

Psychological Determinants of Farmer Household Empowerment in Achieving Food Security and Resilience in Vegetable and Fruit Production during the COVID-19 Pandemic and New Normal

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Abstract

This study examines the dominant socioeconomic determinants that can empower farmer households to develop the security and resilience of vegetable and fruit food during the COVID-19 pandemic and the New Normal. The research location was in Banyumas Regency, Central Java Province, Indonesia. The research method used is a descriptive survey. The results showed that four socioeconomic factors were dominant in determining the behavior of the three clusters of respondents' households in maintaining and developing food security for vegetables and fruit. The four dominant factors that determine the success of the respondent's household empowerment include awareness, experience, family support, and accessibility to agricultural technology and food processing. The empowerment pattern designed requires connectivity with several elements that strengthen the function of the four most dominant determinants. The various elements include the availability of local resources, responsibility, a sense of belonging, openness, cooperation, and the availability of technology packages.

Keywords: dominant factor, food security, empowerment, COVID-19 pandemic, farmer household

Introduction

Revolutionary social changes due to the Corona Virus Disease (COVID-19) pandemic occurred suddenly and have hit the entire world since the end of 2019. Without exception, Indonesia also experienced the effects of the COVID-19 pandemic and the New Normal. Handling COVID-19 requires seriousness in various fields involving the participation of all community components with the government. The COVID-19 pandemic has disrupted various aspects of people's lives [1]; [2]. The government has imposed various regulations to protect Indonesian citizens from the threat of being attacked by COVID-19. One of the urgent and crucial regulations is the policy of resolving food security issues during the crisis due to the COVID-19 pandemic [3]; [4].

In connection with the nature of the COVID-19 and New Normal pandemics which endanger the safety and health of human resources, the Indonesian government has issued several important policies, including social distancing, physical distance, and increasing community immunity [5]; [6]. One of the strategic policies implemented by the entire community to avoid the risk of exposure to COVID-19 is to increase immunity through the consumption of various foodstuffs that are a source of minerals, vitamins C and E which help maintain body health [7]; [8]; [9].

Several agribusiness products that become superior food ingredients to increase immunity include vegetables and fruits [10]; [11]; [12]. However, the increase in the prices of the two types of food from the COVID-19 pandemic to the New Normal has been out of control. The general public finds it difficult to obtain and consume because it is scarce and expensive [13]; [14]. The COVID-19 pandemic also changes vegetable and fruit production [15]; [16]. This problem is understandable due to strict government regulations in enforcing regional isolation, restrictions on the flow of transportation of goods, market closures, and social distancing [13]; [17]. Distribution and marketing channels for vegetable and fruit food are disrupted [18]. Further problems arise

when consumers are hampered in meeting their needs for nutritious food consumption. At the same time, the adequacy of complete and nutritious food is one of the requirements to increase body immunity [7]; [19].

Literature Review

The series of problems of scarcity and high prices of vegetable and fruit types of food can be solved wisely at the household level, including by farmers. Farmer households include residents who also experienced economic disruption during the COVID-19 pandemic crisis [20]. Economic vulnerability is worsening, and the problem is due to production disruptions accompanied by economic urgency close to the poverty line. This problem should not continue because there is a risk of decreased body immunity due to food safety, including vegetables and fruit, which weakens farmers. Farming households solve the Covid-19 crisis with various strategies, including developing livelihood diversification [21].

Another wise and humane solution is to carry out a movement to empower farmer households to maintain and improve household food security independently. This alternative solution is interesting and important to study in depth. The awareness of farmer's family members needs to be raised so that they are willing and can provide vegetable and fruit food sources independently. The development of staple food management as a survival strategy has been studied previously [22]; [23]. Based on the results of this research, this follow-up research is focused on the study of the various dominant factors determining the empowerment of farmer households through the development of security and resilience of vegetable and fruit food during the Covid 19 Pandemic and the New Normal.

Guarantee the availability and adequacy of fulfilling the needs of vegetables and fruit can be managed by farmer households independently. Both types of food are seasonal; cultivation techniques do not have to be done in a large area. Vegetables and fruit are easy to grow in a narrow yard using verticulture techniques; both are also commonly planted in pots and polybags in the yard. Growing vegetables and fruit is part of farming diversification. Another planting technique is cultivation in plastic bottles of mineral drinks and used cans and then hanging them on a certain side of the wall of the house.

