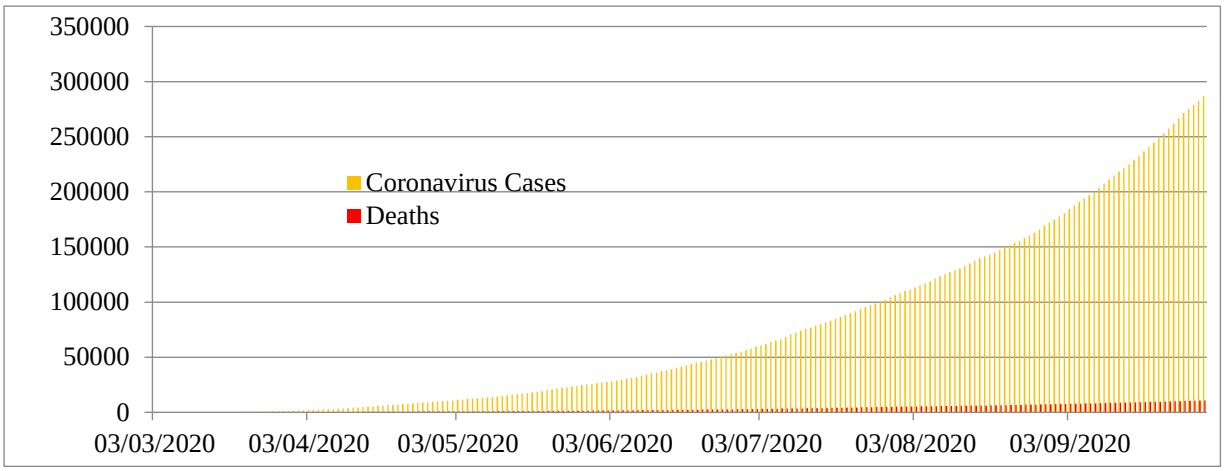

Figure 1. **Coronavirus cases in Indonesia**
Source: www.worldometers.info, 2020

Some previous studies in several countries reported that anxiety disorders cause psychological anomalies during the COVID-19 pandemic (Talevi et al., 2020). These disorders experienced by individuals could reduce their immunity so they are susceptible to disease (Vinkers et al., 2020). However, according to Javed (2020) and Moon & Moon (2020), strategies to prevent stigmatization and reduce the anxiety has not been extensively studied, although it has been widely discussed in popular articles. Most efforts focused on understanding the epidemiology, clinical features, transmission patterns and management of the COVID-19 outbreak.

This anxiety disorder can even make a person commit suicide (Moon & Moon, 2020; Sher, 2020). In Indonesia, there have been suicide cases because the victims thought they were contracted by COVID-19, even though they were not yet tested. If this continues, this can become a new problem for public health that needs special attention. Vinkers et al. (2020) addressed that resilience is necessary to reduce the risk of anxiety during the current coronavirus pandemic. It is also important to stay balanced both at the individual and community level. One of the longitudinal studies on the mental impact of COVID-19 found that wearing a mask, maintaining social distancing, and washing hands were associated with greater positive mental health (Wang et al., 2020).

In rural areas, lack of awareness to implement COVID-19 preventive health protocols is quite common. Lack of knowledge, low educational level, limited health access, reluctance to seek health care, community's older age and communal culture are alleged to be the causes of low compliance in implementing health protocols in their daily life. Moon & Moon (2020) emphasized that mental health care was very much needed in the rural areas as the data had shown that suicide rates were higher in rural communities.

Take this case happening in a rural agricultural district in South Korea. A patient was reported to be admitted to the emergency room with complaints of tightness and chest discomfort. No abnormalities were found from the laboratory test or after the electrocardiogram. The patient displayed symptoms consistent with anxiety disorder, which were linked to the fear of contracting the coronavirus. A few weeks later, the patient was again admitted to the emergency room for a suicide attempt.

The majority of rural people work in the agricultural sector that does not have rigid control system over the application of health protocols as in formal industries. Meanwhile, as nation's food provider, the agricultural work plays an important role. When other industries are sinking and

economic growth is suspended, agriculture is experiencing positive growth. It has even served as the savior and driver of the national economy.

