

Consumption Patterns and Eating Behavior of Toddlers to Food Waste Behavior in Households with Toddlers in Tanah Sareal Sub-District, Bogor City

Urziatul Fikri¹, Prita Dhyani Swamilaksita^{2*}, Lintang Purwara Dewanti³
Nutrition Department, Faculty of Health Sciences, Esa Unggul University

Corresponding Author: Prita Dhyani Swamilaksita, prita.dhyani@esaunggul.ac.id

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ABSTRACT

Age affects FW behavior because adults produce less FW than children. Especially in children under five years old because at that age children like to explore new things then the increasing development of children affects their diet so that the emergence of picky food. The study, which was conducted using a cross-sectional study method with a total sample of 72 respondents aged 12-59 months, aims to determine the relationship between consumption patterns and eating behavior in toddlers with the FW behavior of families who have toddlers in Bogor City. Data analysis in this study used chi-square test. The results of this study showed that there was no association between the frequency, diversity and level of energy, protein and carbohydrate intake in toddler consumption with the FW behavior of households with toddlers ($p\text{-value} > 0.05$). However, there was a relationship between the level of fat intake and the behavior of difficult to eat toddlers on the FW behavior of households that have toddlers ($p\text{-value} < 0.05$).

INTRODUCTION

Food waste is leftover food that should still be suitable for consumption but is wasted either before or after expiration (FAO, 2013). According to Arisandi (2019), Food waste is the result of waste such as food scraps, rotten fruit, vegetables that are no longer fresh or rotten or withered, and food that has passed the expiration date that has not been consumed. based on the results BAPPENAS (2021) Indonesia from 2000 to 2019 produced Food Loss and Waste 115-184 kg per capita per year. The losses obtained from the impact of FLW in Indonesia amounted to 213-551 trillion rupiah per year. According to the National Waste Management Information System, waste generation in Indonesia in 2022 was around 37.8 million tons per year, of which 40.14% or 6.3 million tons were generated from food waste (SIPSN, 2022).

Based on the level of possibility of food waste, there are three types, namely probably avoidable waste, avoidable food waste, and unavoidable food waste. Food waste is influenced by four aspects, namely age, gender, quality and eating habits. Just like the research of Janssens et al. (2019) which says that socio-demographic variables, namely age, affect food waste behavior, because adults produce less food waste than children. Research by Parizeau et al. (2015) said that families who have toddlers will produce more and varied food waste than families who do not have toddlers, this happens due to changes in family lifestyle.

This picky nature of children is associated with food waste, because children can only accept a limited amount of food and strong preferences that cause children to always leave uneaten food (Marcola et al, 2010 dalam Laasholdt et al., 2021). Appetite or appetite in toddlers also contributes to food waste. Proven by research by Gahamat et al. (2022) which says that children's appetite and preventive attitudes towards household food waste are factors that contribute to food waste. Because a child's poor appetite allows 2.547 times to experience food waste when compared to toddlers who have a good appetite.

Research by Dhyani Swamilaksita et al. (2023) said that there were 64% of toddlers aged 24-36 months in Tanah Sareal District behaving food waste, this was due to the lack of maternal attention to feeding patterns both in terms of portion, amount, and menu variation. This study also said that the phenomenon of the Close Mouth Movement in toddlers was around <60% with a status at risk of malnutrition, not only that, the study also said that the largest percentage of toddlers left food from carbohydrate sources, vegetables and fruit, this was indicated by the average score of the mother's question answering "often" or equal to a score value of 3.

Just like the research of Tonini et al. (2023) stated that food waste in households with children in Spain reported that discarding less than two types of food, the most commonly discarded foods were vegetables (80%), fruits (78%) and cereal-based products (63%). Just like the research of Laasholdt et al. (2021) stated that 71% of respondents threw away children's food left on the plate during the past week. Then the child's food that was wasted as much as half a portion was about 48% of the 71% of respondents. Meanwhile, those who threw away 3 or more servings of children's food were around 4% of 71%.

Therefore, researchers are interested in conducting research on "the relationship between consumption patterns and eating behavior of toddlers to food waste behavior in families who have toddlers in the sub-district of Tanah Sareal Bogor".

