Amerta Nutrition
e-ISSN: 2580-1163 (Online)
p-ISSN: 2580-9776 (Print)
Synthesa and Hartono | Amerta Nutrition Vol. 7 Issue 2 (June 2023). 230-239

RESEARCH STUDY
English Version
OPEN ACCESS

The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice

Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak

Putricia Synthesa[1]*, Djoni Hartono[2]

[1]Central Bureau of Statistics of Indonesia, Jakarta, Indonesia
[2]Department of Economics, Faculty of Economics and Business, University of Indonesia, Depok, Indonesia

ARTICLE INFO

***Received**: 26-10-2021*
***Accepted:** 15-03-2023*
***Published online:** 09-06-2023*

***Correspondent:**
Putricia Synthesa
putricia0803@gmail.com

DOI:
10.20473/amnt.v7i2.2023.230-239

Available online at:
https://e-journal.unair.ac.id/AMNT

Keywords:
Women's autonomy, Infant and young child feeding practices, IDHS, Binary multilevel regression

ABSTRACT

Background: Appropriate infant and young child feeding practices (IYCF) for children aged 6-23 months are vital for their growth and can prevent stunting. There is high variation between provinces regarding nutrition, which makes it essential to analyze based on contextual variables at the provincial level.
Objectives: Aimed to study the effect of contextual variables and women's autonomy variables and study the effects of the differences between these two variables on IYCF on the three leading indicators, namely MDD, MMF, and MAD.
Methods: Used multilevel logistic regression analysis from the 2017 IDHS data with a research sample of 4,923 mothers who were married and lived with partners who had their last children aged 6-23 months. The dependent variable in this study was whether PMBA complied with WHO recommendations or not, which were divided into three groups: Minimum Meal Frequency, Minimum Dietary Diversity, and Drinkable Acceptable Diet. The independent variables were the independent variables at the individual level and the independent variables (contextual) at the provincial level. In addition, it will also be seen the influence of the interaction variables.
Results: The results showed that the contextual variables associated with infant and child feeding practices were the percentage of poor people and the percentage of health facilities. Meanwhile, at the individual level, several indicators of the autonomy variable, along with the variables of mother's age, classification of residence, mother's access to the internet, age of children, and husband's education, have associations with IYCF in the three indicators used. The interaction variable showed a different effect on women's autonomy and contextual variables on IYCF.
Conclusion: This study shows the results of regional characteristic variables, women's autonomy, and the interaction variables between the two can influence IYCF.

INTRODUCTION

The best nutrition for children in the first thousand days from pregnancy to the first two years of life is essential to be given so that children's growth can be optimal because children receive proper nutrition in this phase can affect their health into adulthood[1]. In 6 out of 10 countries in ASEAN, Indonesia ranks third after Vietnam and Thailand in terms of the suitability of infant and child feeding practices, in 2017 there was 40.3 percent of children in Indonesia met the Minimum Acceptable Diet (MAD), 71.1 percent with Minimum Meal Frequency (MMF) and 53.9 percent Minimum Dietary Diversity (MDD)[2]. The Indonesian population tends to consume grains or carbohydrates, 56% of total calories per day, while the international standard is only 34% of calories per day from grains. This case causes Indonesia to be included in the low category for dietary diversity because it only has a score of 19 out of the global average of 55.8 (Indonesia is ranked 102nd)[3]. Based on the SMERU Research Institute of Indonesia states that Indonesia is still low regarding nutritional status based on international standards[4].

A study by Dibley (2012) on Indonesia's infant and child feeding practices can be influenced by several things, such as the characteristics of the child, the characteristics of the parents, the condition of household welfare, and the characteristics of the region[5]. Mothers' knowledge of child nutrition is very influential because inadequate knowledge of mothers regarding appropriate infant and child feeding practices is the primary determinant of malnutrition[5]. Autonomy of women in the household also affect children's nutrition because the higher the autonomy of women in the household, the higher their ability to regulate the feeding of their children[6]. Besides the macro level, women's autonomy also impacts the micro level. Women with higher education and work will produce children with better quality human capital[7]. Based on this condition, this study tries to look at women's autonomy at the micro level in the household and the province level at the macro level

***How to cite:** Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

through contextual variables that will describe regional characteristics. Regional characteristics, in this case, can be described by the percentage of poor people, the percentage of health facilities, the percentage of working women, and the percentage of women with higher education.

Various studies have discussed the relationship between women's autonomy and the practice of feeding infants and young children, and some have taken into account analysis at the regional level. Research in Sub-Saharan African countries found a positive relationship between these two variables in several countries (Mali, Rwanda, and Sierra Leone)[6]. Research on child feeding practices in Ethiopia uses multilevel analysis. A fiinding in Bangladesh using multilevel and spatial analysis found regional variations in the level of infant and young child feeding practices[8]. A study in Afghanistan regarding the provision of complementary food to children has included contextual variables at the regional level and is proven to influence the provision of complementary food to children[9].