Various techniques for farming vegetables and fruits that are easy, practical, and inexpensive are one of the strategic solutions to increasing the ability of households to prepare food supplies during the COVID-19 pandemic crisis and the New Normal. However, it is realized that the realization of solutions to the problem of scarcity and rising prices of vegetables and fruit is determined by several socioeconomic factors. The series of determinants need to be studied so that the dominant types of factors are known and ready to be managed to empower farmer households. The development of creative behavior in maintaining and improving the safety of vegetable and fruit food is a solution to avoid the risk of a crisis due to the Covid 19 Pandemic and the New Normal.

Research Methods

The research location was determined purposively in the Banyumas Regency, Central Java Province, Indonesia. The initial observations showed that the scope of problems in developing the security and resilience of vegetable and fruit food in the era of the COVID-19 pandemic and the New Normal was found in people's lives, especially in farmer households in the research location. The government's policy targets to control the spread of the coronavirus through increasing the body's immunity are still vulnerable to being constrained by the scarcity and price increase of several types of agribusiness products, including vegetables and fruit from the Covid-19 pandemic to the New Normal. Farming communities in Banyumas have become sensitive to exposure to COVID-19 due to reduced income due to disruptions in the production and marketing of crops. Farmer households also experience food insecurity, including vegetables and fruit. This problem is motivated by social facts due to the increased number of residents affected by social distancing restrictions and lockdowns. Farmer family members risk losing their jobs and being laid off due to social and physical distancing. Therefore, the research theme is relevant to the community problems of farmers in the research location.

The research design was arranged in the form of a field study. The research method used is a descriptive survey with a quantitative and qualitative approach. The population as the primary data source consists of all farmer households living in rural areas of Banyumas Regency. The respondent determination technique used is cluster random sampling. Cluster 1 respondents include farmer households with a high average income (> IDR

5,000,000 per month), and cluster 2 respondents include farmer households with an average income (IDR 2,500,000-IDR 5,000,000 per month). Then, cluster 3 respondents include farmer households with a low average income (< IDR 2,500,000 per month). Determination of the number of respondent households is not carried out proportionally for each cluster. However, it is more adapted to the needs, adequacy, completeness, and depth of primary data until the saturation sample limit is reached. Key informants come from community leaders concerned with empowering farming communities and developing food security to solve the COVID-19 pandemic problem. Key informants were determined by snowball sampling.

The primary data collection technique used is in-depth interviews with primary data sources. The interviews were based on a structured face-to-face interview according to Covid 19 procedures (maintaining distance, using masks and hand sanitizers). Interview also took place using telephone, mobile phone, and WhatsApp communication technology facilities. The primary data collection technique with Focus Group Discussion (FGD) was used to find patterns of empowerment by extracting information from respondent representatives and key informants using Google Meeting, Google Form, and Zoom media. Observation is carried out as a primary data collection technique related to the results of observations of the household activities of the respondents.

Secondary data collection techniques using search and content analysis. Secondary data retrieval activities are intended to obtain data sourced from archives, documents, notes, books, journals, and research results relevant to the research theme, the government, and others. Secondary data serves as a guide or comparison that completes the discussion of primary data. All collected data was then processed and analyzed to be interpreted and described in detail. Data processing techniques are carried out qualitatively and quantitatively. A series of data processing and analysis activities were carried out while in the field. The time of data processing takes place simultaneously with the time of data collection.

The analysis technique for the processed qualitative data was carried out with the Interactive Model of Analysis [24]. All quantitative data were analyzed using descriptive statistical techniques such as percentage, scoring, mean, tabulation, and graphical display. The results of the data analysis were presented in a systematic descriptive description.

Result and Discussion

The ability of respondent households to develop security and resilience of vegetable and fruit food during the COVID-19 pandemic until various socioeconomic factors determined the New Normal period. The number of social factors is more diverse than economic ones, and the influence of social factors is stronger than economic factors. According to the respondent's household, this situation occurs because the food safety problem for vegetables and fruit is more determined by awareness, experience, and cooperation between family members supported by a tolerant social environment [25]; [26]. The Covid 19 pandemic can be handled with the influence of a stimulus through a cooperative relationship with the sociocultural community [27]. Weak communities are also helped by social capital and participation in dealing with the crisis due to the COVID-19 Pandemic [28]; [29].

