
THE INFLUENCE OF SOCIAL AND ECONOMIC FACTORS ON THE DESIREABLE DIETARY PATTERN OF SMOKING FARMERS IN LIMBOTO BARAT DISTRICT**Sunarto Kadir*¹ & Maimun Abdullah²**^{*1&2}Department of Public Health, Faculty of Sports and Health, Universitas Negeri GorontaloDOI: [10.039406.2022.31-106](https://doi.org/10.039406.2022.31-106)

ABSTRACT

Smoking behavior is among the food security challenges that impact the quality and quantity of food consumption. The level of cigarette consumption in Indonesia, particularly in Gorontalo Province, is relatively high. This research was devoted to finding out the influence of social and economic factors on the desirable dietary pattern of smoking farmers in Limboto Barat District. Social factor consist of Mother's Education and number of family members, while, Economic factor consist of income, food expenditure, non-food expenditure, and cigarette expenditure.

Method: The present work was conducted in Limboto Barat District, Gorontalo Regency, Gorontalo Province, Indonesia. It was an analytical observational study with a cross-sectional design. Moreover, a total of 4,875 families of smoking farmers were involved as the population, only 190 of which were selected as the sample using purposive sampling. Data collection techniques included interviews with a questionnaire and DDP table. The collected data were then analyzed applying the t-test assisted by the SPSS program.

Results: It was suggested that the smoking farmers' families in the site area had high income, low food expenditure, high non-food expenditure, and high cigarette expenditure. Income ($p=0.002$) and food expenditure ($p=0.000$) contributed to the DDP score. On the contrary, non-food expenditure ($p=0.212$) and cigarette expenditure ($p=0.314$) did not have any effects on the DDP score.

Conclusion: The households of smoking farmers can fulfill the dietary diversity needs as strengthened by the findings that income affects dietary diversity score. Given that most Limboto Barat District farmers have a high income, their dietary diversity is still met, although they have smoking behavior.

Keywords: Income, Food Expenditure, Non-Food Expenditure, DDP.

1. INTRODUCTION

Among today's food security challenges is poor behavior of a family, e.g., smoking behavior, that is impactful on the quality and quantity of food consumption. World Health Organization (WHO) has stated that smoking or other tobacco-related diseases are responsible for approximately 200,000 deaths per year in Indonesia (1). According to Statistics Indonesia (BPS), Gorontalo Province was nationally ranked first as the province with the largest number of smokers in 2017, with 34.46% of the population aged above 15. Nevertheless, it went down to the third position in 2018 (2).

Compared to other occupations, Basic Health Research (Riskesdas) in 2013 had shown that farmers, fishers, and laborers were the most active smokers in Indonesia (44.5%) (3).

Sari (2016) explained in her research that the poverty threshold had an effect on smoking (4). The growing number of cigarette consumption was directly proportional to the increase in the poverty threshold. When a region's poverty rate increases, there will be some immense impacts, such as food security. The residents of an impoverished area will be more likely to have low dietary diversity (5); this will also lead to a low DDP score. Limboto Barat is a district with the highest cigarettes consumption in Gorontalo Province (Riskesdas, 2007) (6). Accordingly, it became the research site to determine the social impact of smoking behavior, specifically dietary diversity. Most studies only address the smoking behavior without taking into account the smokers' occupation that may contribute to the resulting social impact [7], [8]. In addition to observing such behavior, the present work also considered the occupation to determine the impact on dietary diversity.

2. METHOD OF STUDY**Participants**

All families of smoking farmers in Limboto Barat District, Gorontalo Regency, were involved as the research population.

Prior to taking the sample, defining the inclusion and exclusion criteria to prevent a sample that does not represent the characteristics is essential.

Inclusion criteria that should be met by the population to be selected as a sample were as follows:

- a. People living in Limboto Barat District
- b. People working as smallholder farmers and smoking
- c. Willing to become respondents

Further, the sample size was calculated using the following formula (9):

$$n = \frac{N}{1+N(d^2)}$$

description:

n = number of samples

N = number of populations

d = percentage of inaccuracy (precision) due to tolerable sampling error of 5% ($d = 0.05$).

