

The Relationship of Knowledge and Family Attitudes towards Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024

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Knowledge, Attitude, Management Household Waste.

Abstract: Indonesia is the fourth largest country in the world that faces environmental sanitation problems, especially waste management. Unmanaged household waste can have an impact on the health of the family. Household Waste Management is the right action to overcome problems related to waste. The purpose of the research is to find out the Relationship of Knowledge and Attitudes of the Pakkat Toruan Family in Household Waste Management. This type of research is a descriptive analytical crosssectional design. It will be held in March-May 2024 at Pakkat Toruan, Doloksanggul District. The population is 138 families in Pakkat Toruan. Sampling techniques were accidental sampling and chi-square test. The results of the study using the chi-square test showed that there was a relationship of knowledge to household waste management, the results of the chi-square test ($\alpha=0.05$) and $df=2$ were obtained X^2 count (6.124) > x^2 table (5.991), there was a relationship between attitudes towards household waste management obtained from the Chi-Square Test $df = 1$ obtained X^2 count (3.882) > chi-square (3.841). For the community, the importance of increasing family participation and skills in Household Waste Management as well as balanced funding and public understanding related to PHBS is the optimal Household Waste Management for improving the degree of family health status. It is hoped that the local government needs to cooperate with families to increase socialization, especially handling household waste.

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INTRODUCTION

Data from the World Health Organization (WHO) in 2017 in (Purba et al., 2019), announced that the volume of waste in major cities in the world today has generated 1.3 billion tons of waste every year and can reach 2.2 billion tons by 2025. The volume of waste can increase by around 77% from the realization in 2016, the majority of the increase in the amount of waste can occur in the surrounding cities. This is related to not knowing how to manage waste properly and correctly. Where, waste that is not managed properly can be caused by a lack of knowledge, attitudes, and actions of a person or community in processing the waste. So, without public awareness to manage waste by sorting as the first step in recycling, reusing plastic waste so as

to reduce the use of plastic waste, it will have consequences such as environmental damage and groundwater can also experience environmental damage, problems for health, especially environment-based health (Ilma et al., 2021).

In Asia in 2020, there was an increase in waste. The majority of the increase occurred in cities in developing countries. The East Asia region is a region with very fast growth in waste production in the world. This can show that among the 192 countries in the world analyzed by the world's largest plastic waste producers, all are in the East Asian region, namely China, Indonesia, Vietnam, the Philippines, and Sri Lanka (Erlansyah et al., 2021). Population growth in the world continues to increase quite rapidly, especially in developing countries, this is due to the high birth rate in these developing countries. As a result, population explosions often occur in developing countries themselves. Population growth increased from year to year 2 with a population growth rate of 1.31% per year. Rapid population growth will definitely have an impact on increasing the production of waste produced. Waste production is dominated by households, markets and industrial estates (BPS, 2019).

According to data from the National Waste Management Information System (SIPSN) in 2020, the most waste in Indonesia was contributed from household waste 32.4%, so that households became the largest waste distributor in a region. There are also many waste sorting that have not been done, therefore this household waste sorting is very necessary or needed to improve the quality of life health because from the results of SIPSN, the most waste obtained is household waste (Juniarti, 2022).

The amount of waste in Indonesia continues to increase, in 2015 it was 18% or 13.5 million tons/year, in 2016 it was 30% or 30 million tons, in 2017 it was 45% or 34 million tons. The sources of waste that have been produced in Indonesia are household waste, which is 48%, traditional markets, which are 24%, workplaces or offices, which are 6%, large roads 7.5%, and others by 1.5%. Competent waste in Indonesia is 60% organic waste, 15% plastic, 10% paper, 4.5% metal, 5.5% rubber, 3.5% fabric, 1.7% glass and 2.4% others (Nurhana 2020). According to data from the Central Statistics Agency, in 2021 Indonesia increased by 24.5 million tons of waste per year, ranking as the second largest waste-producing country in the world. It is estimated that only about 60% of waste in major cities in Indonesia can be transported to landfills, and poses a risk of health problems to people living in the Medan Marelan Waterfall landfill (Nuraini & Marpaung, 2022).

The increase in the number of population and the rate of economic growth and development in an area in addition to having a positive impact also has a negative impact. Indonesia, which is the fourth most populous country in the world with an estimated 278,752,361 people in 2022, this data is based on the elaboration of the worldometer from the latest UN data, facing many problems related to environmental sanitation, especially waste management problems. Waste is a problem faced by several developing and developed countries, including Indonesia (Nuraini & Marpaung, 2022).