The identification results showed that some of the determinants are internal, and other factors are external. The types of determinants that are internal are more diverse than those that are external. This situation proves that developing vegetable and fruit food safety cannot be separated from the respondent's household's awareness, intention, readiness, willingness, and experience. However, several external determinants facilitate the process of developing food safety. External factors come from the closest social environment. The various determinants are detailed in Table 1.

Table 1. Identification of Various Socioeconomic Determinants

Variety of Determinants	Trait*		Dimension**	
	1	2	3	4
Experience	✓		✓	
Income	✓			✓

Non-formal education	✓		✓	
Socio-Economic Status	✓		✓	
Gender	✓		✓	
Number of household economic dependents	✓			✓
Information Service Facilities	✓		✓	
Formal education		✓	✓	
Family support	✓		✓	
Social Environment Support		✓	✓	
Accessibility of Information on Food and Agricultural Technology	✓		✓	
Production Capital Assistance		✓		✓

Information:

- *1 Internal Determinant
- *2 External Determinants
- **3 Social Determinants
- **4 Economic Determinants

The various determinants listed in Table 1 have different strengths when related to the driving force of the respondent's household's awareness, willingness, and ability to develop vegetable and fruit food security. The difference is significant when compared to each cluster of respondents. Two determining factors have the dominant power to drive the three clusters of respondent households. Both factors are internal and have a social dimension: awareness and experience. Both build and motivate behavior in developing food safety for vegetables and fruit, which increases body immunity. Another function of the two most dominant determinants is as a driver of the behavior of the respondent's household members in preparing vegetable and fruit foods independently. More than half of the respondents' households grow vegetables and fruit in their gardens and yards to meet their daily consumption needs. Most of the three clusters explained that awareness and experience help creative behavior be protected from the risk of Covid 19. Other factors have low determining power. The variation in the level of dominance of each cluster is shown in Figure 1.

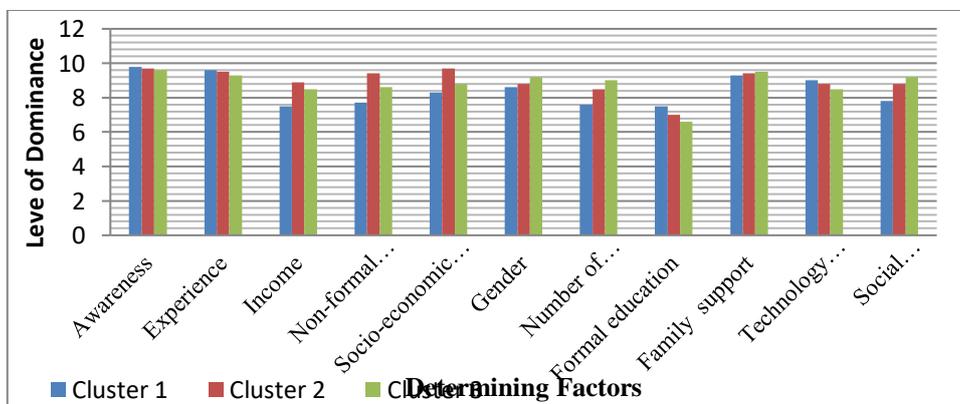


Figure 1. Variation in the level of dominance of determining factors

If it is observed in each cluster, it is revealed that the number of dominant determinants is different. Cluster 1 respondent households have four dominant socioeconomic determinants: awareness, experience, accessibility to food and agricultural technology, and family support. Awareness of experience is the key to motivation in managing sufficient vegetable and fruit food for family consumption needs during the Covid 19 Pandemic until

the New Normal period. All respondent households have long had the awareness to meet the needs of vegetables and fruit through purchasing and harvesting from their gardens. Vegetable and fruit gardens are developed on agricultural land and house yards.

Some of the respondent's households claimed to have processed vegetable and fruit foods so that they were stored longer. Besides that, the accessibility of respondent households to food and agricultural technology is the highest compared to the other two clusters. Cooperation between family members in Cluster 1 respondent households is included in the strong category of maintaining food safety for vegetables and fruit. Production of vegetables and fruit for family consumption needs were carried out together. The variation in the ability of the four dominant determinants of the effort to maintain food safety of vegetables and fruit in Cluster 1 respondent households is observed in Figure 2.