Central Bureau Statistic of Indonesia (BPS, 2020) reported that in the second quarter of 2020, the agriculture GDP was the highest contributor to Indonesia's national economic growth, 16.24% (q to q). The increasing GDP of this sector in the first and second quarters indicates a positive impact on the upstream, downstream, and even agricultural support services. The price of rice, staple food for majority of Indonesian, is relatively stable for both dry unhulled rice (GKP) and milled unhulled rice (GKG), indicating that the production tends to be sufficient. It is estimated that rice production in 2020 will increase by 1.02% compared to the previous year. Rice production in 2020 is predicted to be 55.16 million tons of GKG (Milled Dry Grain), increasing 556.51 thousand tons compared to the previous year (54.60 million tons). Even though there was a decrease by 3.18% in the harvest during January-September 2020, this sector is still optimistic, predicting that there is a potential increase in the final quarter of 2020 by 1%, which is supported by an increase in the harvest areas (BPS, 2020). Of course this prediction will come true only if the some conditions are secured, in terms of agro-climate, natural resources and human resources, in this case the farmers.

Therefore, farmers' health is a serious concern in order to ensure food security during COVID-19 pandemic. The compliance of farmers in implementing the COVID-19 preventive health protocol is essential to cut the spread of coronavirus in rural areas. Farmers' mental health should be maintained so that anxiety does not reduce the immunity of farmers as panic attack and generalized anxiety may affect mental health (Islam et al., 2020). Farmer's health would mentally and physically affects their productivity which in turn would affect the efficiency of agricultural production, farmers' income and the overall rural economy (Ulimwengu, 2009; Loureiro, 2009).

Health is one of the key factors affecting farmers' productivity in addition to education level, age, farming experience and participation in farmer groups. Antriyandarti (2012) stated that farmer good health would contribute to their productivity, which means increasing agricultural production and socio-economic opportunities, and finally improving their welfare.

Asenso-Okyere (2011) explained that poor health would impact on farm households in regards to three important things, namely absence from work due to morbidity (and ultimately death), family time diverted to care for the sick, loss of savings and assets to overcome disease and its impact. The long-term impacts of ill health include loss of agricultural knowledge, reduction of cultivated land, less labor intensive crop planting, reduction of variety of crops planted, and livestock reduction. The final impact is a decline in household income which leads to food insecurity.

There is a strong connection between health and farm labor productivity. Thus, the mental and physical health of farmers during the COVID-19 pandemic should be a concern. Farmers' anxiety and compliance in implementing health protocols is very interesting to study. Therefore, this study attempted to explore the effect of farmers' anxiety on compliance with the COVID-19 prevention health protocol. To the best of our knowledge, there are no studies examining the effect of farmers' anxiety on their compliance in implementing COVID-19 prevention health protocols. Other studies only focus on things related to anxiety and mental health and the influencing factors during the COVID-19 pandemic (Parrish, 2020; Egede et al., 2020; Banerjee et al., 2020; Choi et al., 2020; Stein, 2020; Vindegaard, 2020). This is the first study exploring farmers' anxiety and its effect on the compliance with COVID-19 preventive health protocol.

2. Research Method

2.1 Study Area

This study used descriptive method, providing an overview of phenomena, explaining the relationship between variables, between categories in a variable with other variables, making predictions, historical analysis and getting the meaning and implications of a problem being solved (Bryman, 2004).

The research was conducted in two rural areas of Central Java and Yogyakarta Provinces namely Godean and Mungkid sub-districts. Those two subject locations are chosen by purposive sampling method; a selection of a group of subjects based on certain characteristics or traits that considered closely related to previously known ones. This kind of method is applied to achieve certain goals (Siagian & Sugiarto, 2000).

The geographic conditions of Magelang and Sleman districts are surrounded by mountains and mountains. The land is very fertile and suitable for agriculture because of the volcanic ash from Mount Merapi. Both Mungkid and Godean sub-districts have abundant water sources. There are large rivers flowing in Godean, namely Konteng, Bedog and Krasak. Likewise, Mungkid sub-district also has a

large river, namely the Elo river.

Godean is typical lowland with an altitude of 79 m above sea level, while Mungkid is a plateau with an altitude of 320 m sea level. The distance from Mungkid sub-district to the district capital is closer than that of Godean sub-district, which is only 7 km away, while Godean is 13.03 km. Mungkid's total area is 3.44% to regency's area, it is about 3740 ha, and Godean's is 4.67% to regency's area, around 2684 ha (BPS-Statistics of Magelang Regency, 2020*;* Godean Sub-District, 2020). Those two are prominent rice-procuder areas. The total harvest area in Central Java and Yogyakarta is 1,796,696.66 ha or 16.7% of the nation's. More specifically, 18.3% of the country's total production comes from these two provinces (BPS, 2020).

It is important to note that both Mungkid and Godean are popular tourism villages. It is due to the fact that both of them lie in the route of international tourism objects, namely Borobudur Temple in Central Java, and Yogyakarta, a cultural and historic site of Java.