THEORETICAL REVIEW

The framework in this study is modified based on a literature review that relates consumption patterns and eating difficulties to FW behavior. FW behavior in households occurs because consumer behavior that pays less attention to food management, such as excess portions, is a direct factor affecting the occurrence of FW. In line with Sitanggang (2022), it is said that shopping behavior, food waste, perception of food suitability, processing, and lack of awareness can trigger household FW. This framework is reinforced by the study of Janssens K et Janssens et al. (2019) who stated that the age variable affects FW behavior because children can produce more FW than adults. Children between the ages of 1-5 year's experience very rapid growth and development, so many changes occur, such as changes in eating behavior, which is caused by poor diet and eating disorders (Rifani & Ansar, 2021). In addition to the results of this study, other socio-demographic factors such as income and number of family members have been shown to influence household FW (Grasso et al., 2019).

- H1: For households with children under five, there is a relationship between consumption patterns and FW.
- H2: In households with children under five, there is a relationship between feeding practices and FW.

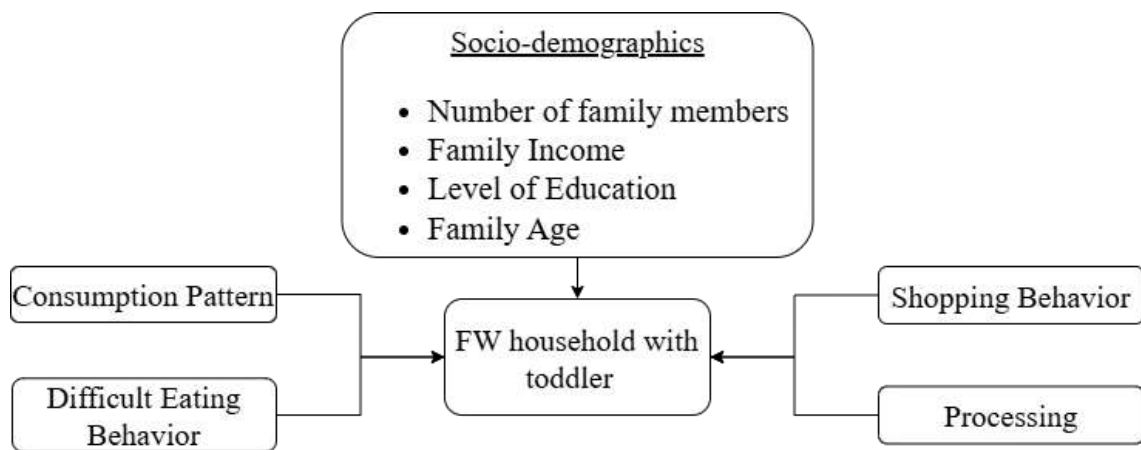


Figure 1. Conceptual Framework

METHODOLOGY

Design, time and place

The research is a quantitative study with a cross sectional research design to see the relationship between consumption patterns and difficult eating behavior in toddlers on household Food Waste behavior in Kedung Badak Village, Tanah Sareal District, Bogor City. This research has received approval from the Health Research Ethics Commission of the Faculty of Public Health, Universitas Airlangga with ethical review number

208/EA/KEPK/2023. Research activities were carried out in December 2023 - February 2024 including preliminary surveys to data collection.

Method

The population of this study were mothers who had toddlers in Tanah Sareal District. The sampling technique used a side probability technique, namely simple random sampling. The collection of respondents was carried out during posyandu activities in Tanah Sareal Sub-district according to the predetermined inclusion and exclusion criteria. Then, data collection was carried out by interviewing respondent door-to-door. The questions given covered household characteristics, namely mother's age, mother's education, household income, age of toddlers, and gender of toddlers. Mothers were also asked questions related to toddler consumption patterns using the SQ-FFQ form to see the frequency, diversity and amount of toddler consumption.

The frequency of toddler consumption was obtained from calculating the total SQ-FFQ score. This score is known based on the category of how many times consumed during the month such as: >1x/day (50), 1x/day (25), 3-6x/week (15), 1-2x/month (10), and never (0). After the total score is known, the score results are divided into 3 categories, namely : good if the score is 344 - 452, sufficient if the score is 236 - 343, and less if the score is 128 - 235 (Tarawan et al., 2020).

