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Evaluation of Increasing Knowledge, Attitudes, Motivation, and Behavior of Economically Disadvantaged Communities in Constructing Environmentally Safe Toilets in the Coastal Area of South Sulawesi Province

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Abstract: This study aimed to assess the knowledge, attitudes, motivation, and behavior of economically disadvantaged communities regarding the construction of environmentally safe household toilets in the coastal area of South Sulawesi Province after training. The sample areas, which included Labakkang Subdistrict in Pangkep Regency, Tanete Riattang Timur Subdistrict in Bone Regency, and Tanete Rilau Subdistrict in Barru Regency, were selected through purposive sampling. From each of them, 100 households were selected using a systematic random sampling method, resulting in a total sample size of 300. The variables examined included knowledge, attitudes, motivation, and behavior related to the construction of environmentally safe toilets. Data analysis methods encompassed descriptive and inferential statistical analyses, with the independent t-test used as the inferential model. The results showed that knowledge, attitudes, motivation, and behavior of economically disadvantaged communities in the coastal area of South Sulawesi, in terms of (a) locating the septic tank, (b) excavating the ground, (c) laying red bricks, (d) plastering the red bricks, (e) creating a lid for the tank, and (f) completing finishing work, after being trained in constructing environmentally safe toilets, were categorized as high.

Keywords: knowledge, attitudes, economically disadvantaged communities, coastal area.

南苏拉威西省沿海地区经济弱势社区建设环境安全厕所的知识、态度、动机和行为的评估

摘要：本研究旨在评估南苏拉威西省沿海地区经济弱势社区在培训后对环境安全家庭厕所建设的知识、态度、动机和行为。样本地区包括邦格县的拉巴康分区、骨县的塔内特·里亚唐·帖木儿分区和巴鲁县的塔内特·里劳分区，是通过有目的抽样选择的。采用系统随机抽样的方法，每户抽取 100 户，样本总数为 300 户。考察的变量包括与环保厕所建设相关的知识、态度、动机和行为。数据分析方法包括描述性统计分析和推论性统计分析，以独立 t 检验作为推论模型。结果显示，南苏拉威西沿海地区经济弱势社区在以下方面的知识、态度、动机和行为：(a) 化粪池的位置，(b) 挖掘地面，(c) 铺设红砖，(d) 抹灰红砖，(e) 为水箱盖上盖子，以及 (f) 在接受了建造环保厕所的培训后完成收尾工作，均被归类为“高”。

关键词：知识、态度、经济弱势社区、沿海地区。

1. Introduction

This research was conducted in the coastal area of South Sulawesi Province. As a criterion for selecting research objects, remember that people who live in coastal areas are generally fishing communities with a low level of education and are classified as economically weak. This can be seen from everyday life, especially in throwing away feces. Many of them just go to the beach, dig a hole in the beach sand and throw the feces there, and afterward fill it with sand, resulting in beach pollution with human waste. This is because their knowledge about environmental cleanliness is limited. Therefore, the results of previous research were used as material to create training modules and conduct counseling and training for them regarding environmental cleanliness, especially in terms of making family latrines that meet health requirements. Furthermore, the aim of this research, which is a follow-up, is to evaluate previous activities for knowledge, attitudes, motivation, and behavior of economically weak communities in making environmentally safe family latrines in coastal areas.

Human feces are a source of diseases and viruses, necessitating the use of environmentally safe toilets. According to Law No. 32 of 2009 [1], the environment is a unified entity containing living and non-living things. Singh [2] stated that the environment consists of three essential components: abiotic, biotic, and socio-cultural. Based on a report by Bakhrani [3], family toilets in the coastal area were not environmentally safe.

In the socio-cultural environment, one essential aspect of human basic needs is housing, which includes family toilets. Bakhrani [4] developed a family toilet model for economically disadvantaged communities in the coastal area of South Sulawesi. This model has been introduced to improve their knowledge, attitudes, motivation, and behavior. Based on the aforementioned background, this study assessed the knowledge, attitudes, motivation, and behavior of economically disadvantaged communities in constructing environmentally safe family toilets in the coastal area of South Sulawesi Province.

2. Literature Review

2.1. Evaluation

[5] and [6] defined evaluation as the action of observing and investigating the effectiveness of a program, assessing the contributions to change, and examining the need for improvement, continuation, or expansion. Wirawan [7] suggested that evaluation is necessary after completing a program or activity.

2.2. Human Feces and Toilets

Petrus Riski [8] emphasized that when human feces and urine were not collected in toilets, it posed a negative impact on environmental quality and public health. According to Soemirat [9], family toilet structures should meet health requirements. Fitriani [10] defined toilets as structures for disposing of human feces. Firmansyah [11] and Atika [12] stated that healthy toilets contaminate the surrounding soil and water and do not emit odors.