When the 'new normal' phase of the pandemic was announced, tourism became one of the economic recovery resources the government relied on. A lot of tourisms objects were reopened after halting several months during the beginning of the pandemic. As a result, tourists start to flow in a great number, increasing the risk of local people of being infected by the coronavirus.

2.2 Data

The data used in this study are primary data obtained from a survey. The survey used a semi-structured questionnaire addressed to the rice farmers; asking them about anxiety and implementation of the COVID-19 prevention health protocol. This study took total 222 sample households (84 in Godean and 138 in Mungkid). The survey was conducted in July-August 2020. There only two questions in the questionnaire which were simple and did not take long to answer. They are:

1. Do you now feel anxious due to the COVID-19 pandemic?
   a. Yes b. No
2. Do you implement the four precautions of the health protocol as instructed by the government to prevent transmission and spread of the COVID-19 virus? Put a check mark on the prevention health protocol you apply daily.
   a. Wearing a mask
   b. Washing hands or using hand sanitizer frequently
   c. Maintaining physical distance
   d. Avoiding crowd

2.3 Empirical Model

To estimate farmers' compliance in implementing COVID-19 preventive health protocol in daily life, we apply Ordered Logistic Regression due to the dependent variable in this model is a discrete qualitative variable that shows the level of compliance in implementing the COVID-19 prevention health protocol, namely non-compliance, moderately obedient, obedient, very obedient, while the independent variable is a dummy variable and a continuous variable. The empirical model of this study is defined in Equation 1.

$$Cmp = \beta_0 + \beta_s DS_i + \beta_E E_i + \beta_A A_i + \beta_{FS} FS_i + \beta_{Anx} Anx_i + \varepsilon_i \quad (1)$$

Where:

Cmp = The compliance in implementing COVID-19 preventive health protocol
DS = Dummy of sex, if male =1, otherwise = 0
E = Education (years)
A = Age (years)
FS = Number of family members (people)
Anx = Dummy of anxiety feeling, if anxious = 1, otherwise = 0
ε = Random disturbance

2.4 Data Analysis Technique

The Ordered Logistic Regression model is used to estimate the regression coefficient which can be used to predict the value of the dependent variable's fitted probability. The highest probability is obtained when more observations fall into one category than others. Ordered Logistic Regression in this model form a predictor/response variable $ln\frac{p_1 + p_2 + p_3 + p_4}{1 - p_1 - p_2 - p_3 - p_4}$, which is a linear combination of independent variables. This predictor variable value is transformed into a probability with the logit function. The estimation method commonly used in logistic regression is the maximum likelihood method. The use of maximum likelihood to replace the least square function which minimizes the error is expected to result estimated variable value closer to the actual value of the variable. The maximum likelihood method works by forming an equation which shows that the probability of the observed data is a function of the estimated parameters. This equation is the log likelihood function. Each observation for the logistic regression model is a random variable from Bernoulli (Liu, 2015). Ordered logistic regression is a logistic regression modeling for dependent variable data (Y) with a non-binary ordinal categorical response (ordinal categorical with more

than two categories) (Stock and Watson, 2014).

Partial test is done by using the Z-stat test to see whether each independent variable separately affects the dependent variable *Cmp*. The Z-stat is carried out with the following hypothesis:

H0 = the independent variable does not affect the dependent variable (*Cmp*)

where $a_1 = a_2 = ... = a_n = 0$ (not significant)

H1 = the independent variable affects the dependent variable (*Cmp*)

where there is *i* which is $a_1 \neq 0$ (significant)

In determining whether to accept or reject H0, the Z-stat value for each independent variable is compared with the significance level (α). H0 is rejected if Z-stat < α, and H0 is accepted if Z-stat > α. The value of α is 1%, 5% and 10% (0.01, 0.05 and 0.1).

The Likelihood Ratio is used to test whether all the independent variables in the model simultaneously affect the dependent variable. The hypothesis in testing the Likelihood Ratio is as follows:

H0 = all independent variables simultaneously do not affect the dependent variable

H1 = all independent variables simultaneously affect the dependent variable

The null hypothesis is rejected if the probability of the Likelihood Ratio < α, and vice versa, the null hypothesis is accepted if the probability of the Likelihood Ratio > α.

The goodness of fit model can be seen from the R-square, to find out how much variation in the dependent variable can be explained jointly by the independent variable and to see how the model can explain the dependent variable. The higher R-square value indicates that the model is more capable to explain the dependent variable. However, the consideration of economic logic is still be prioritized. If the cross section data analysis obtains low R-square but the Z-stat test results are significant and the finding is in accordance with economic theory, then the model can be categorized as a statistically feasible model. In the logistic regression model, the R-square is expressed as a pseudo R-square (Gujarati, 2004).