The amount of toddler consumption uses the level of toddler nutrient intake in a day which has been accrued from the last month using the SQ-FFQ form. Furthermore, the toddler's daily intake will be entered into nutrisurvey to see the macronutrients that have been consumed in a day. And continued by calculating the level of nutrient consumption compared to the AKG Toddler:

$$\text{Sufficiency Level} = \frac{\text{Total intake}}{\text{AKG Toddler}} \times 100\%$$

Furthermore, categorizing the level of macronutrient adequacy into three categories according to WNPG (2012), less: intake <89% of the AKG, sufficient: intake of 89 - 119% of the AKG and excess: intake >119% of the AKG.

Dietary diversity was determined with the Food Consumption Score (FCS). Data were obtained to obtain the total FCS score of 9 food groups by conducting interviews using the SQ-FFQ questionnaire. Food frequency was grouped based on food groups such as cereals and tubers, grains, vegetables, fruits, meat and fish, milk, sugar, oil and seasonings. Then after being grouped, the frequencies based on food groups were summed up with the maximum value of the summation being 7. Then calculate the total score: cereals and tubers score + grains score + fruits score + meat and fish score + milk score + sugar score + oil score + seasoning score. It is considered diverse if the FCS score is >87 and not diverse 0 - 87 (WFP, 2008).

The population of this study were mothers in Kedung Badak Village. Data collection was carried out during posyandu activities in Kedung Badak. Data collection is in accordance with the inclusion and exclusion criteria. After the mother interviewed the mother of toddlers regarding household

characteristics such as age, education, income, and gender. Then continued with the SQ-FFQ questionnaire related to toddler consumption in the last month. Respondents were also given questionnaire *Children's Eating Behavior Questionnaire* (CEBQ) consisting of 2 groups of questions, namely Food Approach and Food Avoidant with a total of 35 questions, and given answer choices, namely: never, rarely, sometimes, often and always. Then the answer. Then the answers to each group of questions are totaled if the toddler behaves difficult to eat then the value of the Food Avoidant score > Food Approach score. Food waste behavior of households with toddlers using the Food Waste behavior questionnaire in households with toddlers. This questionnaire consists of 23 questions with a Likert scale (1) never, (2) sometimes, (3) often, (4) always.

RESEARCH RESULTS

A sample of 72 housewives with children under five years of age was obtained in Tanah Sareal Sub-district, Bogor City, and the following household characteristics were obtained from door-to-door interviews:

Tabel 1. Household Characteristics

Respondent Characteristics	n	%
Toddler age (months)		
12-36	52	72,2
37-59	20	27,8
Total	72	100,0
Gender		
Male	36	50,0
Female	36	50,0
Total	72	100,0
Mother's age (years)		
<40	52	72,2
≥40	20	27,8
Total	72	100,0
Mother's last level of education		
Not in school	1	1,4
Elementary school graduate /equivalent	7	9,7
Junior high school graduate/equivalent	18	25,0
High school graduate/equivalent	31	43,1
College graduate	15	20,8
Total	72	100,0
Number of household members		
< 4	13	18,1
≥ 4	59	81,9
Total	72	100,0
Total household income		
< UMK Kota Bogor (Rp4.813.988)	52	72,2
UMK Kota Bogor (Rp4.813.988)	20	27,8
Total	72	100,0

Based on data analysis that has been done in Table 1, it is known that the age of most toddlers is 12-36 months, 72.2%, while toddlers aged 37-59 months are 27.8%. In the gender of toddlers there is a balance in the number of genders, 50.0% male and 50.0% female. In line with the survey results from Bogor City in Figures 2024 that the population by age and sex in the under-five age group is not much different with the percentage of male under-fives around 50.9% and female under-fives around 49.1%. It is known that the highest age of mothers in the range of < 40 years is 72.2% while the least age of respondents in the range of ≥ 40 years is 27.8%. So most of the age of housewives are in the productive age category, productive age itself has an age range of 36 - 40 years (Talipi et al., 2018).