Meanwhile, in Indonesia, limited research focuses on providing complementary foods to children by considering contextual variables. Several studies in Indonesia have discussed infant and child feeding practices and examined the determinants of infant and child feeding practices using the logistic regression analysis method[5,10]. In comparison, other studies use qualitative in-depth interview method[11]. Other research on the relationship between women's empowerment and infant and child feeding practices from Indonesia has been examined by Puspitasari and Gayatri[12]. The result is that women's autonomy in the household can provide greater access for women to provide better care for child feeding practices[12].

However, according to WHO recommendations in Indonesia, these studies have not considered contextual variables at the provincial level regarding the feeding practices of infants and young children. Countries with varied geographical locations and heterogeneous social environments are very suitable for studying variations between regions[13]. In addition, Indonesia is a country that has a high variation in nutritional imbalances between regions[4]. Therefore, one of the contributions of this research is that the selection of multilevel analysis by considering regional characteristics explained through contextual variables at the provincial level is considered appropriate in answering the objectives of this study.

Another contribution to this research is the use of 4 indicators of women's autonomy (mobility, economic decision-making, access to control, and freedom from threat) which has never been done in research on women's autonomy and the practice of feeding infants and children in Indonesia. The following contribution is that apart from looking at the influence of regional characteristics and women's autonomy variables on infant and child feeding practices, this study also wants to see the different effects given by the interaction between women's autonomy variables and contextual variables on infant and child feeding practices that have not been carried out. In previous research. This study aimed to finding the influence of regional characteristics, women's autonomy variables, individual characteristic variables at the provincial level on infant and child feeding practices according to WHO recommendations and study the effects of differences in contextual variables and women's autonomy variables on infant and child feeding practices according to WHO recommendations.

METHODS

This study used microdata for variables at the individual level sourced from the results of the 2017 IDHS. At the individual level, it uses IDHS data based on questionnaire data collection for Women of Reproductive Age (WUS), where there was data on mothers and children. Whereas at the provincial level, for contextual variables, in addition to using the 2017 IDHS data, they also use data from the 2017 National Economic and Social Survey (SUSENAS) secondary data published by the Central Bureau of Statistics. The research framework can be explained in Figure 1.

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

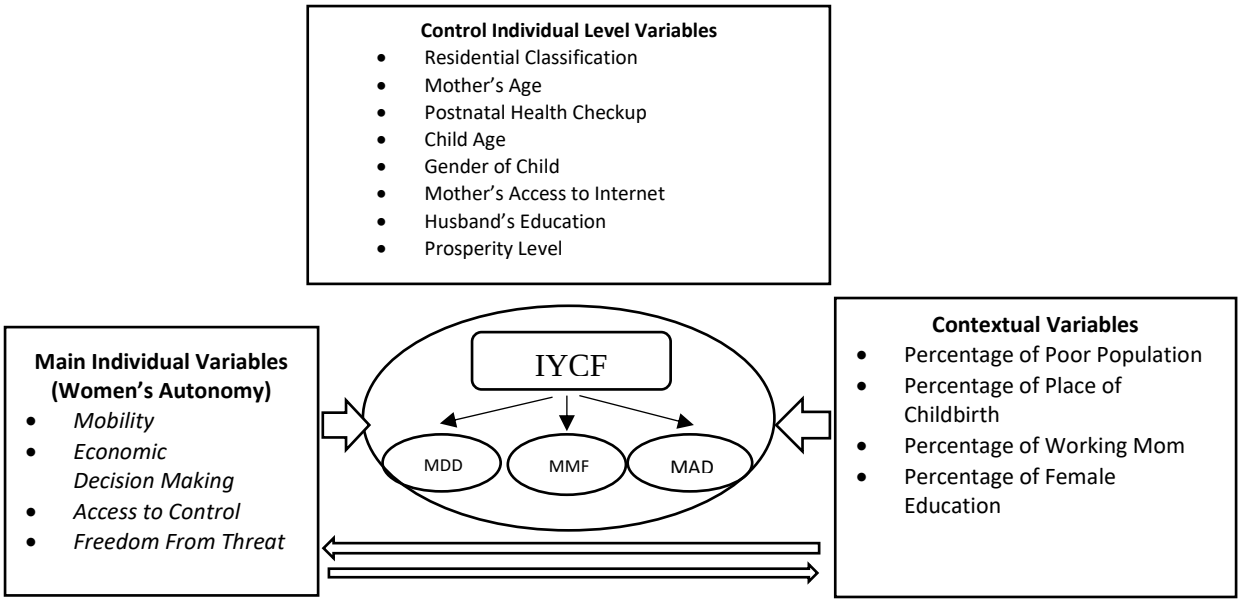

Figure 1. Research framework

The dependent variable in this study was the practice of feeding infants and children where it will be seen whether it is following WHO recommendations or not, which will be divided into three groups: 1) Minimum Meal Frequency (MMF), Minimum Dietary Diversity (MDD), and Miminum Acceptable Diet (MAD). While the independent variables in this study were divided into two: the independent variables at the individual level and the independent variables (contextual) at the provincial level. There was a main variable at the individual level, namely women's autonomy, taken from several questions describing women's autonomy in the household on the WUS IDHS 2017 questionnaire. Meanwhile, control variables at the individual level used place of residence, mother's age, child's age, child's sex, access mother to the Internet, and husband's education.