3 Result and Discussion

3.1 Situation of Study Area

The majority of the population in Mungkid and Godean sub-districts is farmers with the main commodity of rice. According to Antriyandarti and Fukui (2010), farm household income is influenced by the price of rice, education, off-farm (non-agricultural) income and assets owned by farm households. Some household heads and member of farm households have off-farm jobs to increase their income due to the income from rice farming has an insufficient contribution to household income. The average of farm size in Mungkid is 0.33 ha and in Godean is 0.39 ha. Subsidiary off-farm jobs in the study areas such as traders, roof tile makers, craftsman, public servant, daily unskilled laborers, etc. The permanent off-farm worker category includes factory workers who work in various kinds of factories, for instance, garment factories, plastic, food and automobile factories in Yogyakarta city, Sleman or Magelang districts, while the public servant category includes primary school teacher, secondary school teachers, nurses, police, village officer and lectures. The unskilled daily labor category includes agricultural hired laborers for transplanting, weeding, and harvesting and tractor operation.

The location of Mungkid sub-district which is close to the tourist area of Borobudur Temple is a geographical advantage where the tourist location can diversify the livelihoods of the Mungkid sub-district population. In addition, with the Elo river flowing near the Borobudur Temple area, the community in Mungkid sub-district has taken the initiative to build a tourist village by opening a tubing tourism with the brand "Senden Water Adventure". Godean sub-district itself is famous for eel culinary tour, which has become an icon of the district. In addition, there are Pandawa Hill and well-known tourist villages, namely Sidoakur and Sidoluhur. Therefore some people in Godean also have subsidiary jobs in the tourism sector. Those conditions cause people in the study area to have high possibility to interact with many people during the COVID-19 pandemic in their daily laife.

3.2 Implementation of COVID-19 Preventive Health Protocol in The Study Area

The majority of respondents in this study did not carry out the four precautions of health protocol instructed by the government. The most common action they take is wearing a mask when going out. However, if they do not go very far, i.e. still within their own village, they tend not to wear it. The most difficult precautions to take are maintaining physical distance and avoiding crowds. The collective culture is still very strong in most of Indonesian villages. Communal interaction between individuals is prevalent both in work and social events. Table 1 describes the number of sample farmers in relation to the implementation of COVID-19 preventive health protocol.

Table 1. **Implementation of COVID-19 preventive health protocol in the study areas**

Protocol	Godean		Mungkid	
	People	Percentage	People	Percentage
Wearing a mask	78	92.8	112	81.2
Washing hands or using hand sanitizer	76	90.5	74	53.6
Maintaining physical distance	19	22.6	34	24.6
Avoiding crowds	40	47.6	55	39.8

Source: Farm Household Survey, 2020

Table 1 shows that the level of compliance in Godean is higher than in Mungkid. It is influenced by social and cultural factors. The level of anxiety may also contribute to this level of compliance. There are more worried farmers in Godean than in Mungkid. Nineteen percent of Godean farmers are worried about the pandemic, much higher than those in Mungkid (2%) (Figure 2). It can be said that farmers in Mungkid do not consider the COVID-19 pandemic is a situation that should be worried about. Based on the results of interviews with key informants in the study area, the anxiety only occurs in March - April when the COVID-19 pandemic began. At the start of the pandemic, the rural communities in the study area w ere very careful.

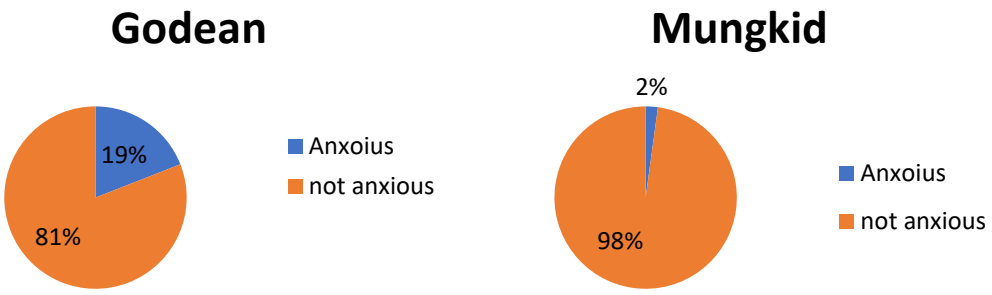

Figure 2. **The percentage of anxiety in the study areas**
Source: Farm Household Survey, 2020

At the start of the pandemic, people in the study areas felt anxious because they had never experienced a global pandemic that rocked almost all countries. However, as time goes by, after Eid Mubarak (May 26, 2020) and the government started implementing a new normal policy, people become calmer and more relaxed in the face of a pandemic. Moreover, according to the key informant in the study areas, hoaxes and conspiracy news that quickly spread on WhatsApp group may cause the people to pay less attention to the dangers of COVID-19. Although there is also hoax news that causes panic and anxiety, hoaxes that spread in the study area are misleading hoaxes, which make people ignore the dangers of COVID-19. The hoax circulating in the community at the research location, for example, is information that COVID-19 does not actually exist and only part of global business. As a consequence, compliance in carrying out the COVID-19 prevention health protocol will weaken.