The total volume of waste produced by North Sumatra Province in a day is 9,800 tons. This causes North Sumatra to be at the bottom in terms of waste management. Meanwhile, from the data of the Pematangsiantar City Hygiene Office, household waste management that there is still a lot of waste in the landfill, the landfill is a Final Disposal Site where waste reaches the last stage in its management, waste is collected, transported, and disposed of in the final disposal site (TPA) of waste, with a new service coverage of only about 20% of the entire Pematang Siantar

City area, which includes three service areas, namely Pematangsiantar, Tanjung Pinggir. This waste management is handled by the Pematang Siantar City Sanitation Office with the implementation of tasks in the fields of cleanliness, landscaping and cemeteries (Nanda et al., 2022).

Humbang Hasundutan Regency was designated as the place for the 2020 HPSN in the Lake Toba area by the Ministry of Environment and Forestry of the Republic of Indonesia, in maintaining the cleanliness of waste processing in the Lake Toba area as a National Tourism Strategic area. Where Humbang Hasundutan Regency is the name of the waste management facility at the Nagasaribu TPST, Lintongnihuta District, the type is a landfill with a total of 500.88 tons of incoming waste per year and managed as much as 500.2 tons per year (Humbang Hasundutan Year Profile, 2021).

Based on the results of the research by Efendi Agus, (2020) in the journal 'The Relationship of Knowledge and Mother's Attitude towards Household Waste Management in Binjai Village, Medan City', it shows that the distribution of respondent data based on good knowledge is 74 people (55.6%), 41 people (30.8%) are enough and 18 people (13.5%) are lacking. Based on the results of the study on attitudes, the distribution of respondent data based on positive attitudes was 35 people (25.3%) and negative attitudes as many as 98 people (73.7%). Based on the results of the study on respondents' habits, the distribution of respondents' data based on good habits was 35 people (26.3%), enough as many as 37 people (27.8%) and less as many as 61 people (45.9%). Based on the results of the research on waste management, the distribution of respondent data based on waste management was good as many as 46 people (34.6%), enough as many as 31 people (23.3%) and less than 56 people (42.1%) (Agus, 2020).

From the results of research conducted by Zulfa, (2023). The Relationship between Knowledge and Community Attitudes with Waste Management Behavior in Bungkah Hamlet. It shows that the community's behavior about waste management is that good waste management behavior is 68.2% lower than bad waste management behavior of 31.8%. The description of the relationship between knowledge level and waste management behavior is good management behavior with a low knowledge level of 52.9%, lower than that of respondents who have a knowledge level of 53.5% and a high knowledge level of 86.0%. The results of the statistical test obtained a value of $p=0.002$ (< 0.05), so it can be concluded that there is a meaningful relationship between the level of knowledge and waste management behavior. Description The relationship between community attitudes and waste management behavior, namely good waste management with a positive attitude as much as 50.0% lower than respondents who had waste management behavior with a negative attitude as much as 74.4%. The results of the Statistical test obtained a value of $p=0.011$ (<0.05), so it was concluded that there was a meaningful relationship between attitudes and waste management behaviors (Prihandari & Wahyuni, 2023).

Based on an initial survey conducted on Pakkat Toruan Village, Doloksanggul District, Humbang Hasundutan Regency in 2024. Of the 6 people interviewed by the researcher, it was stated that household waste management is one of the activities in striving for environmental and community health. From the survey results, researchers can find that in Pakkat Toruan, there is a lack of cleanliness in maintaining a clean environment regarding household waste management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency. From the

above background, the researcher wants to conduct a study on "The Relationship of Family Knowledge and Attitudes to Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

This study aims to determine the relationship between family knowledge and attitudes towards household waste management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024. Specifically, this study wanted to identify how the level of knowledge and attitudes of families affects the way they manage household waste. The results of this research are expected to provide benefits for various parties. For respondents, this research can add to public insight into the importance of good and sustainable household waste management. For researchers, this research is a means of applying the knowledge that has been obtained during the education period at D-III Nursing STIKes Kesehatan Baru, as well as an academic requirement to obtain the Associate Expert in Nursing degree. For the research site, the results obtained can be a reference for the community and village officials in increasing awareness and household waste management practices. Meanwhile, for educational institutions, this research can be a reference material in the library as well as a reference for further research related to household waste management and environmental health.

