

Knowledge and Practice in Household Waste Management

Pengetahuan dan Praktik dalam Pengolahan Sampah Rumah Tangga

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Abstract

One cause for the decreased environmental quality is household consumption behavior. Some contaminants contributing to a highest pollution level are domestic waste, solid waste, and industrial waste. Solid waste pollution causes the death of fishes, a decrease in water quality, and disease transmission. Community approach could be used to solve the waste problem, especially at the household level. This was a quantitative method to analyze the effect of intervention and waste management training on changes in knowledge and practice of household waste management. This type of this study was a quasi-experimental study using one group of pre- and post-test design. The study was conducted in Banyumas District, with a sample of 33 respondents. The results showed that there was a significant increase in scores of knowledge and practice of the household waste management after the intervention provided (p -value = 0.001; p -value \leq 0.05). To sum up, providing the intervention is effective to improve knowledge and practice in the household waste management.

Keywords: Knowledge, practice, solid waste

Abstrak

Penurunan kualitas lingkungan hidup salah satunya disebabkan oleh perilaku konsumsi rumah tangga. Kontaminan yang berkontribusi terhadap tingkat cemaran yang tinggi sampah rumah tangga, limbah padat, dan limbah industri. Cemaran sampah akan mengakibatkan ikan mati, penurunan kualitas air dan penularan penyakit. Pendekatan pada masyarakat dapat dilakukan untuk mengatasi permasalahan sampah, khususnya pada tingkat rumah tangga. Penelitian ini menggunakan metode kuantitatif untuk menganalisis pengaruh pemberian intervensi dan pelatihan pengelolaan sampah terhadap perubahan pengetahuan dan praktik pengelolaan sampah rumah tangga. Jenis penelitian ini menggunakan quasi-experimental dengan desain one group pre- and post-test design. Penelitian dilakukan pada tahun 2018 di Kabupaten Banyumas dengan sampel berjumlah 33 responden. Hasil penelitian menunjukkan terdapat peningkatan yang signifikan pada skor pengetahuan dan praktik pengelolaan sampah rumah tangga setelah diberi intervensi (nilai $p = 0,001$; nilai $p \leq 0,05$). Sebagai kesimpulan, pemberian intervensi efektif meningkatkan pengetahuan dan praktik dalam pengelolaan sampah rumah tangga.

Kata kunci: Pengetahuan, praktik, limbah padat

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Introduction

The composition of municipal waste is dominated by organic waste at 63.59% (422.24 tons). According to the initial characteristic test of organic waste, the composition of recycled material is dominated by the presence of plastic waste (16.66% of the total waste), especially crackle species. This value indicates that the potential for recycling in the landfill is still considerable, and if this potential is taken to the maximum, it can reduce the waste that will enter the landfill and may extend the service life of the landfill.¹ Waste can produce leachate water.² A decrease in environmental quality is caused by household consumption behavior.³ Some contaminants dominantly contributing to pollution are domestic waste, solid waste, and industrial waste.⁴ Solid waste pollution causes the death of fishes, a decrease in water quality, and disease transmission.⁵

Hazards caused by waste contaminating the land will cause contamination of nitrite as a cause of nerve disorders.⁶ Waste management is very important and needed by the community. Not only does it help maintain environmental conditions, but it also creates new jobs for the community.⁷ Waste management activities are undertaken through a system that can manage various types of waste and to create a green environment.⁸ Waste reduction can be conducted by a green packaging program. Consumers want products that can be recycled.⁹

Approach to the community is one of the ways to overcome the problem of waste, especially at the household level.¹⁰ Some efforts to solve the waste problem are by improving knowledge and practice of waste management.¹¹ Knowledge is the result of knowing and occurs after sensing a particular object; while, a practice is the real implementation of theory.¹² However, such means may cause air pollution.¹³ In general, the role of knowledge and practice of waste management and gender is crucial with regard to overall decision making and implementation (composite of management, frugality and income generation). This is based on a partnership between husband and wife.¹⁴

The estimated total amount of waste generation in Banyumas District reaches 3,374 m³/day, assuming that the production of garbage is approximately 2,064 liters/day/person multiplied by the population of 1,553,902. Therefore, in a year, it can reach 1,214,640 m³. In addition, the final disposal site (FDS) provided by the local government located in Gunung Tugel FDS area has already exceeded the capacity. Based on these data, only 10.85% of the waste are transported to the landfill. Approximately 89.15% of the rest is still not handled properly and potentially leads to contamination.