There were two types of units of analysis in this study, at the provincial level, which includes 34 provinces in Indonesia and at the individual level where data was derived from the 2017 IDHS using the analysis unit of women of childbearing age (15-49 years) who are married or living together and live with their partner and have their last child aged 6-23 months living with them. Based on Figure 1. out of 49,627 women of childbearing age (15-49) years, there were 34,467 currently married women who live with their partners, of which 4,923 have their last child aged 6-23 months and live with them.

Descriptive analysis in this study used maps, tables, and graphs. The descriptive analysis presents a summary of data clusters to be easily understood, whereas the summary summarizes the pattern of data concentration or variations contained in the data[18]. In addition, descriptive analysis can see patterns of interaction of variables that may occur so that they can be detected earlier[19]. Inferential analysis used multilevel binary logistic regression analysis to determine the effect of the leading independent variables, namely women's autonomy, contextual variables at the provincial level, individual control variables, and interaction variables on the dependent variable on infant and young child feeding practices according to WHO recommendations. Multilevel analysis can be used if the structure of the data in research is hierarchical and takes samples from the population using multistage sampling[20]. Multilevel analysis was used because the 2017 IDHS data sampling uses multistage stratified cluster sampling, which allows data to be hierarchical where cluster data above it can influence data at the individual level, namely at the provincial level[19]. The model to be used was:

$$\Pr(Y_{ij})^{k} = \alpha_0 + \alpha_1\, Autonomy_{ij} + \alpha_2 Var\ control_{\ ij} + \alpha_3 Var\ Contextual_{ij} + \alpha_4 Var\ Interaction_{ij} \quad \text{..... (1)}$$

k: the dependent variable of infant and young child feeding practices where (MDD, MMF, MAD), Autonomy: the primary independent variable that describes women's autonomy, Var control: independent variable control at the individual level, Contextual var: provincial level contextual independent variable, Interaction Var: women's autonomy and contextual variables are interacted with

There are null and conditional models where the difference is that the null model does not include independent contextual variables at the provincial or individual levels. In contrast, the conditional model is the opposite, where independent contextual variables at the provincial and individual levels have been included in the model[21]. Multilevel regression analysis can produce a conclusion that has taken into account two levels of analysis units in research, namely at the micro (individual) level and at the macro (province) level[22]. In multilevel analysis, it is necessary to measure the variation between groups or commonly called the Intraclass Correlation Coefficient, namely a model that does not include independent variables at the two levels of the analysis unit used (individuals and provinces) so that the formula[20] can calculate it:

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

$$\rho = \frac{\sigma_{u0}^2}{\sigma_{u0}^2 + \sigma_e^2}$$

Where ρ is the Intraclass Correlation Coefficient; is the residual variance level 2 and = residual variance level 1. Furthermore, in this study, the variation between groups is calculated at the provincial level in line with research, which mentions the variation of the dependent variable used at the country level because it uses several country analysis units at the first level[23].

After establishing the model, the data processing results with multilevel binary logistic regression analysis of the parameters will be interpreted using the odds ratio value generated by the selected model. The odds Ratio is "a comparison of the risk of an event occurring from one group/category to another group/category"[21]. In this study, the odds ratio value of each independent variable used both at the provincial and individual levels will explain how much influence it has on the dependent variable used, namely the practice of feeding infants and young children, which is divided into three indicators: MDD, MMF, and MAD. In comparison, the coefficient values α, β, and δ explain the average difference in the interaction variables used, namely the interaction between the indicators of women's autonomy variables and contextual variables.

RESULTS AND DISCUSSION

Based on Table 1, economic decision-making and access to control indicators positively correlate with infant and child feeding practices. The MDD indicator means that mothers with high female autonomy in terms of significant expenditure decisions in the household have 1.73 times women with high autonomy in terms of their ability to control household financial resources have a 1.25 times higher chance of providing infant and child feeding practices with a minimum indicator of dietary diversity than mothers with low female autonomy on this indicator. The freedom from threat indicator, which describes women's autonomy in this model, shows a negative association,

In several countries, there is a negative relationship between the dimensions of women's autonomy and the behavior of supplementary feeding in children[6]. This finding is due to the different possibilities when the influence of women's autonomy is measured independently per dimension and the different results in some countries in sub-Saharan Africa. The contextual variable of the percentage of poor people shows a negative direction, which can be interpreted that when the percentage of poor people in a province increases, the possibility of mothers providing feeding practices for babies and children will decrease. Household income greatly influences a mother's ability to provide good health nutrition for her child because household constraints can prevent a mother from meeting her child's nutritional needs, in this case through appropriate infant and child feeding practices[6]. In addition, mothers from households with medium welfare levels have 1.45 times the chance and increase the chances 1.88 times for mothers with high welfare levels to provide appropriate infant and child feeding practices compared to mothers in households with a low level of welfare.

