



# The Effect of Education on Waste Management Activities 3R Method (Reduce, Reuse, Recycle) in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City in 2023

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## ABSTRACT

*The Padang City Environment Agency reported that the city generated an average of 643.76 tons of waste per day in 2021–2022. According to the head of RW 016, residents dispose of waste at the TPS due to limited available land. This study aims to assess the impact of education on 3R (Reduce, Reuse, Recycle) waste management in RW 016, Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City, in 2023. A quantitative descriptive method was used with pretest and posttest assessments to measure knowledge levels. The paired sample t-test was employed for data analysis. The study involved 40 housewives as respondents, and data were collected through field observation and questionnaires. After data processing and analysis using frequency distribution tables, results showed a significant improvement in waste management knowledge after educational intervention. The mean score increased from 29.10 before education to 36.23 after, with a p-value of 0.000, indicating a statistically significant difference. These findings demonstrate that education positively influences 3R-based waste management behavior. To support sustainable waste practices, it is recommended that local government and village authorities provide adequate infrastructure such as segregated waste bins, recycling facilities, and environmentally friendly*

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## INTRODUCTION

According to the World Health Organization (WHO) waste is something that is not used, not used, not liked or something that is discarded that comes from human activities and does not occur by itself (Candra, 2016). According to Law Number 18 of 2008 concerning Waste Management, it states that every person in the management of household waste and waste similar to household waste is obliged to reduce and handle waste in an environmentally sound manner (Indonesian Law no.18, 2008). According to Padang City Regional Regulation Number 21 of 2012 concerning Waste Management, it is stated that waste management is a systematic, comprehensive, and sustainable activity that includes reducing and handling waste. Because waste can be recycled, and can improve the community's economy, it is necessary to carry out 3R-based waste management which is currently used, namely reduce, reuse, recycle or 3M (reduce, reuse and recycle) is a system that is very appropriate as a solution to solving waste problems (Sahputra et.al, 2018).

Based on data from the Padang City Environment Agency for 2021-2022, it is known that the average waste generated per day in Padang City is 643.76 tonnes/day. Judging from the source, it is known that the amount of household waste generation is 464.15 tonnes / day, offices 14.10 tonnes / day, markets 88.60 tonnes / day, commercial centres 20.13 tonnes / day, public facilities 40.68 tonnes / day, areas 7.05 tonnes / day and other waste 8.05 tonnes / day. Based on research conducted by Dwi Sukma Ryandani (2021) on Community Empowerment of Waste Management Activities 3R Method (Reduce, Reuse, Recycle) in RW 016 Parupuk Tabing Village, Koto Tengah District, Padang City in 2021 through statistical tests, it shows that there is a difference in the average knowledge and attitude of the community before and after community empowerment with a q-value of 0.001 and recycling activities for making handicrafts (wallets) (Poltekkes Kemenkes, 2021).

Based on research conducted by Veno Hilvira (2021) Factors related to household waste handling actions in Kubang Utara Sikabu Village, Sawahlunto City, the results of the study found that 60.8% of respondents had poor knowledge, 64.9% of respondents had negative attitudes, 54.1% of respondents had low income, 60.8% of respondents had low education, and 66.2% of household waste handling actions were not good. Based on research conducted by Euis Sartika, et al (2022) Increasing Economic Levels Through Community Empowerment in Managing Waste During the Pandemic Period in RW 09 Sukamenak Village, Bekasi Regency, it was found that around 70% of the community had good knowledge about waste, but attitudes and actions in handling waste were around 20%.

Lubuk Begalung Sub-district is one of 11 (eleven) sub-districts in Padang City which has an area of (30.91 km<sup>2</sup>). Lubuk Begalung sub-district consists of 15 villages, one of which is Pagambiran Ampalu Nan XX village with an area of (5.15 km<sup>2</sup>) and has a population of 22,426 people in 2022. Pagambiran Ampalu Nan XX Village consists of 20 RW, and one of them is RW 016 with 192 housewives. According to an initial survey that the researchers conducted in September 2023, through observations and interviews with 10 housewives in RW 016, the results obtained were that 7 housewives had disposed of waste to the TPS through the garbage collector, 3 housewives burned garbage in front of the house and some were thrown into the river, from all housewives there was no sorting of waste between organic and non-organic waste.