2.3. Knowledge

Suriasumantri [13] defined knowledge as the foundational truth obtained from knowing everything related to a specific object. Rusman [14] and Anderson [15] stated that knowledge is a specific and general memory of something. Based on an explanation by Suriasumantri [13], knowledge consists of three components: cognitive, affective, and psychomotor.

2.4. Motivation

As asserted by Adnil [16] and Sarwono [17], motivation is an individual's drive to accomplish targeted goals. Furthermore, it was distinguished that intrinsic and extrinsic motivations arise from within the individual and external sources, respectively.

2.5. Attitudes

Azwar [18] and Ojedokun [19] defined attitudes as the choice and tendency to act based on feelings and thoughts toward environmental objects. Azwar [18] stated that attitudes comprise three components: cognitive, affective, and conative.

2.6. Behavior

Ojedokun [19] stated that environmental behavior refers to an individual's actions toward the environment based on knowledge and daily experiences. According to Adnani [20], positive environmental behavior contributes to the improvement of environmental quality.

2.7. Environment

Ahmadi [21] defined the environment as a spatial unit encompassing all entities, forces, conditions, and living beings, including humans and their behavior. According to Adnani [20], the environment can be divided into three parts: biological, physical, and social.

3. Method

This evaluation study was conducted in the coastal area of South Sulawesi Province. The sample areas, which included (1) Labakkang Subdistrict in Pangkep

Regency, (2) Tanete Riattang Timur Subdistrict in Bone Regency, and (3) Tanete Rilau Subdistrict in Barru Regency, were selected using the purposive sampling method. From each of them, 100 households were selected as respondents using systematic random sampling, which resulted in a total sample size of 300 in the first year of the study.

The variables under consideration were knowledge, attitudes, motivation, and behavior of economically disadvantaged communities in the construction of environmentally safe toilets. The instruments used for the data collection included (1) knowledge test, (2) attitudes questionnaire, (3) motivation questionnaire, and (4) behavior observation sheets. The process included administering tests, questionnaires, and observations at the households of each respondent. Descriptive analysis was used for the data analysis.

4. Results

4.1. Knowledge

The results of descriptive statistical analysis on the assessment of knowledge of economically disadvantaged communities in constructing environmentally safe toilets, considering aspects such as (1) determining the location for the septic tank, (2) excavating the ground, (3) construction with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing work, are presented in Table 1.

Table 1 Knowledge of the communities in constructing environmentally safe toilets

No.	Category	Frequency	Percentage (%)	Cumulative %
1	Very Low	0	0	0
2	Low	0	0	0
3	Moderate	23	7,67	7,67
4	High	259	86,33	94
5	Very High	18	6	100
Total		300	100	-

Based on Table 1, none of the economically disadvantaged communities had very low or low knowledge of constructing environmentally safe toilets. According to the statistics, 7.67, 86.33, and 6% had moderate, high, and very high knowledge, respectively. This indicated that the majority were in the high category.

4.2. Attitudes

The results of the descriptive statistical analysis on attitudes of economically disadvantaged communities in constructing environmentally safe toilets, based on the aspects of (1) determining the location for the septic tank, (2) excavating the ground, (3) construction with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing work, are presented in Table 2.

Table 2 Attitudes of the communities toward constructing environmentally safe toilets

No.	Category	Frequency	Percentage (%)	Cumulative %
1	Very Low	0	0	0

2	Low	0	0	0
3	Moderate	21	7	7
4	High	257	85,67	93,67
5	Very High	22	7,33	100
Total		300	100	-

According to Table 2, none of the economically disadvantaged communities had very low or low attitudes toward constructing environmentally safe toilets. Approximately 7, 85.67, and 7.33% had moderate, high, and very high attitudes, respectively. This indicated that most respondents were in the high or positive attitude category.

4.3. Motivation

The results of the descriptive statistical analysis on the motivation of economically disadvantaged communities for constructing environmentally safe toilets, based on the aspects of (1) determining the location for the septic tank, (2) excavating the ground, (3) constructing with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing work, are presented in Table 3.

Table 3 Motivation of the communities for constructing environmentally safe toilets

No.	Category	Frequency	Percentage (%)	Cumulative %
1	Very Low	0	0	0
2	Low	0	0	0
3	Moderate	26	8,67	8,67
4	High	256	85,33	94
5	Very High	18	6	100
Total		300	100	-

Based on Table 3, none of the economically disadvantaged communities had very low or low motivation for constructing environmentally safe toilets. Approximately 8.67, 85.33, and 6% had moderate, high, and very high motivation, respectively. This indicated that most respondents were in the high motivation category.

4.4. Behavior

The results of descriptive statistical analysis of the behavior of economically disadvantaged communities in constructing environmentally safe toilets, based on the aspects of (1) determining the location for the septic tank, (2) excavating the ground, (3) construction with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing work, are presented in Table 4.