The contextual variable percentage of health facilities shows a significant positive relationship, so it can be interpreted that the increasing percentage of mothers who give birth at health facilities in the region will increase the association of mothers providing appropriate infant and child feeding practices. The choice of place of delivery can be one of the contextual variables that can influence infant and young child feeding practices. In a previous study in Pakistan using the contextual variable, the percentage of women who gave birth in health facilities at the regional level using multilevel analysis to see the effect on the suboptimal feeding practices of infants and young children[24].

Based on the residence classification, mothers who live in urban areas have a 1.23 times higher chance of providing infant and child feeding practices with MDD indicators according to recommendations compared to mothers living in rural areas. Mothers who have access to the Internet have a 1.51 higher chance of providing infant and child feeding practices with MDD indicators according to recommendations compared to mothers who do not have Internet access. Mothers exposed to the media gain higher knowledge, which usually contains promotional advertisements regarding child nutrition[15].

Children in the 9-12 month age group have a 4.50 times higher chance and an increase of 12.48 times for children aged 11-23 months to receive infant and child feeding practices with MDD indicators according to recommendations compared to children in the age group 6-8 months. Similar results were obtained from analysis in previous studies, which stated that child age has a strong influence on infant and child feeding practices as an indicator of dietary diversity in the East African region where children aged 9-11 months, 12-17 months, and 18-24 months tend to get infant and child feeding practices according to recommendations compared to children aged 6-8 months, this is because in these areas children aged 6-8 months tend to only consume two types of food groups, namely grains, and tubers, besides that this is also because mothers are still unaware of the importance of child nutrition at an early age of complementary feeding[25].

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

Table 1. Multilevel logistic regression analysis of minimum dietary diversity (MDD) model

Variable Characteristics		OR	(95% CI)	p-value
Key Individual Level Variables				
Mobility	Low (Ref)			
	Tall	1.01	(0.88-1.15)	0.923
Economic Decision Making	Low (Ref)			
	Tall	1.73	(1.40-2.14)	<0.001***
Access to control	Low (Ref)			
	Tall	1.25	(1.04-1.50)	0.016**
Freedom from Threats	Low (Ref)			
	Tall	0.83	(0.70-0.98)	0.034**
Province Level Contextual Variables				
Percentage of Poor Population		0.96	(0.94-0.98)	0.001***
Percentage of Places of Childbirth		1.01	(1.00-1.01)	0.095**
Percentage of Working Women		1.01	(0.99-1.03)	0.237
Percentage of Female Education		1.00	(0.98-1.14)	0.461
Individual Level Control Variables				
Mother's age	15-24 years (Ref)			
	25-34 years	0.84	(0.71-0.98)	0.027**
	>=35 years	0.91	(0.75-1.11)	0.358
Residential Classification	Countryside (Ref)			
	Urban	1.23	(1.06-1.43)	0.008***
Mother's access to the Internet	No (refs)			
	Yes	1.51	(1.29-1.77)	<0.001***
Postnatal Health Checkup	>1 week			
	≤1 week	1.09	(0.95-1.24)	0.214
Gender of Child	Female (Ref)			
	Man	1.01	(0.88-1.14)	0.922
Child Age	6-8 months (Ref)			
	9-12 months	4.50	(3.56-5.67)	<0.001***
	13-23 months	12.48	(10.16-15.33)	<0.001***
Husband's Education	Low (Ref)			
	Currently	1.19	(1.01-1.39)	0.034***
	Tall	1.61	(1.26-2.05)	<0.001***
Prosperity level	Low (Ref)			
	Currently	1.45	(1.20-1.76)	<0.001***
	Tall	1.88	(1.55-2.28)	<0.001***
Variable Characteristics		**β**	**(95% CI)**	**p-value**
Interaction Variable				
Economic Decision Making*Percentage of Poor Population		0.11	(0.03-0.20)	0.010**
Economic Decision Making*Percentage of Working Women		0.02	(-0.06-0.10)	0.572
Freedom from threat*Percentage of Poor Population		-0.01	(-0.09-0.06)	0.719
Freedom from threat*Percentage of Working Women		0.03	(-0.91-0.15)	0.646

Note: *sig at ρ<0.1 ; **sig at ρ <0.05 ; ***sig at ρ <0.01
Source: 2017 IDHS Result Data, processed

In this study, the husband's education level had a significant positive effect. That is, husbands with moderate education levels had 1.19 times higher opportunities, and increased opportunities for husbands with higher education levels had 1.61 times higher opportunities to provide infant and child feeding practices with minimum indicators. Dietary diversity is appropriate compared to husbands with low education

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

levels. The husband/partner's education is one of the factors that can influence the practice of feeding babies and children[25]. The higher the husband's education can affect conditions with higher opportunities for appropriate infant and child feeding practices. Higher-educated husbands tend to have sufficient knowledge about this matter and are more exposed to the media.