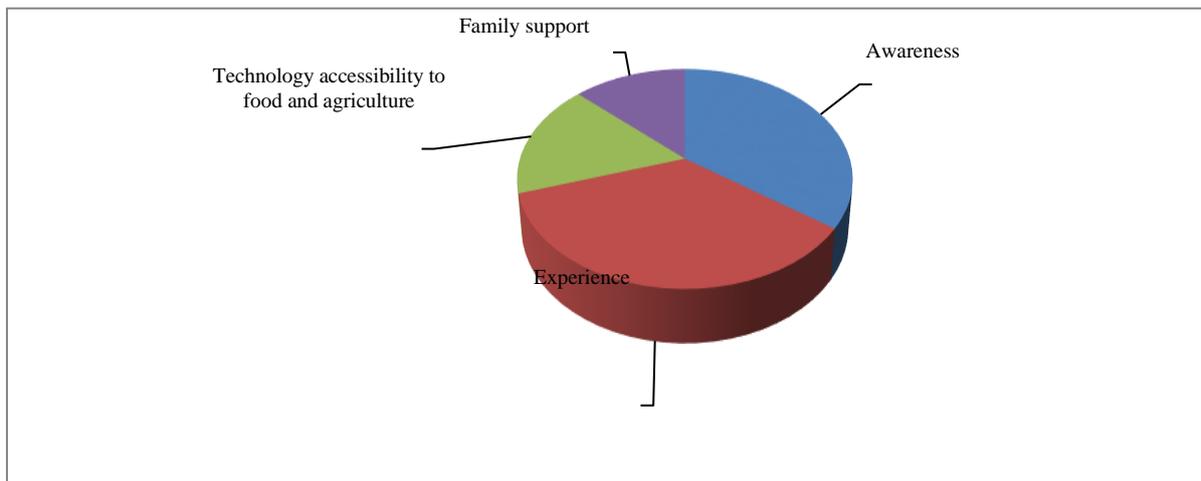


Figure 2. Variations in Ability of the Four Dominant Determinants of Household Respondents in Cluster 1

The conditions with respondent households in cluster 1 were also found in cluster 2, which both showed social facts that the most dominant determining factors were awareness and experience. It is just that there is a difference that the number of dominant socioeconomic determinants in cluster 2 respondent households is more.

Other dominant determinants are income, non-formal education, accessibility of food and agricultural technology, family support, social environment support, number of family economic dependents, and socioeconomic status. The nine socioeconomic factors strongly contribute to the ability and behavior of the respondent's household in cluster 2 to develop family food security, especially the types of vegetables and fruits. There was found mutual support of one determinant with another. The ability of each dominant determinant factor in improving the behavior of the respondent's household in cluster 2 to maintain food safety for vegetables and fruit is observed in Figure 3.

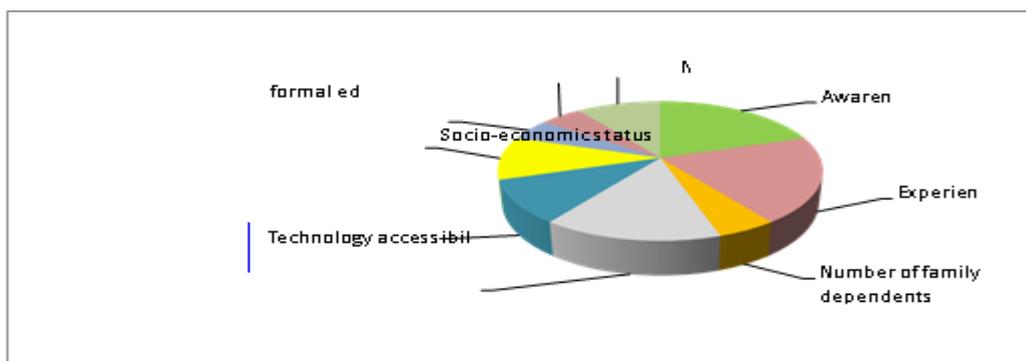


Figure 3. Variation in Ability of Nine Dominant Determinants of Household Respondents in Cluster 2

The most dominant socioeconomic determinants of the respondent's household in cluster 3 are awareness, experience, and income. These three functions are essentials for developing the behavior of cluster 3 respondent households in maintaining food safety for vegetables and fruit during the COVID-19 and New Normal pandemics. Only socioeconomic status and formal education are not dominant as determining factors, and other socioeconomic factors also play a dominant role. The variety of abilities of the dominant determinants of the respondent households in cluster 3 can be seen in Figure 4.