METHOD

This type of research is a quantitative analytical descriptive research with a cross-sectional design looking at the relationship between independent variables (Knowledge and Attitude) and dependent variables (Household Waste Management), then conducting data analysis using a frequency distribution table, which is a measurement at the same time to determine the Relationship of Knowledge and Family Attitudes Towards Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Regency Sediton in 2024.

The location of this research was carried out in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024. The time of this research was carried out in March-May in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

Population is the totality of each element to be studied that has the same characteristics, it can be individuals from a group, event, or something to be studied. Population is the entire subject of research, population is a source of data and information for the benefit of research or a group of subjects, whether people, values, tests, objects or events. Based on the population above, the population in this study is 138 families in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

This study uses a sampling method to select a number of elements from the studied population in order to understand the generalizable characteristics of the population as a whole. The population in this study is all families in Pakkat Toruan, Doloksanggul District, with a total population of 138 people. The research sample was determined using the Slovin formula, with an error rate of 10% (0.1), so that a sample of 58 respondents was obtained. The sampling technique was carried out using the Accidental Sampling method, namely respondents who happened to meet and met inclusive criteria, such as physically and spiritually healthy families, able to read and write, and aged 24 years and above. Meanwhile, the exclusive criteria in this study include families outside Pakkat Toruan, families with mental disorders, and those who cannot read and write. With this method, the research is expected to obtain representative data on the relationship of knowledge and family attitudes towards household waste management in

the region.

This study uses three types of data, namely primary data, secondary data, and tertiary data. Primary data was obtained directly from respondents through questionnaires that had been prepared beforehand. The data collection process was carried out by initial observation, distribution of questionnaires, and explanations to respondents regarding the purpose of the research, so that the answers given were in accordance with their knowledge and experience. Secondary data in this study were obtained from related agencies or institutions, especially data collected by Pakkat Toruan Village, Doloksanggul District, which is relevant to this study. Meanwhile, tertiary data is obtained from the results of previous research related to the topic discussed, both from internet literature, research journals, and other scientific references. The combination of these three types of data is expected to provide a more comprehensive understanding of the relationship between knowledge and family attitudes towards household waste management.

The data collection technique was carried out by field surveys by directly interviewing families about household waste management. In this study, the author ran a questionnaire to the respondents by visiting and asking families about household waste management to the extent that they knew about the management of household waste. Data was collected by means of direct interviews and filling out questionnaires. Data collection was carried out for 3 days.

RESULTS AND DISCUSSION

Based on the results of the research conducted with the title: "The Relationship of Knowledge and Family Attitudes towards Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024" Presented in the form of a distribution table as follows:

Analisa Univariat

Univariate analysis was carried out to describe the presentation of data from several variables in the form of frequency distribution, including the frequency distribution of respondents based on knowledge and attitudes in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

Table 1. Distribution of Respondent Frequency Based on Knowledge, Age, Education, Gender, Occupation Information Sumebr, Attitude, Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024

No	Variable	Sum	Percentage %
1	Knowledge		
	Good	11	19,0%
	Enough	23	39,7%
	Less	24	41,4%
	Total	58	100%
2	Age		
	24-30	9	15,5%
	31-40	28	48,3%

	41-55	21	36,2%
	Total	58	100%
3	Education		
	SMP	14	24,1%
	SMA/SMK	42	72,4%
	S1	2	3,4%
	Total	58	100%
4	Gender		
	Woman	57	98,3%
	Man	1	1,7%
	Total	58	100.0%
5	Work		
	Farmer	47	81,0%
	Self employed	9	15,5%
	Teacher	2	3,4%
	Total	58	100%
6	Resources		
	Health Workers	39	81,0%
	Medium Mass	19	15,5%
	Total	58	100%
7	Attitude		
	Positive	26	44,8%
	Negative	32	55,2%
	Total	58	100%
8	Household Waste Management		
	Done	22	37,9%
	Not done	36	62,1%
	Total	58	100%

Based on Table 1. It is known that of the 58 respondents, 11 people (19.0%) have good knowledge, 23 people (39.7%) have sufficient knowledge, and 24 people (41.4%) have less knowledge. Based on the age of 24-30 years as many as 9 people (15.5%), age 31-40 as many as 28 people (48.3%), age 41-55 years as many as 21 people (36.2%). Based on the level of junior high school education as many as 14 people (24.1%), high school as many as 42 people (72.4%), S1 as many as 2 people (3.4%). Based on gender, there were 57 women (98.3%), 1 male (1.7%). Based on the work of farmers as many as 47 people (81.0%), self-employed as many as 9 people (15.5%), teachers as many as 2 people (3.4%). Based on information sources, 39 people (81.0%) and 19 people (15.5%) from the mass media. Based on positive attitudes as many as 26 people (44.8%), negative as many as 32 people (55.2%). Based on household waste management, 22 people (37.9%) were carried out, 38 people (82.1%) were not carried out.