In the last level of education of the mother, most of them graduated from senior high school / equivalent as much as 43.1% and some others studied until they graduated from elementary school / equivalent as much as 9.7%, graduated from junior high school / equivalent 25.0%, graduated from college as much as 20.8% and did not go to school as much as 1.4%. According to BPS Bogor City survey data (2023), it is known that women with the last education level of High school graduate/equivalent are the third highest after the last education level of Junior high school graduate/equivalent. In family size, it is known that most respondents have a family size of ≥ 4 people, around 81.9%. Afifah R (2018) said that the number of family members is more than ≥ 4 people, the food waste produced is more than family members < 4 people. And in the variable amount of family income, most of the family income is < UMK of Bogor City as much as 72.2%, where the UMK of Bogor City is IDR 4,813,988.

Tabel 2. Consumption pattern, difficult eating behavior and food waste behavior household with toddler 12-59 months

Consumption patterns of children under five	n	%
Frequency of consumption		
Good (Skor 344 – 452)	49	68,1
Simply (Skor 236 – 343)	14	19,4
Less (Skor 128 – 235)	9	12,5
Total	72	100,0
Diversity of consumption		
Various (Skor FCS > 87)	28	38,9
Not diverse (Skor FCS 0-87)	44	61,1
Total	72	100,0
Adequate level of macronutrient consumption		
Energy		
Inadequate Intake (intake $\leq 89\%$ AKG)	33	45,8
Adequate Intake (intake 90 – 110% AKG)	19	26,4
Excess Intake (intake >110% AKG)	20	27,8
Total	71	100,0
Carbohydrates		
Inadequate Intake (intake $\leq 89\%$ AKG)	50	69,4
Adequate Intake (intake 90 – 110% AKG)	11	15,3
Excess Intake (intake >110% AKG)	11	15,3

Consumption patterns of children under five	n	%
Total	72	100,0
Protein		
Inadequate Intake (intake $\leq 89\%$ AKG)	5	6,9
Adequate Intake (intake 90 – 110% AKG)	6	8,3
Excess Intake (intake $>110\%$ AKG)	61	84,7
Total	75	100,0
Fat		
Inadequate Intake (intake $\leq 89\%$ AKG)	28	38,9
Adequate Intake (intake 90 – 110% AKG)	7	9,7
Excess Intake (intake $>110\%$ AKG)	37	51,4
Total	72	100,0
Difficult Eating Behavior	n	%
Behavioral Difficulty Eating (skor food approach $<$ food avoidant)	54	75,0
Non-behavioral Eating Difficulty (food approach $\geq$ food avoidant)	18	25,0
Total	72	100,0
Food Waste Behavior Household	n	%
Food Waste Behavior ($<60\%$)	43	59,7
Non-Food Waste Behavior ($\geq 60\%$)	29	40,3
Total	72	100,0

a) Consumption Patterns of Toddlers

1) Consumption Frequency of Toddlers

The results of the study showed that 68.1% of toddler respondents had a good consumption frequency with a total frequency score value in the vulnerable 344 - 452, toddlers who had a frequency that was less about 12.5% with a total frequency score of 128 - 235 and as many as 19.4% of toddler respondents had sufficient consumption frequency with a total frequency score value of 236 - 343. So that the frequency of consumption in respondents in general has a good frequency. as many as 61.1% of respondents under five have a consumption diversity score value of 0 - 87, and as many as 38.9% of respondents under five have a consumption diversity score value > 87 , so in general the consumption of toddlers is not diverse.

Tabel 3. Frequency of Foodstuffs Frequently Consumed by Toddlers 12-59 Months

Food Ingredients	Average Frequency
Staple food:	
Rice	2x/day
Biscuit	1 x/day
Animal protein:	
Chicken meat	3 x/week
Chicken eggs	6 x/week
Plant-based protein:	
Tempeh	3 x/week
Tofu	4 x/week

Food Ingredients	Average Frequency
Vegetables:	
Spinach	1 x/week
Chickpeas	1 x/week
cubis	1 x/week
Tomatoes	1 x/week
Carrots	2 x/week
Fruits:	
Banana	1 x/week
Orange	1 x/week
Mango	1 x/week
Milk and its preparations :	
Milk formula	>1 x/day
Ice cream	2 x/week
Milk Box	3 x/week
Fat and sugar:	
Coconut oil	6 x/week
Granulated sugar	4 x/week

Food ingredients based on food groups as well as the average most frequently consumed, namely: staple foods such as rice (2 times/day) and biscuits (1 time/day), animal proteins such as chicken meat (3 times/week) and chicken eggs (6 times/week), vegetable proteins such as tempeh (3 times/week) and tofu (4 times/week), vegetables such as spinach, beans, cabbage, tomatoes (1 time/week) and carrots (2 times/week), fruits such as bananas, oranges and mangoes (1 time/week), milk and dairy products that are often consumed such as formula milk (>1 time/day), ice cream (2 times/week) and boxed milk (3 times/week), while for the fat and sugar group such as palm oil (6 times/week) and granulated sugar (4 times/week).