Waste management program can increase society or family welfare. Regional typology, community

characteristics, and poverty measurement indicators are used to determine target program.¹⁵ Waste management is done by approaching waste service by the city government and self-support community.¹⁶ The results of this study indicated that contamination of waste can cause infectious diseases and bring vectors.¹⁷ This study aimed to examine family knowledge and practice in waste management household.

Method

This study used quantitative methods to analyze the effect of intervention and waste management training on changes in household waste management knowledge and practices. This type of study was quasi-experimental with one group of pre- and post-test design. The variables in this study included independent and dependent variables. The independent variables in this study included counseling and waste management training. The dependent variables consisted of knowledge and family practice in waste management. Samples in this study were 33 people. Data were collected by conducting an interview and asking some questions including name, age, education level (elementary school/junior high school, senior high school, university/higher education), and occupation. A pretest before providing the intervention was conducted to obtain a baseline data of the knowledge and practice of the respondents; furthermore, the respondents received the provided counseling and training on waste management. After providing the intervention, the respondents got the same questions as in pretest to identify the difference of knowledge and practice of respondents in household waste management. Data analysis was performed using GNU PSPP 1.2.0 for Windows (Free Software Foundation). GNU PSPP does not have any official acronymic expansion. GNU PSPP is a free software program for statistical analysis of sampled data. Univariate analysis was conducted to describe the characteristics of the respondents, followed by bivariate analysis to identify the difference of knowledge and practice of respondents before and after providing counseling and training using dependent t-test when the data had a normal distribution, or using Wilcoxon test when the data did not have a normal distribution.

Results

This study was conducted in Grendeng Village, Banyumas District in April 2018. In this study, univariate analysis and bivariate analysis were conducted. Univariate analysis was used to describe the characteristics of respondents, including age, education level, and occupation. Bivariate analysis was used to determine the difference of knowledge and practice of respondents before and after counseling and training.

Characteristics of the respondents aged between 36-

45 years were included in the late adult group, amounted to 18 people (54.5%). The age category includes late adolescents (17-25 years), early adult (26-35 years), late adult (36-45 years), early elderly (46-55 years), late elderly (56-over 65 years). Most were senior high school graduates with a total of 16 people (48.5%), and unemployed with a total of 24 people (72.57%). The category of the employed includes trader, laborer/farmer, civil servant, army force/police officer, pensioner, entrepreneur, and other jobs. Housewife belongs to the category of the unemployed.

The lowest score of knowledge (min), highest knowledge score (max), and mean (mean) scores of knowledge were the scores of 33 respondents. From the table above, it can be concluded that there was an increase in the value from pretest to posttest. The results of Wilcoxon test obtained p-value 0.001. It means that there was any significant difference in knowledge score before and after providing the intervention. Hence, it can be concluded that there was a difference between the score of knowledge in pretest with the score of knowledge in posttest. This indicated that the intervention provided was effective to elevate the knowledge of the respondents on waste management.