Out of 369 respondents as the sample size, the next step was determining the number of samples of each village with the following formula:

$$ni = \frac{Ni}{N} \cdot n$$

where:

n = number of samples of each village

N = total number of samples

Ni = number of population of each village

Data collection

An analytical observation method with a cross-sectional design was employed. A cross-sectional study is based on causality (10) so that this research defined two variables. The first variable was an independent variable that caused changes in an event. Further, the dependent variable served as a result or value arising from the changes in the independent variable (11). Both variables were then measured and collected simultaneously.

Variable determination

Independent variables consisted of:

- a. Income
Monthly income (in IDR) of the families of smoking farmers in the site area. This variable fell under two categories; high income (IDR 1,500,000 to IDR 2,500,000) and low income (IDR 1,500,000).
- b. Food Expenditure
Amount of money (in IDR) spent for food consumption of all smoking farmers' family members in the site area per month. This variable fell under two categories; high food expenditure (IDR 994,286/month and low food expenditure of less than IDR 994,286/month).
- c. Non-food Expenditure
Amount of money (in IDR) spent monthly for non-food consumption of all smoking farmers' family members in the research area. This variable was included in two categories similar to those of food expenditure.
- d. Cigarette Expenditure
Amount of money (in IDR) spent for cigarettes of all smoking farmers' family members in the site area per month. Cigarette expenditure was categorized into light smokers (spending IDR 360,000) and heavy smokers (spending IDR 720,000 each month).
- e. Mother's Education
This variable referred to the level of education generally had by the mothers in the smoking farmers' families in Limboto Barat. It was categorized into the high category (completed senior high school/equivalent) and the low category (no formal schooling or uncompleted elementary or junior high school).
- f. Number of Family Members
- g. The number of family members of the smoking farmers with a category of a small family, i.e., the one that had less than or equal to four members, and a big family of more than four members.

Dependent variable

DDP score of Limboto Barat: The food quality was based on the energy contribution from each food variety multiplied by the weight in the smoking farmers' families in the site area. This variable comprised three categories, namely low (bronze triangle symbol) with a DPP score of < 78; moderate (silver triangle symbol) with a DPP score of 78 to 87; high (gold triangle symbol) with a DPP score of > 87.

Under the guidebook of DDP score calculation (12) by the National Food Security Agency in 2015, here are ten steps to calculate actual DDP score and composition.

1. Food grouping
2. Determining the national DDP composition according to the food varieties.
3. Form, type, and unit conversion
Household food consumption generally has different types and units, so that the weight unit needs to be the same by converting to the same units and commodity types by using a conversion factor. They are then converted to the raw form to find out the weight. The conversion process should concern the following points:
 - a. If food consumption data is processed food made of several foodstuffs, break them down into some types of single food constituents with the amount according to the weight unit of each food. For instance, one portion of *sambal goreng hati* (Indonesian food) is made of eight potatoes and 300 grams of beef liver.
 - b. If the weight units are in household measurement, convert the weight of each food type from household measurement to grams, e.g., eight potatoes are equivalent to 400 grams, by referring to the applicable household measurement conversion list.
 - c. If the weight of the cooked food is known, its weight when it's raw should be calculated by multiplying the cooked weight by the raw conversion factor. For example, 200 grams of the fried liver are equivalent to $200 \times 1.5 = 300$ grams of beef liver.
 - d. If the food is processed with cooking oil, the weight of oil absorbed by the food should be calculated by multiplying the raw weight of the food by the percent factor of oil absorption. Supposing 300 grams of beef liver absorb $300 \times 4.8\% = 15$ grams of cooking oil.
4. Calculating the energy of each food type consumed by referring to the food ingredients composition list (DKBM).
5. Adding up the total energy from each food variety.
6. Calculating the energy contribution from each food variety to the total actual energy:
Energy Contribution per Food Variety (%) : $\frac{\text{food variety energy}}{\text{total actual energy}} \times 100\%$
7. Calculating the energy contribution of each food variety to the recommended energy allowance (%REA).
Energy Contribution of Food Variety (% REA) : $\frac{\text{food variety energy}}{\text{REA Consumption}} \times 100\%$
8. Calculating actual score: actual energy contribution of each food variety x weight of each food variety
9. Calculating the REA score by multiplying the REA contribution (%REA) of each food variety by its respective weight.
10. Calculating DDP score
Actual DDP score was calculated by comparing REA score to maximum score; a maximum score of each food variety that meets ideal composition. Calculation of the DDP score of each food variety considers the following conditions:
 - a. If the REA score is higher than the maximum score, the maximum score will be used.
 - b. If the REA score is lower than the maximum score, the REA score will be used.
 - c. The DDP score of each food variety shows the composition of food consumption over a particular time/year.