2) Consumption Diversity

Based on the table above, 61.1% of respondents under five have a consumption diversity score of 0 - 87, and 38.9% of respondents under five have a consumption diversity score of >87. So it is known that in general the consumption of toddlers is not diverse

3) Adequate Level of Nutrient Intake

From the analysis that has been done in the table above, it is known that around 45.8% of respondents have insufficient energy intake, while the adequacy of energy intake is sufficient and less than 26.4% and 27.8% of the total respondents. In the adequacy of carbohydrate intake, 69.4% were found to be lacking, while the adequacy of carbohydrate intake was sufficient and excess than 15.3%. Then in the adequacy of protein intake, it is known that 84.7% is excessive, while the adequacy of protein intake is sufficient and deficient around 8.3% and 6.9%. Next, the adequacy of fat intake is known to be around 51.4% excess, while the

adequacy of fat intake is sufficient and less around 9.7% and 38.9%. Insufficient energy and carbohydrate intake occurred due to the incidence of difficult eating behavior in toddlers. Meanwhile, excessive protein and fat intake occurred due to the high consumption of formula milk in respondents and food processing that is often done by frying.

b) Feeding Behavior of Toddlers 12-59 Months

From the analytical results as many as 75.0% of toddlers have a food approach score < food avoidant, and around 25% of toddlers have a food approach score $\geq$ food avoidant. So it can be seen that most of the toddler respondents experienced eating difficulties marked by a food approach score < food avoidant. So it can be seen that most of the respondents under five behave difficult to eat. From the questionnaire, it is known that eating difficulties that often occur in toddlers are refusing new foods, eating slowly, feeling full easily and when the child's mood is bad, eating small portions.

Tabel 4. Average Eating Difficulty Questionnaire Score in Toddlers by Question Group

Question Group	< Mean	$\geq$ Mean	N
Food Avoidant			
Emotional Undereating (Mean: 3,06)	39	33	72
Food Fussiness (Mean: 3,01)	60	12	
Satiety Responsiveness (Mean: 2,86)	24	48	
Slowness Eating (Mean: 2,69)	31	41	
Food Approach			
Enjoyment of Food (Mean: 3,94)	17	55	72
Desire of Drink (Mean: 3,22)	42	30	
Food Responsiveness (Mean: 3,15)	46	26	
Emotional Overeating (Mean: 1,72)	33	39	

It is known that the number of toddlers who are more than the average points obtained based on the food avoidant question group is slowness eating or slow eating around 41 toddlers and satiety responsiveness or satiety responsiveness around 48 toddlers. Meanwhile, the number of toddlers who are more than the average points obtained based on the food approach question group includes enjoyment of food around 55 toddlers, desire of drink around 30 toddlers, food responsiveness around 26 toddlers and emotional overeating around 39 toddlers.

c) Food Waste Behavior Household

It is known that 83.3% of respondents have household food waste behavior calculation results <60% and as many as 40.3% of respondents have household food waste behavior calculation results $\geq$ 60%. So that most households that have toddlers behave food waste. Food waste behavior that often occurs in households with toddlers is that children only want to eat when there is food that they like, mothers never make a meal plan, never

bring a shopping list, when food preparation is accidental, children often leave food on the plate and often buy food outside the home even though there is food at home.