Discussion

The most active group who involved in waste management activities were aged between 36-45 years and categorized as the late adult group of 18 people (54.5%).¹⁸ The age of 60 years and older tend to have a bad household waste management compared to the age group of 40 years and younger. A total of 16 (48.5%) respondents had completed a level of senior high school. The majority of respondents who were senior high school graduates, in general, knew and realized that unmanaged waste would cause problems to both the health and environment.¹¹ The education level is related to the mindset and the ability to absorb the information received. The higher the education level of a person, the higher the information can be absorbed, and vice versa.¹⁹ Respondents were mostly unemployed, with a total of 24 people (72.57%). All the unemployed respondents were housewives. The role of mother in families who still had infants and/or children under five years of age is a basis for actualizing and improving healthy and prosperous families. A wealthy and prosperous family can be established through a good waste management. Maternal role is also significant in the development and hygiene of family members. Every day, mother takes care of the household and maintains the hygiene and health of the family, organize, and be a model for the family members about a clean and healthy way of life. The lack of attention of mothers to household and family member’s hygiene causes adverse health effects.²⁰

Table 1. Frequency Distribution of the Study Variables

Variable	Category	f	%
Age	Early adult (26-35 years old)	1	3.0
	Late adult (36-45 years old)	18	54.5
	Early elderly (46-55 years old)	14	42.4
Education	Elementary school/junior high school	9	27.3
	Senior high school	16	48.5
Occupation	University/higher education	8	24.2
	Employed	9	27.3
	Unemployed	24	72.7

Table 2. Descriptive Analysis

Variable	Pre-test			Post-test		
	Mean	Min	Max	Mean	Min	Max
Knowledge	23.82	13	27	25.85	18	28
Practice	3.39	2	4	5.79	3	7

Table 3. Bivariate Analysis

Variable	p-Value
Knowledge	0.000
Practice	0.001

Note: A significance level at 0.05

The results of Wilcoxon test obtained p-value 0.001 which means the value of p 0.05. Hence, it can be concluded that there was a difference between the score of knowledge in pretest and the score of knowledge in posttest. This indicated that the intervention provided was effective for elevating the respondents’ knowledge.¹¹ A person’s knowledge is positively related to the existing waste management in the neighborhood.²¹ The potential of waste recycling determines recommendations to increase community participation in waste management.²² The lack of communication and direction to community leads to a low level of community participation. Therefore, it is necessary to assist community in managing waste, especially household organic waste and its utilization.²³ Knowledge influences a person’s behavior from the highest to the lowest knowledge of waste management and it will give economic and non-economic benefits such as a clean and healthy environment.²⁴

Similar to the increase of knowledge score, there was also any difference in practice score between before and after providing the intervention (p-value 0.05). This indicated that the intervention on the respondents was effective for improving the ability of respondents in managing waste management.²⁵ Waste management practices can prevent environmental pollution.²¹ Waste can also bring in vectors like flies.²⁶ Environmental pollution causes increased disease spread, reduced environmental aesthetics, and impacts on global warming.²⁷ Therefore, the prevention of waste

generation should be done by applying proper waste management practices to support community health status and to generate economic value in the future from the managed waste.²⁸ There are two factors influencing the motivation of entrepreneurship of housewives, namely internal factors in the forms of experience and skills had by housewives, also their self-motivation; then, external factors such as education level, occupation, family support, social environment, business opportunity.²⁹ Women's participation today not only demands equality of rights, but also expresses their function to participate in a community development. In addition, the respondents in this study were all women. Women's participation concerns on the role of tradition and the role of transition. The results of study by Dewi, Made, and Ngurah,³⁰ show that women's contribution is very important in increasing family income, that women contribute to the average family income by 45.53%. One form of waste management that can be done by women is to be a scavenger to improve the family's economy.³¹

The more active the human, the more waste is produced. Efforts which are not resulting in environmental pollution are easy to do, and beneficial are needed in waste management.³² Improper waste management will affect the water quality. Human population will need many sources of clean water. The contamination of clean water sources can come from domestic, industrial and agricultural.³³ Household waste also contains hazardous and toxic materials such as batteries, electric lamps, electronics, pesticide packaging, clothing bleach, floor cleaners, paints, pressurized cans (aerosols), residual medicines, thermometers and syringes which potentially threaten human health and environment.³⁴

Conclusion

There is an increase in knowledge of waste management after intervention provided, with p-value 0.001. In addition, there is an increasing practice on waste management after intervention provided, with p-value 0.001. Based on these results, in conclusion, the provision of intervention is effective in improving knowledge and practice in household waste management.

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