The desirable dietary pattern score is the total DDP score of nine food varieties, i.e., from grains to other food varieties. This number is called the food consumption DDP score that displays the food consumption diversity. DDP Score = DDP Score of grains + DDP Score of tubers + +..... + DDP Score of other varieties. The assessment towards the success of dietary diversification is based on the achieved DDP score with the following categories.

1. Bronze Triangle
 - a. Energy from grains and tubers is still high (above the DDP standard)
 - b. Energy from animal products, vegetables, fruits, and nuts is low (below the DDP standard)
 - c. Energy from oil and sugar has relatively met the DDP standard
2. Silver Triangle
 - a. Energy from grains and tubers is decreasing, yet above the DDP standard
 - b. Energy from animal products, vegetables, fruits, and nuts is below the DDP standard; each ranges from 8% - 12% and 4% - 5%

- c. Energy from oil, nuts, and sugar has relatively met the DDP standard
- 3. Gold Triangle
 - a. Energy from grains and tubers is slightly above or equal to the DDP standard
 - b. Energy from animal products is above 12% or relatively equal to the DDP standard
 - c. Energy from other food varieties has fulfilled the DDP standard

After defining the objective criteria of independent variables, this research designed questionnaires to obtain primary data from seven variables mentioned earlier through direct interviews, as well as calculated the DDP score of Limboto Barat District. On top of that, the present study also considered secondary data, including territorial boundaries, demographic conditions, and geographical conditions of villages.

Data Analysis

Two types of analyses were applied. First, a univariate analysis intends to describe the characteristics of each variable (13). Second, a multiple regression analysis aims to examine whether or not the independent variable influences the dependent variable (14). Multiple regression analysis used a t-test to identify whether or not the variable X has a partial effect on the variable Y. This can be done by noticing the sig. value or t-value relying on the following formula: $T \text{ Table} = t \left(\frac{\alpha}{2}; n-k-1 \right)$.

Description

α = significance value
 n = number of samples
 k = number of variable X

Description:

1. If the sig. value < 0.05 or t-count > t-table, variable x influences variable y.
2. If sig. value > 0.05 or t-count < t-table, variable X does not influence variable y.

Ethics Approval

Anonymity and confidentiality of person information were ensured. They and their families were informed about the usage of their personal data in this study. The contact information of the researchers was listed as authors, such that it was possible to answer any questions about this research at any time. All procedures of this study were performed in compliance with the permission of *Badan Kesatuan Bangsa dan Politik*, of Gorontalo District.

3. RESULTS

Characteristics of Smoking Farmers' Families

Distribution of smoking farmers' families based on the age of the family head

Limboto Barat District encompasses ten villages and 47 sub-villages, where Huidu Village is the capital district. The highest number of family heads (56 family heads or 29.5%) are aged 36-45. The lowest number of family heads (17 family heads or 8.9%), on the other hand, are in the age group of 65 years and over. Distribution of smoking farmers' families based on the age of the family head is provided in Table 1:

Table 1: Distribution of smoking farmers' families based on the age of the family head.

Age of Family Head	Total	
	n	%
17-25	4	2.1
26-35	23	12.1
36-45	56	29.5
46-55	53	27.9
56-65	37	19.5
65>	17	8.9
Sum	190	100

As seen from the table, the highest number of family heads (56 family heads or 29.5%) aged 36-45 years. Meanwhile, the lowest number of family heads (17 family heads or 8.9%) are in the age group of 65 years and over.

Distribution of education level of family heads

Table 2 gives us the fact that the highest education level is senior high school (21 family heads or 11.1%). The lowest level is an elementary school with 140 family heads (73.7%).

Table 2: Distribution of education level of family heads

Family Heads' Education	Total	
	n	%
Elementary School	140	73.7
Junior High School	29	15.3
Senior High School	21	11.1
Sum	190	100

Distribution of mothers' age

The highest number of mothers (71 mothers or 37.4%) are in the age group of 36-45 years. In contrast, the lowest number of mothers (14 mothers or 7.4%) are 65 years and over.