Bivariate Analysis

After the Univariate analysis was carried out, further analysis was in the form of bivariate

analysis. The data obtained from both variables is categorical data, tested using a statistical test, namely Chi-square which aims to find out whether or not the variable has a relationship with the chi-square match calculated with the chi-square table.

1. The Relationship of Family Knowledge to Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024

The results of collecting knowledge data and its relationship to household waste management were collected through questionnaires distributed to respondents through research using primary data and can be seen in the following table:

Table 2. Cross Tabulation Based on Family Knowledge of Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

No	Knowledge	Household Waste Management						df	X ² Count
		Done		Not Done		Total			
		n	%	n	%	n	%		
1	Good	7	12,1%	4	6,9%	11	19,0%	2	6.124
2	Enough	9	15.5%	14	24,1%	23	39,7%		
3	Less	5	8,6%	19	32,8%	24	41,4 %		
	Total	21	36.2%	37	63.8%	58	100%		

Based on Table 2. It is known that of the 58 respondents with good knowledge, as many as 11 respondents who manage household waste as many as 7 people (12.1%) and those who do not manage household waste as many as 4 people (6.9%), 23 people who have sufficient knowledge who manage household waste 9 people (15.5%) and who do not manage household waste as many as 14 people (24.1%), 24 people with less knowledge, 5 people (8.6%) who manage household waste and 19 people (32.8%) who do not manage household waste.

The results of the Bivariate analysis in Table 4.2 above obtained a comparison of the Chi-Square Test calculated with the Chi-Square Test table, where it was known that x^2 counted (6,124) > x^2 table (5,991) with $df = 2$ ($\alpha = 0.1$), then H_a was accepted, H_o was rejected, meaning that there is a relationship between the level of knowledge on household waste management in Pakkat Toruan, Pakkat Village, Doloksanggul District, Humang Hasundutan Regency in 2024.

2. The Relationship of Family Attitudes Towards Household Waste Management in Pakkat Toruan, Doloksanggul District, Humang Hasundutan Regency in 2024

The results of data collection collected through questionnaires distributed to respondents through researchers using primary data can be seen in the following table:

Table 3. Cross-tabulation Based on Family Attitudes Towards Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024

No	Attitude	Household Waste Management						df	X ² Count
		Done		Not Done		Total			
		n	%	n	%	n	%		
1	Positive	13	22,4%	13	22,4%	26	44,8%	1	3,882

2	Negative	8	13,8%	24	41,4%	32	55,2%
	Total	21	36,2%	37	63,8%	58	100%

Based on table 4.3, it was found that out of 58 respondents who had a positive attitude, 26 people carried out household waste management as many as 13 people (22.4%) and those who did not carry out household waste management as many as 13 people (22.4%). Based on negative attitudes, as many as 32 people who manage household waste as many as 8 people (13.8%) and those who do not manage household waste as many as 24 people (41.4%).

The results of the Bivariate analysis in table 4.3 above obtained a comparison of the Chi-Square Test table, where it is known that X^2 counts (3.882) > chi-square (3.841) with $df=1$ ($\alpha=0.1$), then H_a is accepted, H_o is rejected, meaning that there is a relationship between attitude and household waste management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

Discussion

From the results of the research entitled The Relationship of Knowledge and Family Attitudes towards Household Waste Management in Pakkat Toruan, Pakkat Village, Doloksanggul District, Humbang Hasundutan Regency in 2024.

1. "The Relationship of Family Knowledge to Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024".

Based on the chi-square test, it is known that x^2 counts (6,124) > x^2 tables (5,991) with $df=2$ ($\alpha=0.1$), the majority are well-educated and the minority is poorly educated, so H_a is accepted by H_o is rejected means that there is a Relationship of Family Knowledge to Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024.

Knowledge is very closely related to education, where it is hoped that with high education, the person will have a wider range of knowledge. However, it needs to be emphasized, it does not mean that a person with low education is absolutely low in knowledge as well. This is considering that the increase in knowledge is not necessarily obtained from formal education alone, but can be obtained through non-formal education. A person's knowledge of an object contains two aspects, namely positive aspects and negative aspects. Meanwhile, people who have poor knowledge about waste management are due to their lack of ability to respond to statements through questionnaires provided by researchers, and the lack of information they get about waste management.