3.3 Estimation Result

In order to estimate the effect of farmers' anxiety on compliance in implementing the COVID-19 prevention health protocol, Ordered Logistic Regression is applied. Table 2 presents the estimation result.

The null hypothesis of the test of Likelihood Ratio is rejected, since probability of the Likelihood Ratio < 0.01, indicates that all the independent variables in the model simultaneously affect the dependent variable and have significance at 1% level. In other words, variable of sex, age, education, family size, and anxiety influence the compliance in implementing the COVID-19 prevention health protocol simultaneously.

Based on the estimation results in Table 2, it can be seen that anxiety is very influential in compliance with implementing the COVID-19 prevention health protocol. It is shown in the estimated parameter of anxiety, which has a significant positive effect on compliance with the COVID-19 prevention health protocol at the 1%

significance level, since Z-stat < 0.01. The higher the farmer's anxiety level, the more likely they will comply with the COVID-19 prevention health protocol. An increase in anxiety by 1 unit of anxiety level will increase compliance in implementing health protocols by 7.9517 units of compliance level. This finding differs from previous studies, where anxiety has an impact on mental health (Choi et al, 2020; Islam et al, 2020; Parrish, 2020; Sher, 2020; Stein, 2020). It turns out that anxiety can also lead to a more compliant health protocol.

Table 2. **Estimation result of compliance in implementing the COVID-19 prevention health protocol**

Variable	Coefficient	Standard of Error
Sex	-0.6891	0.7087
Age	0.0345***	0.0132
Education	0.2817***	0.0472
Familysize	-0.0947	0.0857
Anxiety	7.9517***	1.3008
Number of Obs.	222	
Pseudo R^2	0.6220	
LR chi^2	149.33***	
Log-likelihood	-210.27419	

Source : Farm Household Analysis, 2020

Note: *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level

To the contrary, farmers' sex and family size do not significantly affect the compliance attitude as shown by the insignificant estimated parameter of those variables (Z-stat > α). This suggested that there is no difference between male and female farmers in compliance with health protocols. This is not linear with Mauvais-Jarvis et al. (2020) stated that there are differences between men and women in their behavior to prevent disease, because there are sex and gender differences in major chronic diseases that cause attention to disease and its prevention is also different. It also seems that number of family members does not make farmers care more for their safety or urge them to protect themselves from contracting with the virus by better complying with the health protocols. There has been no research that explicitly examines the relationship between the number of family members and a person's healthy behavior. Garrett & Landau (2007) found that the family is a source of strength that encourages a person to behave adaptively towards health. Family motivation to change for the better will guide a person to survive in the face of serious threats. Thus, it may indicate that the finding in this study contradicts the finding of Garrett & Landau (2007).

On the other hand, age and education seem to be positively relevant to the compliance in implementing the COVID-19 prevention health protocol at 1% level. Older age and longer education years lead to higher compliance. An increase in age by 1 year, lead an increase in compliance in implementing health protocols by 0.0345 units of compliance. Elderly farmers in the study areas tend to be more careful and are more willing to implement health protocols. This is good finding since older age people is at a higher risk of infecting COVID-19 (Armitage and Nellums, 2020). DeVoe et al. (2009) mentioned that age is often associated with people's perceptions of health care because it varies by age. Elderly people (ages ≥ 65 years) paid more attention to development and health care conditions than the younger people. The estimated parameter of education variable is 0.2817, indicating that an increase in education for 1 year lead an increase in compliance in carrying out health protocols by 0.2817 units of compliance. This finding is consistent with Cowell (2006), stating that more educated people usually behave healthier. With longer education years, people have more knowledge and awareness to increase the utility that is influenced by current health-related behaviors. However, according to Zimmerman & Woolf (2014), the relationship between years of education and health is not a linear function. Education together with other characteristic factors such as age, socio-economy and environment has an influence on people's health behavior. Education will always be associated with human behavior due to the dimensions of education are clearly important not only about logic, science and mathematics but also in the ecological context of cognitive and character development, knowledge, critical thinking and problem solving. In the end, education affects decision making and behavior, including compliance in implementing COVID-19 preventive health protocol in daily life.