Table 3: Distribution of mothers' age

Mothers' Age	Total	
	n	%
17-25	15	7.9
26-35	29	15.3
36-45	71	37.4
46-55	44	23.2
56-65	17	8.9
65>	14	7.4
Sum	190	100

DDP Score Calculation

Drew on the calculation result, the average DDP score of smoking farmers' families in Limboto Barat District gets 43.95. Their needs for carbohydrates have been fulfilled by consuming grains and tubers. However, they infrequently eat foods rich in protein as the building substance, as well as vitamins and minerals as the regulatory substances.

Table 4: DDP Score of smoking farmers' families in Limboto Barat District

Food Varieties	Energy (Calories)	% REA	Weight	Real Score	DDP Score	Max Score
Grains	6.663,8	277.7	0.5	138.8	25.0	25.0
Tubers	6.8	0.3	0.5	0.1	0.1	2.5
Animal products	95.3	4.0	2.0	7.9	2.9	24.0
Oil and fat	58.6	2.4	0.5	1.2	1.2	5.0
Oily fruits/seeds	43.8	1.8	0.5	0.9	0.9	1.0
Nuts	38.7	1.6	2.0	3.2	3.2	10.0
Sugar	43.6	1.8	0.5	0.9	0.9	0.5
Vegetables and fruits	22.1	0.9	5.0	4.6	4.6	30.0
Other	-	-	-	-	-	-
Total	6.972,7	290.5		157.8	43.95	100

Univariate Analysis

The univariate analysis was carried out following the questionnaire result. The data presented in the distribution table are primary data collected from the interviews.

1. Analysis of income of smoking farmers' families in Limboto Barat District:
The highest family income is IDR 1,500,000 (136 family heads), and the lowest income is less than IDR 1,500,000 (54 family heads) with the percentage of 71.6% and 28.4%, respectively.
2. Analysis of food expenditure of smoking farmers' families in Limboto Barat District:
The high food expenditure arrives at 42.1% with 80 households, and the low food expenditure is 57.9% with 110 households.
3. Analysis of non-food expenditure of smoking farmers' families in Limboto Barat District:

The high non-food expenditure reaches 98.9% with 188 families, and the low non-food expenditure is 1.1% with two families.

4. Analysis of cigarette expenditure of smoking farmers' families in Limboto Barat District: 181 family heads (95.3%) are heavy smokers, and nine family heads are light smokers (4.7%).
5. Analysis of mothers' education of smoking farmers' families in Limboto Barat District: The highest percentage of mothers' education level is 76.3% (145 mothers), and the lowest one is 23.7% (45 mothers).
6. Analysis of family members of smoking farmers' families in Limboto Barat District: 51 households (26.8%) are included in a small family, and 139 households (73.2%) are included in a big family.
7. Analysis of the desirable dietary pattern of smoking farmers' families in Limboto Barat District: As many as 161 households (84.7%) and 29 households (15.3%) have the lowest and highest DDP scores, respectively.

Multiple regression analysis

Analysis of the effect of income on DDP score

Table 5 shows that 136 family heads have a high income, of which 27 households get moderate DDP, and 109 households have low DDP. Next, 54 family heads have low income with the following details: two families have moderate DDP, and 52 families get low DDP.

Table 5: The effect of income on DDP score

No	Income	DDP Score		Total	T _{count}	Sig.	Desc.
		Moderate	Low				
1	High	27	109	136	3.163	0.002	Reject H ₀ Accept H ₁
2	Low	2	52	54			
Sum		29	161	190			

The result of multiple regression analysis gets the value of tcount = 3.163 with the sig. value of 0.002. In this case, t-count > t-table (1.97301) with the sig. value < 0.05, meaning that income contributes to the DDP score of the smoking farmers' families in the research site.

Analysis of the effect of food expenditure on DDP score

Table 6 gives us the fact that 80 households have high food expenditure, of which 26 families get moderate DDP and 54 families have low DDP. Meanwhile, 110 households have low expenditure with the following details: three households have moderate DDP, and 107 families get low DDP.