Table 4 Behavior of the communities in constructing environmentally safe toilets

No.	Category	Frequency	Percentage (%)	Cumulative %
1	Very Low	0	0	0
2	Low	0	0	0
3	Moderate	22	7,33	7,33
4	High	258	86	93,33
5	Very High	20	6,67	100
Total		300	100	-

According to Table 4, none of the economically disadvantaged communities exhibited very low or low behavior in constructing environmentally safe toilets.

Approximately 7.33, 86, and 6.67% had moderate, high, and very high behavior, respectively. This indicated that the majority were in the high-level behavior category.

5. Discussion

The results showed that the knowledge of economically disadvantaged communities in the coastal area of South Sulawesi Province regarding the construction of environmentally safe family toilets was classified as high based on the following aspects: (1) determining the location for the septic tank, (2) excavating the ground, (3) construction with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing work after being trained. This was attributed to the training they received on proper sanitation facilities.

The training content was attentively followed and well received by the communities. Those who were not directly trained gained knowledge through discussions and question-and-answer sessions with trained community members. These individuals also observed the process of constructing environmentally safe family toilets. The trained individuals provided explanations and understanding regarding the location of the septic tank, the materials used, necessary tools, supporting materials, and equipment.

The report is in line with the study by Suriasumantri [13], which states that knowledge is the fundamental truth obtained from understanding everything about a particular object. Rusman [14] and Anderson [15] defined knowledge as specific and general memory about a given subject.

The results also showed that the attitudes of economically disadvantaged communities in the coastal area of South Sulawesi Province toward constructing environmentally safe family toilets were high. This extended to various aspects of the construction process, including (1) determining the location for the septic tank, (2) excavating the ground, (3) construction with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing the work after training. The positive attitudes can be attributed to the training provided on proper sanitation facilities.

The results aligned with the studies by Azwar [18] and Ojedokun [19] that an attitude is a choice and tendency to act based on feelings and thoughts toward environmental objects. According to Azwar's [18] explanation, attitudes consist of three components: cognitive, affective, and conative. Azwar [18] and Ojedokun [19] stated that this variable is formed on the basis of the knowledge and experience individuals have toward environmental objects.

The results showed that motivation was classified as high when viewed from the aspects of (1) determining the location for the septic tank, (2) excavating the ground, (3) constructing with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing

work. This was attributed to the knowledge obtained by communities regarding environmentally safe toilets. Additionally, the economically disadvantaged communities were highly motivated, driven by their high or positive knowledge and attitudes regarding environmentally safe family toilets.

The results aligned with the study by Adnil [16] and Sarwono [17] that motivation is the drive of an individual to perform a targeted task. According to Adnil and Sarwono [17], intrinsic motivation originates from within an individual and propels them to engage in activities, whereas extrinsic motivation is fueled by external factors.

The results also show that the behavior of economically disadvantaged communities in the coastal area of South Sulawesi Province after being trained on constructing environmentally safe family toilets was classified as high when viewed from the aspects of (1) determining the location for the septic tank, (2) excavating the ground, (3) constructing with red bricks, (4) plastering work, (5) creating a lid for the tank, and (6) finishing work. This is attributed to their knowledge of environmentally safe toilets, with positive attitudes and high motivation also playing a role. These combinations resulted in favorable behavior during the construction.

Ojedokun [19] suggested that environmental behavior includes individual actions toward the environment based on knowledge and daily experiences. According to Adnani's [20] assertion, positive environmental behavior contributes to the improvement of environmental quality.

The academic contribution of the results of this research is determining the knowledge, attitudes, motivation, and behavior of economically weak communities living in coastal areas, most of whom are fishing communities, after receiving counseling and training to construct family latrines that meet health requirements. The results of previous research are used as material for study and preparation of modules, especially in providing learning or counseling about environmental cleanliness, in order to increase their knowledge, attitudes, motivation, and behavior to maintain environmental cleanliness, especially in making family latrines that meet health requirements. Furthermore, the results of the study contribute to environmental science and are literature material for other researchers or students currently studying at universities. As evaluation material, the results of this research provide an overview of the success of previous activities.

6. Conclusion

In conclusion, the knowledge, attitudes, motivation, and behavior of economically disadvantaged communities in the coastal area of South Sulawesi Province after training on the construction of environmentally safe family toilets were classified as

high. This was viewed from the aspects of (a) determining the location for the septic tank, (b) excavating the ground, (c) constructing with red bricks, (d) plastering work, (e) creating a lid for the tank, and (f) finishing the work.

Based on the conclusions of this research, it appears that what was done previously, namely providing counseling and training about environmental cleanliness, especially in terms of making family latrines that meet health requirements, has been successful in the high category. Therefore, as a recommendation, if researchers find conditions in fishing communities as described in the introduction above, it is very necessary to provide counseling and training to improve their knowledge, skills, especially those related to the environment, attitudes, and motivation so that they behave environmentally friendly and always maintain the cleanliness of the environment where they live, so that in the end, there will be a world society that cares about the environment.

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