Table 5 Test Results of the Relationship between Consumption Patterns and Difficult Eating Behavior of Toddlers on Food Waste Behavior of Households with Toddlers

Variabel		Food Waste Behavior Households						P-value
		FOOD WASTE BEHAVIOR		Non-FOOD WASTE BEHAVIOR		Total		
		n	%	n	%	n	%	
Frequency	Good (Skor 344 – 452)	5	55,9	4	44,4	9	12,5	0,908
	Simply (Skor 236 – 343)	9	64,3	5	35,7	14	19,4	
	Less (Skor 128 – 235)	29	59,3	20	40,8	49	68,1	
					72	100,0		
Diversity	Various (Skor FCS > 87)	23	52,3	21	47,7	44	61,0	0,106
	Not diverse (Skor FCS 0-87)	20	71,4	8	28,6	28	39,0	
					72	100,0		
Adequate level of total energy intake	Inadequate Intake (intake ≤89% AKG)	19	57,6	14	42,4	33	45,8	0,924
	Adequate Intake (intake 90 – 110% AKG)	12	63,2	7	36,8	19	26,4	
	Excess Intake (intake >110% AKG)	12	60,0	8	40,0	20	27,8	
					72	100,0		
Adequate level of carbohydrate intake	Inadequate Intake (intake ≤89% AKG)	30	60,0	20	40,0	50	69,7	1,706
	Adequate Intake (intake 90 – 110% AKG)	8	72,7	3	27,3	11	15,3	
	Excess Intake (intake >110% AKG)	5	45,5	6	54,5	11	15,3	
					72	100,0		

Variabel		Food Waste Behavior Households						P-value
		FOOD WASTE BEHAVIOR		Non-FOOD WASTE BEHAVIOR		Total		
		n	%	n	%	n	%	
Adequate Level of Total Protein Intake	Inadequate Intake (intake ≤89% AKG)	2	40,0	3	60,0	5	6,9	2,212
	Adequate Intake (intake 90 – 110% AKG)	5	83,3	1	16,7	6	8,4	
	Excess Intake (intake >110% AKG)	36	59,0	25	41,0	61	84,7	
						72	100,0	
Adequate Level of Total Fat Intake	Inadequate Intake (intake ≤89% AKG)	17	60,7	11	39,3	28	38,9	0,032
	Adequate Intake (intake 90 – 110% AKG)	4	57,1	3	42,9	7	9,7	
	Excess Intake (intake >110% AKG)	22	59,5	15	40,5	37	51,4	
						72	100,0	
Difficult eating behavior	Behavioral Difficulty Eating (skor food approach < food avoidant)	28	51,9	26	48,1	54	75,0	0,018
	Non-behavioral Eating Difficulty (food approach ≥ food avoidant)	15	83,3	3	16,7	18	25,0	
						72	100,0	

Table 5 explains the results of the Chi-Square test, it is known that the frequency of consumption of toddlers on household Food Waste behavior obtained a Pvalue = 0.908, which means that the P-value > 0.005 . Thus, there is no relationship between the frequency of consumption of toddlers who are good, sufficient or lack of household food waste behavior. The diversity of

toddler consumption on household food waste behavior obtained a p value = 0.106 which means the P-value > 0.005. So, it is known that the type of consumption of toddlers who are diverse or not diverse has no relationship to family food waste behavior. While the amount of consumption of toddlers is seen from the adequacy of macronutrient intake consumed in a day. The adequacy of energy, protein and carbohydrate intake of toddlers to household food waste behavior results in p values = 0.942, 2.212, and 1.706 which means the P-value > 0.005. So it is known that the adequacy of energy, protein and carbohydrate intake of toddlers who are less, enough or more still have food waste behavior.

However, the adequacy of toddler fat intake on the food waste behavior of households that have toddlers results in a p value = 0.032, which is a P-value <0.05. So it is known from the test results that there is a relationship between the adequacy of the toddler's excess fat intake and the family's food waste behavior, this is obtained by a lot of oil food waste when in the field. From SQ-FFQ it is known that in processing vegetable food ingredients are often processed by frying or deep frying. And, the behavior of eating difficult toddlers on the food waste behavior of households that have toddlers shows a p value = 0.018 which is the value of the P-value <0.05. From these results it can be concluded that there is a relationship between toddlers who behave difficult to eat on family food waste behavior.

DISCUSSION

The results of chi-square test analysis showed that there was no relationship between frequency, variety and level of adequacy of micronutrient consumption intake on family food waste behaviour P-value > 0.005. There is no relationship between frequency, diversity, level of energy, protein and carbohydrate consumption intake on household food waste behaviour because during field interviews it is known that the onset of food waste behaviour is not only for young children who have good, sufficient or insufficient consumption frequency, diverse or non-diverse types of food consumption, then the level of energy and carbohydrate adequacy is either less, sufficient or excess. However, these food waste behaviours also occur among other household members, such as mothers, because of the important role they play in managing food at home. The food waste behaviours that often occur in managing food include accidentally peeling vegetables too thickly during preparation, serving large portions of food that exceed the family's portion, rarely heating unfinished food, and frequently buying food out of home when there is food available at home.