Table 6: The effect of food expenditure on DDP score

No	Food expenditure	DDP Score		Total	T _{count}	Sig.	Desc.
		Moderate	Low				
1	High	26	54	80	5.217	0.000	Reject H ₀ Accept H ₁
2	Low	3	107	110			
Sum		29	161	190			

The result of multiple regression analysis gets the value of tcount = 5.217 with the sig. value of 0.000. The value of t-count is greater than t-table (1.97301) with the sig. value < 0.05; simply put, food expenditure influences the DDP score of the smoking farmers' families in the site area.

Analysis of the effect of non-food expenditure on DDP score

Based on Table 7, 188 households have high non-food expenditure, of which 29 families get moderate DDP and 159 families have low DDP. In contrast, two families have low non-food expenditure with the following details: none of the households has moderate DDP, and two families get low DDP.

Table 7: The effect of non-food expenditure on DDP score

No	Non-food expenditure	DDP Score		Total	T _{count}	Sig.	Desc.
		Moderate	Low				
1	High	29	159	188	-1.253	0.212	Accept H ₀ Reject H ₁
2	Low	0	2	2			
Sum		29	161	190			

The result of multiple regression analysis achieves the value of $t_{\text{count}} = -1.253$ with the sig. value of 0.212. It indicates $t\text{-count} < t\text{-table}$ (1.97301) with the sig value < 0.05 , signifying that there is no effect of non-food expenditure on the DDP score of smoking farmers' families in Limboto Barat.

Analysis of the effect of cigarette expenditure on DDP score

Table 8 shows that 181 families have high cigarette expenditure, of which 27 families get moderate DDP and 154 families have low DDP. On the other hand, nine households have low cigarette expenditure with the following details: two families have moderate DDP, and seven families get low DDP.

Table 8: The effect of cigarette expenditure on DDP Score

No	Cigarette Expenditure	DDP Score		Total	T_{count}	Sig.	Desc.
		Moderate	Low				
1	High	27	154	181	-1.009	0.314	Accept H_0 Reject H_1
2	Low	2	7	9			
Sum		29	161	190			

The result of multiple regression analysis obtains $t_{\text{count}} = -1.009$ with the sig. value of 0.314. Since $t\text{-count} < t\text{-table}$ (1.97301) with the sig value < 0.05 , cigarette expenditure does not affect the DDP score of the smoking farmers' families in the research site.

Analysis of the effect of mothers' education on DDP score

Based on Table 9 below, 154 households have high mothers' education, of which 24 families get moderate DDP and 121 families have low DDP. Meanwhile, 45 families have low mothers' education with the following details: 25 families get moderate DDP, and 40 families have low DDP.

Table 9: Analysis of the effect of mothers' education on DDP score

No	Mothers' Education	DDP Score		Total	T_{count}	Sig.	Desc.
		Moderate	Low				
1	High	24	121	145	1.067	0.287	Accept H_0 Reject H_1
2	Low	25	40	45			
Sum		29	161	190			

The result of multiple regression analysis obtains the value of $t_{\text{count}} = 1.067$ with the sig. value of 0.087. It implies that $t\text{-count} < t\text{-table}$ (1.97301) with the sig value < 0.05 , hence there is no effect of mothers' education on the DDP score of smoking farmers' families in Limboto Barat.

Analysis of the effect of the number of family members on DDP score

Table 10 displays that 51 family heads have a small family, of which seven households get moderate DDP and 44 families have low DDP. On the contrary, 139 family heads have a big family; 22 families with moderate DDP and 117 families with low DDP.

Table 10. The effect of number of family members on DDP score

No	Number of family members	DDP Score		Total	T_{count}	Sig.	Desc.
		Moderate	Low				
1	Small	7	44	51	3.880	0.000	Reject H_0 Accept H_1
2	Big	22	117	139			
Sum		29	161	190			

The result of multiple regression analysis arrives at the value of $t_{\text{count}} = 3.163$ with the sig. value of 0.000. In this case, $t\text{-count} > t\text{-table}$ (1.97301) with the sig. value < 0.05 , meaning that the number of family members contributes to the DDP score of the smoking farmers' families in Limboto Barat District.

4. DISCUSSION

DDP score of smoking farmer families in Limboto Barat District reaches 43.95, low category. According to the result, there are 161 families with a high score of DDP, while the other 29 are the opposite.