Based on an interview with the head of RW 016 Pagambiran Ampalu Nan XX Village, he said that the reason why people dispose of waste to the TPS through the garbage collector is because residents who live in Pagambiran Ampalu Nan XX Village are mostly immigrants who do not have large areas of land, so that for waste disposal residents only rely on the garbage collector who is 1 person. This is due to the lack of public knowledge about waste management.

Waste problems in RW 016 Pagambiran Ampalu Nan XX Village, have not been managed properly by the community, in waste management which aims to reduce environmental pollution, reduce the amount of waste disposed of in TPS. The application of the 3R (Reuse, Reduce, Recycle) programme is one of the solutions to dealing with waste problems and processing waste into reusable items so that it can empower the community.

## **METHODS**

The quantitative approach in this study is used for the process and measurement of knowledge variables by conducting pretests and posttests using a descriptive research design with a Paired Sample T test approach. This research will be conducted in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung Subdistrict, Padang City. This research was conducted from September 2023 to December 2023 including the preliminary survey stage, research implementation and report writing.

Population is the entire object of research or the object being studied. The population in this study was RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City, namely housewives as many as 192 people. The number of samples in this study using the Slovin formula, from secondary data, namely the total population of RW 016 Pagambiran Ampalu Nan XX Village as many as 192 housewives, based on the sample calculation, a sample size of 66 housewives was obtained as respondents.

There are sample criteria, namely inclusion and exclusion criteria, data collection is collected in the form of primary and secondary data. The instrument used in quantitative research is a questionnaire containing a list of questions addressed to respondents and observation guidelines, namely a list of questions that describe the condition of the object being observed in the form of a checklist table. Data processing is done by computer spss data processing applications starting from editing data (editing), coding data (coding), entering data (entry), cleaning data (cleaning).

Data analysis used univariate analysis and bivariate analysis, carried out to see the number and percentage of each variable of interest. This analysis was used to present data on the state of waste management, the frequency of knowledge before education and after education. Based on this information, measured testing using the Paired sample t test with a p value value  $<0.05$  is expected to see the effect of the 3R method waste management briefing on housewives' information in wasting caretakers in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City in 2023.

## RESULTS

### 1. Univariate Analysis

Univariate analysis was used to determine the frequency distribution of 3R method waste management and knowledge in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City before and after community empowerment. The results of the univariate analysis are:

**Table 1. Waste Management Using the 3R Method Before Education in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung Sub-district, Padang City in 2023**

Variables	f	%
Not Doing	32	48,5
Doing	34	51,5
Total	66	100

**Table 2. Waste Management Using the 3R Method After Education in RW 016 Pagambiran Ampalu Village 2023 Nan XX Lubuk Begalung Sub-district, Padang City in 2023.**

Variables	f	%
Not Doing	28	42,4
Doing	38	57,6
Total	66	100

**Table 3. Knowledge Before Education in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung Subdistrict, Padang City Year 2023**

Variables	f	%
Less good	34	51,5
Good	32	48,5
Total	66	100

**Table 4. Knowledge After Education in RW 016 Pagambiran Ampalu Nan XX Urban Village, Lubuk Begalung Subdistrict, Padang City Year 2023**

Variabel	f	%
Less good	21	31,8
Good	45	68,2
Total	66	100

### 2. Bivariate Analysis

Bivariate analysis was conducted to determine differences in waste management and community knowledge about the Effect of Education on Waste Management Activities of the 3R method (reduce, reuse, recycle).