Based on Table 2. the freedom from threat indicator, which describes women's autonomy in this model, shows a positive association, meaning that mothers with high female autonomy in terms of disagreeing with domestic violence have a 1.27 times higher chance of providing baby feeding practices and children who fit the MMF indicator compared to mothers with low female autonomy on this indicator. One study in Indonesia concerning the relationship between women's empowerment and feeding practices for infants and children aged 6-23 months using logistic regression analysis explained that mothers who disagree with domestic violence, work, have control over their assets, and have at least two children influence infant and young child feeding practices according to WHO recommendations[12].

Mothers aged 25-34 years have a 0.86 times higher chance or 0.71 times higher for mothers in the age group over 35 years in providing infant and child feeding practices with MMF indicators than mothers in the age group 15 -24 years old. The mother's characteristics are one factor that can influence the practice of feeding infants and children according to the mother's age because the mother's age determines the mother's knowledge of feeding her child[25]. Children in the 9-12 months age group have a 0.33 times higher chance and 0.47 times higher in children aged 13-23 months than children aged 6-8 months to receive infant and child feeding practices with indicators of MFF. Several factors significantly influence the MMF indicator: the child's age. Husbands/mothers with moderate education levels have 0.86 times lower chances of providing infant and child feeding practices with MMF indicators than husbands with higher education levels[15]. Based on Table 3, the higher the percentage of health facilities available in the area, the lower the chance for mothers to provide appropriate infant and child feeding practices with MAD indicators. Mothers over 35 have a 0.77 lower and 0.82 times lower chance for mothers aged 25-34 years to provide infant and child feeding practices because, at a young age, mothers still have little experience or knowledge about Feeding infants and children 8. Mothers with access to the Internet have a 1.21 higher chance of providing appropriate infant and child feeding practices with MAD diet indicators. In line with an Ethiopian study, this is because mothers exposed to the media are more likely to receive more informed knowledge about the importance of appropriate child nutrition[15].

Table 2. Multilevel logistic regression analysis minimum meal frequency (MMF) model

Variable Characteristics		OR	(95% CI)	p-value
Key Individual Level Variables				
Mobility	Low (Ref)			
	Tall	0.94	(0.81-1.08)	0.369
Economics Decision Making	Low (Ref)			
	Tall	0.93	(0.75-1.16)	0.527
Access to control	Low (Ref)			
	Tall	1.02	(0.84-1.23)	0.844
Freedom from Threats	Low (Ref)			
	Tall	1.25	(1.03-1.51)	0.021
Province Level Contextual Variables				
Percentage of Poor Population		1.00	(0.95-1.02)	0.878
Percentage of Health Facilities		1.01	(1.00-1.02)	0.109
Percentage of Working Women		1.00	(0.97-1.04)	0.772
Percentage of Female Education		0.98	(0.95-1.02)	0.351
Individual Level Control Variables				
Mother's age	15-24 years (Ref)			
	25-34 years	0.86	(0.73-1.01)	0.062*
	>=35 years	0.71	(0.57-0.88)	0.002***
Residential Classification	Countryside (Ref)			
	Urban	1.02	(0.83-1.14)	0.835
Mother's access to the Internet	No (refs)			
	Yes	1.06	(0.89-1.25)	0.527
Postnatal Health Checkup	>1 week			
	≤1 week	1.26	(1.09-1.45)	0.001***

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

Variable Characteristics		OR	(95% CI)	p-value
Gender of Child	Female (Ref)			
	Man	0.90	(0.79-1.03)	0.151
Child Age	6-8 months (Ref)			
	9-12 months	0.33	(0.26-0.42)	<0.001***
	13-23 months	0.47	(0.40-0.56)	<0.001***
Husband's Education	Low (Ref)			
	Currently	0.86	(0.72-1.01)	0.082*
	Tall	0.96	(0.75-1.24)	0.770
Prosperity level	Low (Ref)			
	Currently	0.90	(0.73-1.11)	0.319
	Tall	0.89	(0.73-1.09)	0.283
Variable Characteristics		**β**	**(95% CI)**	**p-value**
Interaction Variable				
Economic Decision Making*Percentage of Poor Population		-0.06	(-0.17-0.05)	0.287
Economic Decision Making*Percentage of Working Women		-0.05	(-0.03-0.02)	0.026**
Freedom from threat*Percentage of Poor Population		0.09	(-0.05-0.23)	0.189
Freedom from threat*Percentage of Working Women		-0.03	(0.13-0.08)	0.623