A pseudo R^2 is 0.6220, indicating that the

independent variable in this model can explain its effect on implementing the COVID-19 prevention health protocol by 62.2%, while 37.8% is explained by other variables that have not been included in this research model.

4 Conclusion

Farmers in rural Java lack of discipline in applying COVID-19 preventive health protocol. Farmers' anxiety may have an impact to the mental health of farm community in rural areas. Precisely, based on this case study, anxious farmers are more likely to implement the COVID-19 preventive health protocol. It is very important to prevent farmers from experiencing anxiety, but still adhere to the COVID-19 prevention health protocol. In addition, it is also necessary to raise awareness and discipline in rural communities to comply with the COVID-19 preventive health protocol. Implementing strict health protocols does not only keeps farmers physically safe but also makes farmers mentally strong. Thus, food security and agricultural production to meet human needs are guaranteed.

From those findings, some policy implications can be drawn. In order to achieve food security during Covid-19 pandemic, Indonesian government need strategic policies that related the human resources in agricultural sector. First, the government needs to provide correct education and information about COVID-19 to rural communities, who mostly work as farmers. Second, the government must enforce regulations so that society is orderly and disciplined in carrying out the health protocol for preventing COVID-19. Third, from the agricultural production side, the government is required to support the agricultural production process from the input system to marketing, so that farmers do not experience anxiety caused by the economic difficulties of the COVID-19 pandemic.

5 Limitation of the study

This study has many limitations, especially in terms of the number of samples and depth of research framework and concept. A more comprehensive and in-depth questions about anxiety should be developed. This study deserves further research that carried out by researches of many different backgrounds such mental health, anthropology, sociology and agricultural economics, with a much larger sample and wider research locations.

References

[1] Antriyandarti, E. & Fukui, S. (2010). Impact of rice trade liberalization on farm households in Central Java. *SEPA: Jurnal Sosial Ekonomi Pertanian dan Agribisnis*, *7* (1): 23–29.

[2] Antriyandarti, E. (2012). Pengaruh Sanitasi dan Kesehatan Terhadap Produktivitas Petani (Studi Kasus Di KabupatenSleman) (Impact of sanitation and health toward farmer productivity). *Proceeding National Seminar MMA UGM: Strengthening Rice Agribusiness to Achieve Farm Independence and Welfare*, 81–85.

[3] Asenso-Okyere, K., Chiang, C., Thangata, P. H., Andam, K. S. (2011). Interactions between health and farm labor productivity. Food Policy Report. Washington DC: International Food Policy Research Institute. Retrieved from https://www.ifpri.org/publication/interactions-between-health-and-farm-labor-productivity

[4] Armitage, R., & Nellums, L. B. (2020). COVID-19 and the consequences of isolating the elderly. *Lancet Public Health*, *5*(5): 296.

[5] Banerjee D, Bhattacharya P. (2020). "Pandemonium of the pandemic": Impact of COVID-19 in India, focus on mental health. *Psychol Trauma*, *12*(6), 588–592. https://doi.org/10.1037/tra0000799.

[6] BPS (Central Bureau of Statistic). (2020a). Pertumbuhan Ekonomi Indonesia Triwulan II-2020 (Economic Growth of Indonesia in Second Quarter). *Berita Resmi Statistik*, 64(08).

[7] BPS (Central Bureau of Statistic). (2020b). *Rice Production Based on Province*. Retrieved from https://www.bps.go.id/linkTableDinamis/view/id/865

[8] BPS-Statistics of Magelang Regency (2020). Magelang in figures. Retrieved fromhttps://magelangkab.bps.go.id/publication/2020/04/27/0e5f89ea3d81aaa61f44896f/kabupaten-magelang-dalam-angka-2020.html

[9] Bryman, A.(2004). *Social Research Methods*. Second Edition. New York: Oxford University PressInc.

[10] Choi, E.P.H., Hui, B.P.H., Wan, E.Y.F. (2020). Depression and anxiety in Hong Kong during COVID-19. *Int J Environ Res Public Health*, *17*(10), 3740. https://doi.org/10.3390/ijerph17103740.