The consumption of staple food, e.g., grains, has a maximum score of 25 since the staple food of Gorontalo people is rice. Other food varieties, namely tubers, animal products, oil and fat, oily fruits/seeds, nuts, sugar, vegetables, and fruits, do not reach the maximum score, leading to a low DDP score. This is because the dietary pattern of the people is not balanced; they consume more rice with insufficient side dishes.

The effect of income on desirable dietary pattern

This research suggests that family income influences the DDP of smoking farmers' families in Limboto Barat; the higher the income, the higher the DDP score. Nevertheless, it is found that some high-income families have low DDP score due to dietary culture.

Based on the food recall, these families consume rice and other side dishes without vegetables. The dietary culture affects how an individual selects the food and how it is processed and served.

The effect of food expenditure on desirable dietary pattern

Research results reveal the effect of food expenditure on the DDP score of smoking farmers' families in Limboto Barat District by 13%. A high food expenditure will increase the DDP score.

Still, the high food expenditure impacts the low DDP score because the family members often go for instant or ready-to-eat food. This habit causes a rise in expenditure with poor quality of the consumed food.

In the present study, land ownership plays a role in determining the DDP score. It shows that the factor minimizes the expenditures, resulting in a moderate DDP score. It has something to do with the fact that several households grow many vegetables in a small garden, while others go fishing in a pond or river to minimize expenses for food without sacrificing nutrition.

The effect of non-food expenditure on desirable dietary pattern

Non-food expenditure does not affect the DDP score because costs for food have been determined and adjusted to enable the households to afford other needs, i.e., clothing and shelter. This also helps the families maintain their diet.

The present work also shows that the DDP score of 29 families with high non-food expenditure in the site area is categorized as moderate; it is directly proportional to the high level of income.

The effect of cigarette expenditure on desirable dietary pattern

The study signifies that cigarette expenditure does not contribute to the DDP score. Such a finding contradicts a theory by Sari (2016) (4), explaining that an increase in cigarette consumption leads to an economic downturn in a family. The family spends more on cigarettes by which decreases the food-purchasing power of a family.

Baliwati (15) opines that the negative effects of smoking can be lessened if the smoker has a healthy diet with varied foods. This study also finds 181 smoking families (high category). Most people consider smoking necessary after eating, thus allocating their income for cigarettes. Such a habit is often challenging to change.

The effect of mothers' education on desirable dietary pattern

It is suggested that mothers' education has no effect on the DDP score. The level of mothers' education is not able to outdo the aspect of dietary culture, although the mothers can provide nutritious foods. Every individual has different tastes in certain types of foods. A psychological aspect also determines how a person commits to their diet.

For instance, when a child is given a healthy and nutritious meal, s/he prefers having snacks with absolutely low nutritional values. Age differences also result in differences in food taste and preference.

The effect of the number of family members on desirable dietary pattern

The multiple regression test results show an effect of the number of family members on the DDP score in smoking farmers' families in the site area by 8%. In the same tune, a demographic factor defining food consumption is the number of family members (16).

It is shown that the greater family members in number, the greater their needs to be met. This influences an increase in household expenses. A high DDP score of a big family (more than four members) is on account of low expenditure, in which family members are dominated by kids so that there are only a few portions of food.

In addition to it, family planning to regulate the birth spacing of 3-4 years also causes the high DDP score of a big family.

5. CONCLUSION

The present study provides new insights into social and economic factors contributing to the DDP score in Limboto Barat District. Smoking habit as the focus of this research does not contribute to the DDP score, meaning that a smoker within a family does not necessarily disrupt the family's dietary diversity. The influence between the total income and the DDP score, and the high level of income are why the families of smoking farmers still manage to fulfill dietary diversities despite the smoking behavior.