Note: *sig at ρ<0.1 ; **sig at ρ <0.05 ; ***sig at ρ <0.01
Source: 2017 IDHS Result Data, processed

Table 3. Multilevel logistic regression analysis of minimum acceptable diet (MAD) model

Variable Characteristics		OR	(95% CI)	p-value
Key Individual Level Variables				
Mobility	Low (Ref)			
	Tall	0.98	(0.82-1.16)	0.803
Economics Decision Making	Low (Ref)			
	Tall	1.08	(0.84-1.39)	0.542
Access to control	Low (Ref)			
	Tall	1.04	(0.84-1.30)	0.690
Freedom from Threats	Low (Ref)			
	Tall	1.06	(0.84-1.33)	0.613
Province Level Contextual Variables				
Percentage of Poor Population		0.99	(0.95-1.03)	0.711
Percentage of Health Facilities		1.01	(1.00-1.02)	0.089*
Percentage of Working Women		1.02	(0.99-1.05)	0.249
Percentage of Female Education		0.98	(0.95-1.01)	0.341
Individual Level Control Variables				
Mother's age	15-24 years (Ref)			
	25-34 years	0.82	(0.67-1.00)	0.042*
	>=35 years	0.77	(0.60-1.00)	0.042*
Residential Classification	Countryside (Ref)			
	Urban	1,13	(0.93-1.37)	0.222
Mother's access to the Internet	No (refs)			
	Yes	1.21	(0.99-1.48)	0.066**
Postnatal Health Checkup	>1 week			
	≤1 week	1.41	(1.19-1.67)	<0.001***
Gender of Child	Female (Ref)			
	Man	0.95	(0.81-1.12)	0.563

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

Variable Characteristics		OR	(95% CI)	p-value
Child Age	6-8 months (Ref)			
	9-12 months	0.99	(0.71-1.37)	0.967
	13-23 months	1.73	(1.34-2.23)	<0.001***
Husband's Education	Low (Ref)			
	Currently	0.99	(0.80-1.23)	0.935
	Tall	1.23	(0.92-1.65)	0.165
Prosperity level	Low (Ref)			
	Currently	1.04	(0.81-1.34)	0.749
	Tall	1.06	(0.83-1.36)	0.614
Variable Characteristics		**β**	**(95% CI)**	**p-value**
Interaction Variable				
Economic Decision Making*Percentage of Poor Population		0.01	(-0.12-0.13)	0.967
Economic Decision Making*Percentage of Working Women		-0.15	(-0.32-0.02)	0.078*
Freedom from threat*Percentage of Poor Population		-0.11	(-0.23-0.01)	0.074*
Freedom from threat*Percentage of Working Women		0.14	(-0.01-0.28)	0.075*

Note: *sig at ρ<0.1 ; **sig at ρ <0.05 ; ***sig at ρ <0.01
Source: 2017 IDHS Result Data, processed

Mothers who carry out health checks at health facilities within one week after giving birth have a 1.41 times higher chance of providing infant and child feeding practices with MAD indicators. Mothers with access to health facilities generally come from households with a good level of welfare, so these mothers have a better chance of receiving more knowledge about child nutrition[27]. According to recommendations, children in the 12-23 months age group have a 1.73 times higher chance of accepting infant and child feeding practices with MAD indicators compared to children in the age group of 6-8 months[9].

The following analysis wants to see whether there is a difference in the effect of the variable influence of women's autonomy indicators and contextual variables that describe regional characteristics on the feeding practices of infants and young children. In this study, the indicator variables for women's autonomy were economic decision-making and freedom from threat because these indicators significantly influence infant and child feeding practices. Besides that, the variable of women's autonomy itself can indeed be influenced by the functional status of women, which in turn can have an impact on the level of welfare of the household[8] so that the contextual variables that will be interacted with the variable of women's autonomy are the percentage of poor people and the percentage of working women. In this analysis, it is expected to see the effect of differences in the influence of the indicators of economic decision-making and freedom from the threat, which reflect women's autonomy in the practice of feeding infants and young children in the three leading indicators used in areas with a percentage of the poor population which is divided into two categories, namely high and low as well as also in areas where the percentage of working women is divided into two categories, high and low.