[11] Cirrincione, L., Plescia, F., Ledda, C., Rapisarda, V.,Martorana, D., Moldovan, R. E., Theodoridou, K., &Cannizzaro, E. (2020). COVID-19 Pandemic: prevention and protection measures to be adopted at the workplace. *Sustainability*, 12, 3603. https://doi.org/10.3390/su12093603

[12] Craske, M. G & Stein, M. B. (2016). Anxiety.The *Lancet*, *388* (10063), 3084-3059.

https://doi.org/10.1016/S0140-6736(16)30381-6

[13] Cowell, A.J. (2006). The relationship between education and health behavior: some empirical evidence. *Health Econ, 15*(2), 125–46. https://doi.org/10.1002/hec.1019

[14] Damihartini, R. S., &Jahi, A. (2005). Hubungan karakteristik petani dengan kompetensi agribisnis pada usaha tani sayuran di kabupaten Kediri JawaTimur (The relationship of farmer characteristics and agribusiness competeny in vegetables farming in Kediri District East Java). *JurnalPenyuluhan*, *1*(1). https://doi.org/10.25015/penyuluhan.v1i1.2097

[15] DeVoe, J. E., Wallace, L. S., & Fryer, G. E., Jr. (2009). Patient age influences perceptions about health care communication. *Family medicine*, *41*(2), 126–133.

[16] Dewi, N. L. P. R., Utama, M. S., Yuliarmi, N. Y. (2017) Faktor-faktor yang mempengaruhi produktivitas usahatani dan keberhasilan program SIMANTRI di kabupaten Klungkung (Influenced factors of farming productivity and achievement of SIMANTRI program in Klungkung district). *E-Jurnal Ekonomi dan Bisnis Universitas Udayana*, *6*(2), 701-728.

[17] Egede LE, Ruggiero KJ, Frueh BC. (2020). Ensuring mental health access for vulnerable populations in COVID era. *J Psychiatr Res*, 129:147–148. https://doi.org/10.1016/j/jpsychiires.2020.07.011

[18] Garrett, J. & Landau, J. 2007. Family motivation to change: A major factor in engaging alcoholics in treatment. *Alcoholism Treatment Quarterly, 25*(1-2), 65–83.

[19] Godean Sub-district. (2020). *Godean in figures.* Unpublished Monograph. SlemanDistrict.

[20] Gujarati, D.N. (2004). *Basic econometrics*. 4th Edition. New York: McGraw-Hill Companies.

[21] Islam, M. S., Ferdous, M. Z., & Potenza, M. N. (2020). Panic and generalized anxiety during the COVID-19 pandemic among Bangladeshi people: An online pilot survey early in the outbreak. *Journal of Affective Disorders*, 276, 30–37. https://doi.org/10.1016/j/jad.2020.06.049

[22] Javed, B., Sarwer, A., Soto, E. B., & Mashwani, Z. U. (2020). The coronavirus (COVID-19) pandemic's impact on mental health. *The International journal of health planning and management*, *35*(5), 993–996. https://doi.org/10.1002/hpm.3008

[23] Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Feng, Z. (2020). Early transmission dynamics in Wuhan, China, of Novel Coronavirus–infected Pneumonia. *The New England Journal of Medicine*, *382*(13), 1199–1207. https://doi.org/10.1056/NEJMoa2001316

[24] Liu, X. 2015.*Applied Ordinal Logistic Regression Using Stata: From Single-Level to Multilevel Modeling 1st Edition, Kindle Edition*. Sage Publication.

[25] Loureiro, M. L. (2009). Farmers' health and agricultural productivity. *Agricultural Economics*, *40*(4), 381–388. https://doi.org/10.1111/j.1574-0862.2009.00385.x

[26] Mauvais-Jarvis, F., Merz, N. B, Barnes, P. J., Brinton, R. D., Carrero, J., DeMeo, D. L., De Vries, G. J., Epperson, C. N., Govindan, R., Klein, S. L., Leonardo, A., Maki, P. M., McCullough, L. D., Regitz-Zagrosek, V., Regensteiner, J. G., Rubin, J. B., Sandberg, K., Suzuki, A .(2020). Sex and gender: modifiers of health, disease and medicine. The Lancet, 396 (10250), 565-582. https://doi.org/10.1016/S0140-6736(20)31561-0

[27] Moon, J., Moon, H. (2020). Mental health care in rural and remote areas necessitate greater attention during the COVID-19 pandemic. *Rural and Remote Health*, *20*, 6404. https://doi. org/10.22605/RRH6404

[28] Morawska, L., & Cao, J. (2020). Airborne transmission of SARS-CoV-2: The world should face the reality. *Environment international*, 139, 105730. https://doi.org/10.1016/j.envint. 105730

[29] Parrish E. (2020). The next pandemic: COVID-19 mental health pandemic. *Perspect Psychiatr Care*, *56*(3), 485. https://doi.org/10.1111/ppc.12571.