**Table 5. Community Knowledge About 3R Waste Management Before And After Education in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung Subdistrict, Padang City in 2023**

Community Knowledge	n	Average	Standard Deviation	p-value
Before (pre-test)	66	30,33	7,113	0,000
After (post-test)	66	36,35	2,663	

## DISCUSSION

### 1. 3R Method Waste Management

For the pretest of the 3R method waste management education to housewives with the category of not yet doing, namely 20 respondents (50%) compared to the category of not doing, namely 20 respondents (50%). This happens because housewives have not been counselled about the 3R method of waste management. Meanwhile, for the post-test of waste management education on the 3R method, 23 respondents (51%) did it compared to the category that had not done it, namely 17 respondents (42%). This happened because the housewives had been counselled about the 3R method of waste management so that the 3R method of waste management for the doing category increased compared to the pre-test.

The training method with demonstration and practice has been proven to improve community skills, but this method also has weaknesses, namely requiring a relatively long time and a sufficient number of teaching staff to be able to supervise the practice and adequate infrastructure.

### 2. Effect of Knowledge Before and After Waste Management Education 3R Method

Based on the results of research conducted in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City, it was found that as many as 17 people with a percentage of 42% of housewives had low knowledge in waste reduction before being given education about the 3R program. when given counseling about the 3R program, the community, especially housewives, experienced an increase in knowledge with a total of 14 people or 42% in the category of poor knowledge, this shows that knowledge affects the way and treatment of housewives, especially in waste management using the 3R method.

A person's knowledge or cognitive is a very important domain for the formation of a person's actions. The better the level of formal education, the better the knowledge about health, so that it will mature the understanding of health knowledge and vice versa, the lower the level of education, the less knowledge about health. Knowledge is a very important domain for changing behaviour. Knowledge is all that humans know about something, including about science, behaviour based on knowledge will be more lasting (long lasting) than behaviour that is not based on knowledge.

### **3. The Effect of Education on Waste Management Activities Using the 3R Method on Housewives' Knowledge**

The statistical test results show that the average value of community knowledge before community empowerment on 3R waste management (pre-test) is 29.10 with a standard deviation of 7.260 and the average community knowledge after community empowerment on 3R waste management (post-test) is 36.23 with a standard deviation of 2.759. The statistical test results show a p-value of 0.000, meaning that there is an effect of community empowerment on 3R waste management in increasing community knowledge in RW 003 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City.

According to Notoatmodjo (2003) knowledge is the result of "knowing" and this occurs after people perceive a certain object. Sensing occurs through the five human senses. Most human knowledge is obtained from the eyes and ears. This increase in knowledge can be driven by the community's interest and curiosity in the material presented, so that respondents can understand the material that has been delivered.

### **4. Evaluation of the Effect of 3R Method Waste Management Education**

At the activity evaluation stage, it is done by evaluating the input and process. Evaluation of inputs is carried out by evaluating the time of implementation, the readiness of tools and media, the completeness of the number of participants participating in educational activities on 3R method waste management. The results of observations during the implementation of empowerment show that the housewives who participated in the 3R waste management activities as a whole were 40 people, and the time for implementing the event for the next activity needs to be increased to maximise empowerment activities.

Evaluation of the process is carried out by observing the learning process taking place, there are obstacles or no obstacles, describing the efficiency, effectiveness, and impact of activities in accordance with the objectives to be achieved either. In general, this activity aims to increase community awareness in waste management through efforts to reduce, reuse, and recycle.

## **CONCLUSIONS**

Based on the results of data analysis, research, and discussion regarding the effect of education on waste management activities using the 3R method in RW 016 Pagambiran Ampalu Nan XX Village, Lubuk Begalung District, Padang City in 2023, the following conclusions can be drawn: First, the educational practices provided on waste management activities using the 3R method were tailored to the needs of the respondents, which helped improve waste management practices in RW 016 Pagambiran Ampalu Nan XX Village. Second, the average level of knowledge about waste management before the 3R method education was 29.10, and after being given the flip sheet calendar media, it increased to 36.23. Finally, the evaluation stage showed that the community in RW 016 Pagambiran Ampalu Nan XX Village had been empowered, and there was a noticeable increase in interest to collectively and independently manage waste in their neighborhood.



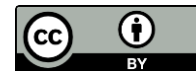


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