In the infant and child feeding practice model with the MDD indicator, the economic decision-making interaction variable with the percentage of poor people with a coefficient of 0.11, which means that there is a different effect on the effect of the female autonomy variable on the economic decision making indicator on the practice of feeding infants and children with the minimum indicator Dietary diversity in areas that have a high and low percentage of poor people of 0.11. In the infant and child feeding practice model with the MFF indicator, there is an interaction between the economic decision-making variable and the percentage of working women with a coefficient of 0. Mothers with high autonomy have more control over limited household resources such as money and food. With more opportunities to control this, mothers can allocate it to meet their child's nutritional and health consumption. In addition, there is a strong relationship between poverty and appropriate infant and child feeding practices because poor people cannot buy animal-based foodstuffs whose nutrients are needed by children resulting in standard feeding practices with dietary diversity indicators[26].

Furthermore, there is a significant influence between the interaction variables on the dependent variable in the MAD model, the interaction variables of economic decision-making, and the percentage of working women. A coefficient value of 0.15 means a different effect on the influence of the female autonomy variable on the economic decision-making indicator on the practice of feeding babies and children on the MAD indicator in areas with a high and low percentage of poor people of 0.15. In addition, the interaction variable freedom from threat with the percentage of poor people shows an association of 0.11, which means that there is a different effect on the effect of the female autonomy variable, the freedom from threat indicator on the practice of feeding infants and children, the MAD indicator in areas with a high and low percentage of poor people of 0.11. Meanwhile, the freedom from threat interaction variable and the percentage of working

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

women also showed an association of 0.14, which means that there is a different effect on the effect of the freedom from threat indicator on women's autonomy variables on the practice of feeding babies and children, the MAD indicator in areas with high and low percentages of working women. of 0.14.

The level of education and the level of economic welfare, in general, are used to calculate the variable of women's autonomy because women who have income from work can increase their level of welfare and free themselves from the poverty trap. Besides, working women can have more control at the micro level of household financial resources[7]. It is proven that women who have control over the allocation of expenses in their household will allocate their expenses for the benefit of their children, such as health care and nutritional status[5]. One type of domestic violence is socio-economic violence, one of which is by prohibiting wives from working. The development of a patriarchal culture causes women to be oppressed because they have limited access to socio-economic resources[27].

CONCLUSIONS

The percentage of poor people has a negative association with feeding infants and children as an indicator of MDD. The welfare level variable is also associated with feeding infants and children as an indicator of MDD. The contextual variable of the percentage of health facilities is associated with indicators of MDD and MAD. Economic decision-making and access to control variables positively correlate with the indicator of infant and young child feeding practices (MDD). The freedom from threat variable shows the association with the feeding practices of infants and children with indicators of MDD and MMF. Control variables at the individual level, namely maternal age, maternal access to the Internet, husband's education, child's age, and postpartum health checks, were shown to be associated with infant and child feeding practices.

The interaction variable of economic decision-making with the percentage of poor people is associated with the MDD indicator. The interaction variable of economic decision-making with the percentage of working women has an association with the indicators of MMF and MAD, which means that there is indeed a different effect on the effect of the variable women's autonomy on these indicators on the practice of feeding infants and children in areas with high and low percentages of poor and poor populations. Meanwhile, the interaction of the variable freedom from threat and the percentage of poor people with the percentage of working women is associated with feeding infants and children as an indicator of a MAD.

ACKNOWLEDGEMENT

Thank you to the Central Bureau of Statistics, the National Population and Family Planning Agency, and the Ministry of Health for organizing the 2017 Indonesian Health Demographic Survey (IDHS) whose data can be used for this study.

Conflict of Interest and Funding Disclosure

All authors have no conflict of interest in this article. Thank you to the Central Bureau of Statistics for funding my education so that I could write this research article during my studies.

REFERENCES

1. SUN. *Scaling Up Nutrition (SUN) Movement Strategy [2012-2015]*. Imperial College, London vol. **1** https://scalingupnutrition.org/wp-content/uploads/2012/10/Sun-Movement-Strategy-Eng.pdf (2012).
2. UNICEF. UNICEF. ata.unicef.org (2020).
3. EAT - Lancet Commission. Healthy Diet From Sustainable Food Systems Food Planet Health. *Lancet* **5**, 1–30 (2019).
4. SMERU .*Strategic Review of Food Security and Nutrition in Indonesia*. https://smeru.or.id/sites/default/files/publication/rr_fsn_indonesia_finalreport_eng.pdf (2020).
5. Ng, CS, Dibley, MJ & Agho, KE. Complementary Feeding Indicators and Determinants of Poor Feeding Practices in Indonesia: A Secondary Analysis of 2007 Demographic and Health Survey Data. *Public Health Nutr.* **15**, 827–839 (2012).
6. Na, M., Jennings, L., Talegawkar, SA & Ahmed, S. Association Between Women's Empowerment and Infant and Child Feeding Practices in sub-Saharan Africa : An Analysis of Demographic and Health Surveys. **18**, 3155–3165 (2015).
7. Kabir, N. *Women's Economic Empowerment and Inclusive Growth: Labor Markets and Enterprise Development*. https://gsdrc.org/document-library/womens-economic-empowerment-and-inclusive-growth-labour-markets-and-enterprise-development/ (2012).
8. Khan, JR, Awan, N. & Sheikh, MT A. Multilevel and Spatial Analysis of the Infant and Young Child Feeding Practices and Associated Factors among the Under-2 Aged Children in Bangladesh. *Child Care Practice.* **1–18** (2019) doi:10.1080/13575279.2019.1680528.
9. Na, M., Aguayo, VM, Arimond, M., Mustaphi, P. & Stewart, CP. Predictors of Complementary Feeding Practices in Afghanistan: Analysis of the 2015 Demographic and Health Survey. *Maternity. Child Nutr.* **14**, 1–14 (2018).
10. Shadow, SK*et al.* Determinants of Age-Appropriate Breastfeeding, Dietary Diversity, and Consumption of Animal Source Foods among Indonesian Children. *Maternity. Child Nutr*. **16**, 1–19 (2020).
11. Inayati, DA*et al.* Infant Feeding Practices among Mildly Wasted Children: A Retrospective Study on Nias Island, Indonesia. *int. Breastfeed. J*. **7**, 3 (2012).
12. Puspitasari, MD & Gayatri, M. Indonesia Infant