REFERENCES

- Organization. WH. Global Adult Tobacco Survey: Indonesia Report 2011 [Internet]. 2011. Available from: https://www.who.int/tobacco/surveillance/survey/gats/indonesia_report.pdf
- Statistics Indonesia. Persentase Merokok Pada Penduduk Umur > 15 Tahun Menurut Provinsi (Persen), 2018-2020 [Smoking Percentage of >15-Year-Old Population According to Province] [Internet]. 2020 [cited 2021 May 19]. Available from: <https://www.bps.go.id/indicator/30/1435/1/persentase-merokok-pada-penduduk-umur-15-tahun-menurut-provinsi.html>
- Kesehatan K. Profil Kesehatan Indonesia Tahun 2013 [Indonesia's Health Profile in 2013] [Internet]. 2013. Available from: <https://pusdatin.kemkes.go.id/download.php?file=download/pusdatin/profil-kesehatan-indonesia/profil-kesehatan-indonesia-2013.pdf>
- Sari. Analisis Pengaruh Konsumsi Rokok dengan Kemiskinan di Provinsi Jawa Tengah [Analysis of the Effect of Cigarette Consumption on Poverty in Central Java Province]. *Econ Dev Anal J*. 2016;5:374–81.
- Bappenas. Diagnosis Kemiskinan [Poverty Diagnosis] [Internet]. 2016. Available from: <https://www.bappenas.go.id/files/4713/5229/9515/bab2snpkbaru11juni.pdf>
- Health IM of. Riset Kesehatan Dasar [Internet]. 2007. Available from: http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2007/lap_rkd07.pdf
- Ica Rizki Aneftasari, Bustanul Arifin YI. Determinan Pola Pangan Harapan Pada Rumah Tangga Pengasin Ikan di Pulau Pasaran [Determinant of Desirable Dietary Pattern in Households of Fish Salting in Pasaran Island]. *J Ilmu - Ilmu Agribisnis* [Internet]. 2018;4(3). Available from: <https://media.neliti.com/media/publications/98821-ID-determinan-pola-pangan-harapan-pada-ruma.pdf>
- Afriani Christina KS, Etti Sudaryati EYA. Gambaran Pola Konsumsi Pangan Dengan Pendekatan Pola Pangan Harapan Pada Keluarga Perokok di Kecamatan Berastagi [An Overview of Food Consumption Pattern with Desirable Dietary Pattern of Smoking Families in Berastagi District]. *J Univ Sumatera Utara*. 2015;
- Notoatmodjo. Metode Penelitian Kuantitatif (Aplikasi dalam Pendidikan) [Quantitative Research Method (Its Application in Education)]. Jakarta: Salemba Medika; 2012.
- C.S F. Analisa Pengaruh Steep Discount Terhadap Attitude Toward The Product dan Purchase Intention [Analysis of the Effect of Steep Discount on Attitude Toward The Product and Purchase Intention] [Internet]. University of Indonesia; 2008. Available from: <http://lib.ui.ac.id/file?file=digital/124703-6007-Analisis%20pengaruh-Metodologi.pdf>
- Salkind NJ. Encyclopedia of Research Design [Internet]. Salkind NJ, editor. Sage; 2010. 49–52 p. Available from: <https://methods.sagepub.com/Reference/encyc-of-research-design>
- Pangan BK. Panduan Penghitungan Pola Pangan Harapan [Guidelines for Calculating Desirable Dietary Pattern] [Internet]. 2015. p. 11–7. Available from: <http://bkp.pertanian.go.id/storage/app/media/Evalap/BUKU PEDOMAN PENYUSUNAN PPH.pdf>
- Evellin Dewi Lusiana MM. Teori dan Praktik Analisis Data Univariat dengan PAST [Theory and Practice of Univariate Data Analysis with PAST]. Universitas Brawijaya Press; 2020.
- Setiawan B. Teknik Hitung Manual Analisis Regresi Linear Berganda Dua Variabel Bebas [Manual Calculation Techniaue of Multiple Linear Regression Analysis of Two Independent Variables]. Andi Offset; 2015.
- Baliwati. Pengantar Pangan dan Gizi [Introduction to Dietary and Nutrition]. Depok: Penebar Swadaya; 2004.
- Mardiana Ningsih, Suandi YD. FAKTOR-FAKTOR YANG MEMPENGARUHI POLA KONSUMSI PANGAN DAN GIZI RUMAH TANGGA NELAYAN KECAMATAN TUNGKAL ILIR KABUPATEN TANJUNG JABUNG BARAT. Sosio Ekon Bisnis [FACTORS INFLUENCING FOOD CONSUMPTION PATTERN AND NUTRITION OF FISHERS' HOUSEHOLDS IN TUNGKAL ILIR DISTRICT, WEST TANJUNG JABUNG REGENCY][Internet]. 2019; Available from: <https://media.neliti.com/media/publications/43685-ID-faktor-faktor-yang-mempengaruhi-pola-konsumsi-pangan-dan-gizi-rumah-tangga-nelay.pdf>.