From the results of research cited in Swamilaksita et al. (2024), it was said that the average number of household members of 2 - 5 people who have a monthly income <UMR, then accompanied by consumption patterns that are not diverse, will have poor consumption patterns that may produce more food waste. When shopping for food, it was found that the mothers interviewed never made a shopping list. However, according to Talia et al. (2019), shopping without recording the food ingredients to be purchased can avoid food waste generation, as food ingredients that are not really needed are not bought. It was found that

the mother respondents rarely made a meal plan, as large portions of food are often found in the field that do not match the number of family members.

On the other hand, according to Secondi et al. (2015), determining the estimated portion to be eaten by the right family members is one of the actions that can reduce food waste. According to Ariani et al. (2021), food that is cooked in excess is due to the lack of menu planning prior to the processing of food that is tailored to the activities and physiology of household members. The habit of buying food outside the home when there is food inside the home sometimes occurs. In line with research by Heald (1987); Warde and Martens (2000) in Bravi et al.(2020)) said that from research conducted in the UK, it is known that the high frequency of buying food outside has a positive impact on household waste generation.

However, the chi-square test showed that there was a relationship between the level of adequacy of fat intake of young children and the food waste behaviour of households with young children, resulting in a p-value = 0.032, where the value of the p-value <0.05. The results of this study indicate that approximately 59.5% of toddlers with excessive levels of toddler fat adequacy then behave as food wasters. From the results of the SQ-FFQ questionnaire, it is known that in the processing of vegetable and animal foods, ingredients are often processed by frying or deep-frying, so that the adequacy of infant fat intake is excessive and the generation of oil waste becomes more. In line with the findings of (Mena et. al. (2010) in Skotnicka et al.(2018)), it was found that products with a waste rate of >7% were bread, oil, beef, sandwiches, yogurt and packaged salads.

Then it is also known that there is a relationship between toddlers' difficult eating behaviour and food wasting behaviour using the Chi-square test P-value <0.05. This is because it is found in the field that toddlers who have difficult eating behaviour are characterised by an appetite that is easily satiated, picky eating behaviour and emotional ups and downs of children. It was also found that mothers threw away the rest of the child's food that was still edible. Families with children tend to produce more food waste than families without children, so the more children in the household eat, the more food waste is produced (Porpino, 2016). Fussy eater behaviour is a difficult eating behaviour that describes the behaviour of refusing familiar and unfamiliar foods (Fraser et al., 2021). Fussy eater behavior and changing food preferences in young children can lead to excessive food preparation and serving by parents, resulting in high food waste. This fussy eating behaviour also has an impact on excessive food purchases, leading to impulse buying as children force parents to over-purchase food to avoid fussy children when shopping (Kansal et al., 2022).

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, it can be concluded that there is no relationship between frequency, diversity of consumption, and the level of adequacy of micronutrient consumption intake on family food waste behavior because food waste behavior is also carried out by other household members such as mothers. Food waste behaviors that often occur during food management are during preparation accidentally peeling vegetables too thickly, large portions of dishes exceeding family portions, rarely heating unfinished dishes, and often

buying food outside even though there is food at home. However, there is a relationship between the level of fat intake adequacy of toddlers to household food waste behavior because it is often found in processing vegetable and animal food ingredients often processed by frying or deep frying. And there is a relationship between toddlers' difficult eating behavior and food waste behavior because toddlers who have difficult eating behavior are characterized by an appetite that is easily satiated, picky food behavior and emotional ups and downs. So that when eating leaves food on the plate, and it was also found that the mother threw away the rest of the child's food that could still be consumed again.

FURTHER STUDY

In this study, the researcher realizes that this research is far from perfect so that it has limitations, namely on the variables of FW behavior. perfect so that it has limitations, namely on the FW behavior variable. households are only seen based on the FW behavior questionnaire. Because the behavior of a person will change every day because it is influenced by several factors such as planning, shopping, storing, consuming food, managing food waste, evaluating food properties and disposal.

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