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*

and Young Child Feeding Practice: The Role of Women's Empowerment in the Household Domain. *Glob. J.Health Sci.* **12**, 129 (2020).

13. Lamidi, EO. Multilevel Analysis of State Variations in Women's Participation in Household Decision-Making in Nigeria. *J.Int. womens. Studs.* **17**, 186–201 (2016).
14. Jejeebhoy & sathar. Women's Autonomy in India and Pakistan: The Influence of Religion and Region.**27**, 687–712 (2001).
15. Tassew, AA, Tekle, DY, Belachew AB, Adhena, B. . Determinants of Minimum Acceptable Diet among 6-23 Months Age Children in Ethiopia: A Multilevel Analysis of the Ethiopian Demographic Health Survey. *bioRxiv* **1–14** (2018) doi:10.1101/393678.
16. The National Population and Family Planning Board of Indonesia. *Indonesia Health Demographic Survey 2017*. BKKBN (BKKBN, 2018).
17. Rettig, EM, Fick, SE & Hijmans, RJ The Female Empowerment Index (FEMI): Spatial and Temporal Variation in Women's Empowerment in Nigeria. *Heliyon.* **6**, e03829 (2020).
18. Riyanto and Uka Wikarya. *Economic and Business Statistics*. (Mitra Discourse Media, 2018).
19. Dian Ayu Puspitasari. Relationship Between Availability of Health Infrastructure and Accessibility and Utilization of Maternal Health Services in Indonesia (2017 IDHS Data Analysis). (University of Indonesia, 2020).
20. Joop Hox. *Multilevel Analysis (Techniques and Applications)*. (Lawrence Erlbaum Associates, Publisher, 2002).
21. Aliyudin, F. & Budyanra. Factors Affecting Childbirth Complications in Women of Reproductive Age in Indonesia Using IDHS 2012 Data (Application of Multilevel Binary Logistics Regression Analysis). *J. App. Stats. Stat Computing.* **8**, 33–46 (2017).
22. Febrianto, AR. Contextual Factors of Birth Spacing in Indonesia. *Univ. thesis Indonesia.*(2020).
23. Berde, AS & Ozcebe, H. Risk factors for Prelacteal Feeding in Sub-Saharan Africa : A Multilevel Analysis of Population Data From Twenty-Two Countries. (2017) doi:10.1017/S1368980017000659.
24. Na, M., Aguayo, VM, Arimond, M. & Stewart, CP Risk Factors of Poor Complementary Feeding Practices in Pakistani Children Aged 6–23 Months: A Multilevel Analysis of the Demographic and Health Survey 2012–2013. *Maternity. Child Nutr.* **13**, 1–12 (2017).
25. Custodio, E.*et al.* Children's Dietary Diversity and Related Factors in Rwanda and Burundi : A Multilevel Analysis Using 2010 Demographic and Health Surveys. **1–18** (2019) doi:10.1371/journal.pone.0223237.
26. Brunson, EK, Shell-duncan, B. & Steele, M. Women's Autonomy and its Relationship to Children's Nutrition Among the Rendille of Northern Kenya. **64**, 55–64 (2009).
27. Nurul Ulfhaini Bachri. The Influence of Domestic Violence on Divorce in Ciputat District. (Sharif Hidayatullah State Islamic University, 2020).

How to cite: *Synthesa, P., & Hartono, D. The Effect of Regional Characteristics and Women's Autonomy on Infant and Young Child Feeding Practice: Pengaruh Karakteristik Wilayah dan Otonomi Perempuan terhadap Praktik Pemberian Makan Bayi dan Anak. Amerta Nutrition, 7(2), 230–239.*