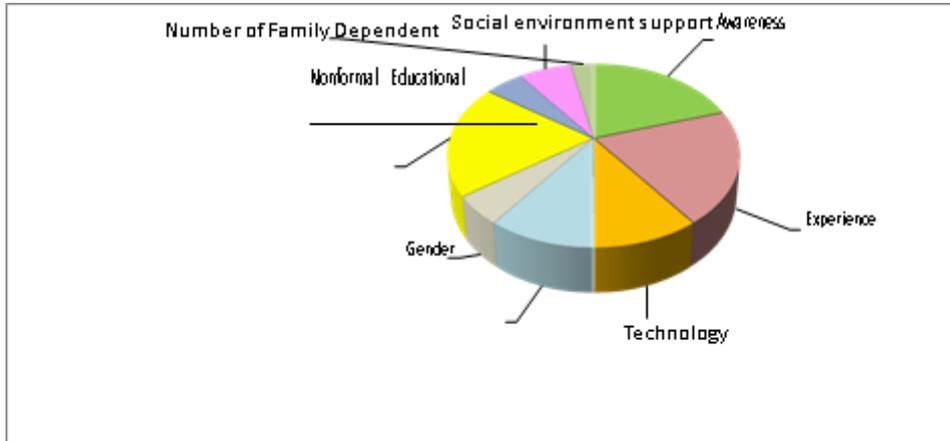


Figure 4. Variations in Ability of the Nine Dominant Determinants of Household Respondents in Cluster 3

The various dominant determinants have the potential to be managed as a driver of behavior for all cluster 1, 2, and 3 respondent households to develop vegetable and fruit food security and resilience during the COVID-19 pandemic crisis and the New Normal. Respondent households, on average, have carried out several activities to maintain the safety and resilience of vegetable and fruit foods. These activities are carried out individually at the household level and collectively at the community group level at the living location.

In connection with the empowerment of the respondent's household in developing the food safety of vegetables and fruit, it is known that four important dominant factors are strengthened as the key to unlocking motivation and participation in the three clusters of the respondent's household. The four most dominant socioeconomic determinants urgently need to be managed are awareness, family support experience, and accessibility to food and agricultural technology. These four factors function most dominantly to mobilize the participation of respondent households in clusters 1, 2, and 3 so that they are ready to carry out independent behavior in meeting the needs for vegetable and fruit food during times of crisis. Respondents assessed the four determining factors as having an essential function and attached to intentions followed by opportunity. An awareness emerged among global citizens after learning together and gaining experience from the exams regarding the crisis of the arrival of the COVID-19 pandemic [30]; [31].

All of the respondent's households were aware of the scarcity and increased the price of vegetables and fruit during the pandemic until the New Normal created serious problems. The difficulty in meeting the needs of these two types of food cannot be solved easily. Prices of vegetables and fruit rose because distribution from producers was not smooth due to regional restrictions, transportation disruptions, and market closures. This problem requires the respondent's household to immediately take a form of empowerment. Empowering is to build conscious behavior to provide vegetable and fruit barns independently, even in limited types.

The management of the four dominant determinants for empowering respondent households in developing creative behavior in maintaining and developing food security for vegetables and fruit cannot be separated from the availability of local resources. Most respondents emphasized that local resources, the main assets, are the availability of agricultural land in the form of gardens and yards. Agricultural land does not have to be large but can be used to grow vegetables and fruit using vertical planting techniques or planting in rows of pots and

polybags. There are also respondent households who plant plastic bottles of used mineral drinks that are neatly hung on the house's walls. Cluster 1 respondent households mostly produce vegetables and fruit independently.

The harvested vegetables and fruits are directly consumed by themselves. However, there are also respondent households from clusters 1 and 2 who sell to neighbors and acquaintances through online media. Not many respondent households give neighbors, and other acquaintances free fruit and vegetable harvests because neighbors and acquaintances are worried that they do not like to consume certain types of vegetables and fruits that are being harvested. If some neighbors and acquaintances order and ask for free, the respondent's household is always willing to send in an amount suitable for consumption.