The results of this study are in accordance with research conducted by (Rahman et al., 2020) regarding the relationship between knowledge and community participation in waste management shows that the community of 70 respondents (100%) who have poor knowledge is 62 people (88.6%) with low community participation and 10 people (33.3%) with moderate participation, while from 30 respondents (100%) who have good knowledge good as many as 20 people (66.7%) with low community participation and poor knowledge as many as 8 people (11.4%) with moderate community participation.

Based on the results of the fishers exact test statistic, the value of $P=0.08 > 0.1$ was obtained, so H_o was accepted and H_a was rejected, meaning that there is a relationship

between knowledge and community participation in waste management in the Untia Fishermen Village, Makassar City.

Based on the results of the above study, the researcher assumes that families who have good knowledge will increasingly maintain the cleanliness of the environment by managing household waste. The better the family's knowledge, the easier it will be to respond to the information they receive. In addition, the more information received by families about household waste management, the better the family's response in managing household waste.

2. "The Relationship of Family Attitudes Towards Household Waste Management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024

Based on the chi-square test where it is known that χ^2 counts (3,882) > χ^2 tables (3,841) with $df=1$ ($\alpha=0.1$), with a majority of positive attitudes and a negative minority, H_a is accepted by H_o and rejected, meaning that there is a relationship between Household Waste Management Attitudes in Toruan Village, Doloksanggul District, Humbang Hasundutan Regency in 2024.

In a positive attitude, the tendency of action is to approach, please, expect a certain object. The formation of attitudes is influenced by several factors, namely personal experiences, culture, other people who are considered important, mass media, educational institutions and religious institutions, and emotional factors. A bad attitude can be caused by a lack of knowledge about good waste management. This is in line with research conducted by stating that information or knowledge is an important condition for attitudes, so attitudes are not only feelings of support or disapproval of behavior, but also concerns the estimation of the results of those behaviors (Sangga Saputra & Mulasari, 2017).

This study is in line with research (Luluk, 2019) stating that attitudes are related to waste management behavior (p -value $0.009 < 0.05$) in housewives in Gisikcemandi Sidaorjo Village. In addition, it is also in line with research (Syam, 2016) stating that there is a meaningful relationship between skap and waste management, this is based on statistical tests carried out with results (p -value (0.000) α (0.05).

From the results of the research and the research theory, it was found that there was a correspondence between the results of the research and the research theory, which showed that the family's attitude towards household waste management was still more negative or showed the family's attitude towards household waste management.

CONCLUSION

Based on the results of a study on the relationship of family knowledge and attitudes towards household waste management in Pakkat Toruan, Doloksanggul District, Humbang Hasundutan Regency in 2024, involving 58 respondents, it was found that there was a significant relationship between the level of family knowledge and household waste management. Families who have a better understanding tend to implement more effective waste management practices. In addition, this study also shows that family attitudes have an influence on household waste management, where families with a more positive attitude towards cleanliness and the environment are more committed to managing waste correctly. Thus, increasing public education and awareness about the importance of good waste management is expected to improve the quality of the environment and family health.

Based on the results of this study, there are several suggestions that can be used as recommendations for various parties. For respondents, families in Pakkat Toruan, Doloksanggul District are expected to implement better household waste management practices to maintain the cleanliness and health of the surrounding environment. Awareness of the importance of sorting waste, recycling, and disposing of waste in its place needs to be continuously increased as part of daily habits. For research sites and families, environmental officers and local governments are advised to be more active in improving health promotion and education related to household waste management. In addition, periodic evaluations of the effectiveness of waste management programs also need to be carried out to ensure a positive impact on the community.

Meanwhile, for future researchers, the results of this study can be used as reference material in the development of similar studies by considering the limitations and weaknesses of this study. It is recommended that further research involve additional variables that can provide deeper insights into the factors that affect household waste management, such as economic, social, and government policy aspects. For educational institutions, the results of this research can be used to enrich learning materials in the field of environmental health, become a reference for students who are interested in conducting similar research, and add to the literature collection in the STIKes Kesehatan Baru library. Thus, this research is not only beneficial to the local community, but also contributes to the development of science, especially in the fields of health and environmental management.

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Helprida Sihite, Debora Natalia Simamora

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