[30] Phelan, L. A., Katz, R., & Gostin, L. O. (2020). The Novel Coronavirus Originating in Wuhan, China Challenges for Global Health Governance. *JAMA*, *323*(8), 709–710. https://doi.org/10.1001/jama. 2020.1097

[31] Repici, A., Maselli, R., Colombo, M., Gabbiadini, R., Spadaccini, M., Anderloni, A., Lagioia, M. (2020). Coronavirus (COVID-19) outbreak: what the department of endoscopy should know. *Gastrointestinal Endoscopy Journal*, 1–6. https://doi.org/10.1016/j.gie.2020.03.019

[32] Rothe, C., Schunk, M., Sothmann, P., Bretzel, G., Froeschl, G., Wallrauch, C., Janke, C. (2020). Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany. *The New England Journal of Medicine*, *382*(10).

https://doi.org/10.1056/NEJMc 2001468

[33] Sher, L. (2020). COVID-19, anxiety, sleep disturbances and suicide. *Sleep Med, 70*, 124. https://doi.org/10.1016/j.sleep.2020.04.019.

[34] Siagian, D. & Sugiarto. (2000). *Metode Statistika untuk Bisnis dan Ekonomi (Statistics Method for Business and Economics)*.Jakarta: Gramedia Pustaka Utama.

[35] Singhal, T. (2020). A review of coronavirus disease-2019 (COVID-19). *Indian journal of pediatrics*, *87*(4), 281–286.https://doi.org/10.1007/s12098-020-03263-6

[36] Stein MB. (2020). EDITORIAL: COVID-19 and anxiety and depression in 2020. *Depress Anxiety, 37*(4), 302. https://doi.org/10.1002/da.23014.

[37] Stock, J. H., & Watson, M. W. (2007). *Introduction to econometrics*. Boston: Pearson/Addison Wesley.

[38] Talevi, D., Socci, V., Carai, M., Carnaghi, G., Faleri, S., Trebbi, E., di Bernardo, A., Capelli, F., Pacitti, F., (2020).Mental health outcomes of the COVID-19 pandemic. *RivPsichiatr*, *55* (3), 137–144. https://doi.org/10.1708/3382.33569.

[39] Ulimwengu, J. M., 2009. Farmers' health and agricultural productivity in rural Ethiopia. *African Journal of Agricultural and Resource Economics*, *3*(2), 1–18.https://doi.org/10.22004/ag.econ.56902

[40] Vindegaard N, Benros ME. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain BehavImmun, 89*, 531–542. https://doi.org/10.1016/j.bbi.2020.05.048.

[41] Vinkers, C. H., van Amelsvoort, T., Bisson, J.I., Branchi, I., Cryan, J.F., Domschke, K., Howes, O.D., Manchia, M., Pinto, L., de Quervain, D., Schmidt, M.V., van der Wee, N.J.A. (2020) Stress resilience during the coronavirus pandemic. *EurNeuropsychopharmacol*, *35*, 12–16. https://doi.org/10.1016/j.euroneuro.2020.05.003

[42] Wang ,C., Chudzicka-Czupała, A., Grabowski, D., Pan, R., Adamus, K., Wan, X., Hetnał, M., Tan, Y., Olszewska-Guizzo, A., Xu, L., McIntyre, R.S., Quek, J,, Ho, R. &Ho, C. (2020). The Association between physical and mental health and face mask use during the COVID-19 Pandemic: a comparison of two countries with different views and practices. *Front. Psychiatry*, *11*, 569981.https://doi.org/10.3389/fpsyt.2020.569981

[43] WHO. (2020a). Coronavirus disease 2019 (COVID-19) Situation Report –67.WHO. (2020b). *The World Health Organization declared the coronavirus outbreak a Global Public Health Emergency*. Retrieved from https://www.worldometers.info/coronavirus/

[44] Worlddometers. (2020). Coronavirus Cases in Indonesia. Retrieved from https://www.worldometers.info/coronavirus/country/indonesia/

[45] Wu, Y. C., Chen, C. S., Chan, Y. J. (2020). The outbreak of COVID-19: An overview. *Journal of the Chinese Medical Association,83*(3), 217–220. https://doi.org/10/1097/JCMA.0000000000000270

[46] Yokoo, K., Sugaya, F., Matsuzaka, S., Ueda, K. Kamimura, R., Yokoyama, T., Ambo, Y., Yamada, G., Narita, Y. (2020) The first case of COVID-19 occurring as community-acquired pneumonia in Hokkaido, Japan and our preventive measures against nosocomial infection. *Respiratory Medicine Case Reports*, *30*, 101078. https://doi.org/10.1016/j.rmcr.2020.101078

[47] Zimmerman, E. & Woolf, S. H. (2014). Understanding the relationship between education and health. *NAM Perspectives.* Discussion Paper, National Academy of Medicine, Washington, DC. https://doi.org/10.31478/201406a