A sense of responsibility has become a binding element for the four dominant determining factors to function correctly. A sense of responsibility is closely related to family members' support. Of course, the importance of responsibility means a lot to be willing to carry out vegetable and fruit food safety consciously. The ownership of responsibility is more substantial in the respondent's household when there is a sense of belonging and sentiment that shows the willingness of every family member to avoid coronavirus exposure. There is a mental experience experienced by the respondent's household from the COVID-19 pandemic and the New Normal. The pattern of empowerment designed by strengthening the function of the most dominant socioeconomic factors is listed in Figure 5.

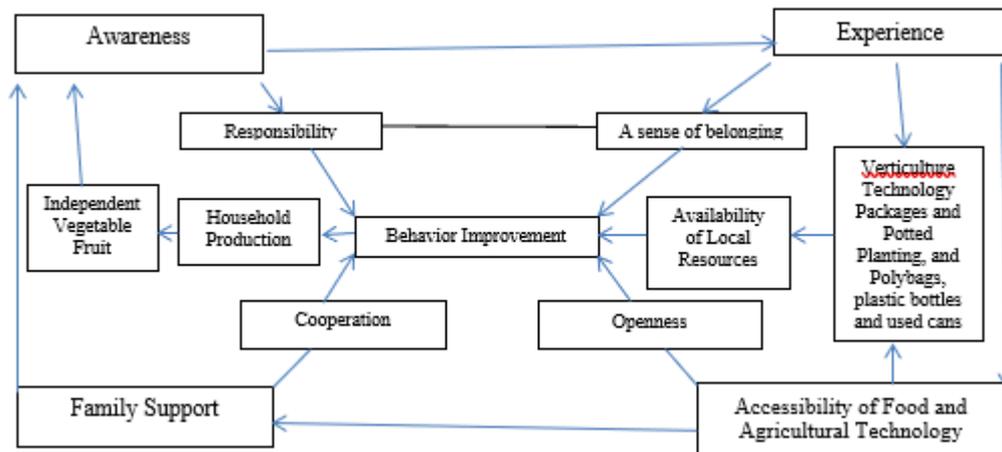


Figure 5. The pattern of Empowerment through Strengthening the Dominant Function of Socioeconomic Factors

Efforts to empower respondent households to increase independent behavior in fulfilling vegetable and fruit food at the household level significantly contribute to strengthening immunity to avoid the risk of COVID-19. Cooperation among family members in the respondent's household is one of the priority elements.

The empowerment pattern detailed in Figure 5 shows the bond between the four dominant determining factors that improve the behavior of the respondent's household in clusters 1, 2, and 3. The ability to maintain and develop behavior in producing vegetable and fruit food cannot be separated from the availability of local resources and technology packages. Supporters. The readiness of the respondent's household to participate in maintaining and developing vegetable and fruit food safety is based on awareness, experience, family support, and accessibility to appropriate technology. The ability of respondent households is limited to the production process and includes post-harvest handling. Behavior in the form of responsive and easy to adapt to various forms of risk of the COVID-19 pandemic comprises courage capital in maintaining family food safety independently. Not much different, the results of the research show that the close relationship between household members and social cohesion can help community members solve the problem of the food crisis during the COVID-19 pandemic and the New Normal, according to research results from [31] [32]. The willingness of community members to increase participation is indeed dependent on the willingness to develop

the potential of available resources [33]; [34]; [35]. .

Conclusion and Recommendation

The behavior of the respondent's household in developing vegetable and fruit food security during the COVID-19 pandemic to the New Normal is determined by various socioeconomic factors. The dominant determinants include awareness, experience, family support, and accessibility to food and agricultural technology. The four dominant factors determine the household behavior of respondents in clusters 1, 2, and 3. Strengthening the function of the four most dominant determinants can form a pattern of empowerment in the respondent's household. Several elements need to be considered in the empowerment pattern. The element of local resource availability turns out to have intensity as a driving force for the behavior of the respondent's household. Other elements that contribute are cooperation, a sense of belonging, responsibility, openness, and the availability of vertical technology packages. All elements are closely related to the four most dominant determinants that drive the respondent's household's behavioral ability to develop vegetable and fruit food security during the COVID-19 and New Normal pandemic crises.

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