

Behavioral Model of Healthy Living in a Small Type Housing Complex in South Sulawesi Province, Indonesia

By

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Abstract

This study aims to examine (1) behavioral models of healthy living, knowledge of urban ecosystems, environmental conservation, healthy living, as well as environmental attitudes, commitment, care, motivation, and income levels, (2) the variables that determine the behavior model of a healthy living community, when one independent variable is assessed, and (3) the variable that determines the behavior model when two, three, four, and five independent variables are assessed simultaneously in a small type housing complex in South Sulawesi Province. This is a correlational study with sample areas selected by purposive sampling method, covering Makassar City, as well as Bone and Soppeng Regencies. The sample at each location was 50 households selected by the Systematic Random Sampling method hence, the total sample was 150. The dependent variable was the behavior model of a healthy living community, while the independent consisted of knowledge about ecosystems, the environment, environmental conservation, healthy homes and healthy living, as well as attitudes towards the environment, environmental commitment, care, motivation, and income levels. Data were collected by giving knowledge tests and questionnaires to all samples followed by analysis with descriptive and inferential statistics, the inferential model was Stepwise Multiple Regression. The results showed that people's behavior towards healthy living, knowledge about ecosystems, environment, and healthy home can be classified as moderate, environmental conservation as low, while attitude towards the environment, environmental commitment, care, and motivation are moderate. Meanwhile, the income level, in general, ranged from IDR5,100,000 to IDR7,500,000 in small type housing complexes in South Sulawesi Province. The behavioral model formed when only 1 variable was assessed by the relevant parties includes knowledge about healthy living, followed by 2: healthy living and the environment, 3: healthy living, the environment, and a healthy home; 4: healthy living, the environment, healthy homes, and income levels, and 5: healthy living, the environment, healthy homes, income levels, and environmental conservation.

Keywords: Behavioral model, Knowledge, Healthy living, Environment, Ecosystem

Introduction

The Central Statistics Agency (BPS) of South Sulawesi Province in the year (2020) reported an annual population growth rate of 1.23% from 2019-2020. This population growth demands housing development to fulfill the need for healthy housing. [Herniwanti et al. \(2020\)](#) stated that less than 10% of Indonesian live a healthy life. According to [Hawkes \(2001\)](#) societal values are the basis of development to achieve a quality of life. Meanwhile, human behavior is influenced by knowledge, attitudes, concerns, motivations, interests, and self-control. [Marlina \(2018\)](#) stated that, in general, the factors that influence healthy living behavior are biological, environmental, and activities. Verayani also added that uncomfortable living conditions cause emotions which affect work efficiency and productivity.

Based on the previous description, the study problems are (1) how is the behavior of people toward healthy living, knowledge about urban ecosystems, the environment, environmental conservation, healthy homes, and living, as well as attitude towards the environment, environmental commitment, care, motivation, and the level of community income in small type housing complexes in South Sulawesi Province? (2) which variable determines the behavioral model of healthy living in a small type housing complex when only one variable is assessed by the relevant parties? (3) which variables determine the behavioral model of healthy living, when two, three, four, and five variables are assessed simultaneously?

Literature Review

Various theories are considered as the basis for this study, these include [Viethzal and Deddy \(2013\)](#) which stated that behavior comprises all activities, actions, and appearances of humans towards the physical and social environment. Myers also explained that individual behavior is influenced by knowledge, attitudes, motivation, values or norms, beliefs, abilities, environmental conditions, and situational factors. [Suriasumantri \(1998\)](#) and [Notoatmodjo \(2010\)](#) described knowledge as everything understood regarding a subject through scientific reasoning. Furthermore, [Suriasumantri \(1998\)](#) mentioned that knowledge consists of cognitive, affective, and psychomotor components. [Faizal et al. \(2021\)](#) stated that an ecosystem is a spatial unit in which there is a reciprocal relationship between the living and non-living things, while [Salim, Rauf, and Rahmansah \(2020\)](#) divided it into several parts including coral reef, coastal area, and upland agricultural ecosystems. According to [Indarjani et al. \(2020\)](#), the environment is a unitary space where there is an interaction between humans as well as living and non-living things. In general, humans are the determinants of the good or bad of the space. [Cunningham and Cunningham \(2012\)](#) also divided the ecosystem into biotic, abiotic, and social environments.

[Zhao et al. \(2016\)](#) stated that health is the most important factor for house residents than the comfort of the view, cost savings, and environmental protection. [Freeman, Perry, and Bebko \(2002\)](#) also added that a healthy life is one free from spiritual and physical problems, in other words, the absence of physical and mental health problems. According to [Friel \(2016\)](#), a healthy house has adequate lighting, air ventilation, and humidity levels consistent with health requirements. It is intended to meet the physical, and spiritual needs, as well as shelter from various kinds of diseases. Furthermore, [Azwar \(2012\)](#) stated that attitudes are choices and tendencies to act on the environment based on knowledge and everyday experience. [Ardi \(2015\)](#) added that a positive environmental attitude is a tendency to take actions aimed at improving and maintaining the environment, while [Azwar \(2012\)](#) explained that attitudes consist of cognitive, affective, and psychomotor components.

Wibowo (2013) stated that motivation is the act of encouraging a person to work with the aim of meeting personal and family needs. Wibowo (2013) and Ardi (2015) mentioned that individual motivation is divided into intrinsic and extrinsic motivation. Intrinsic motivation comes from within a person, while extrinsic comes from outside. According to Cohen and Abedallah (2015), commitment is a force that binds individuals to take an action toward one or more goals, while Yusuf and Syarif (2018) defined it as belief and determination to carry out certain activities.

Sudarma (2014) stated that care is a general attitude towards a subject. In line with Muhammad (2014), environmental care is a general attitude towards the environment that aims to create harmony and balance in the environment. Moreover, Ali and Asrori (2012) categorized caring into joys and sorrows, as well as personal, shared, and urgent concerns. Simorangkir (2014) stated that income is the total receipts in the form of money or non-money earned by a person during a certain period. Rahardja and Mandala (2010) added that a person's income basically comes from wages or salaries, property rights, and the government.

Methods

This is a correlational study conducted in South Sulawesi Province, Indonesia. Makassar City, as well as Bone and Soppeng Regencies, were selected as sample areas using the purposive sampling method. The population consisted of people who live in small type housing complexes in the sample areas. The total sample was 150 households selected by the Systematic Random Sampling method. The dependent variable was the behavioral model of healthy living (Y). Meanwhile, the independent variables were ecosystem knowledge (X₁); environment (X₂); environmental conservation (X₃); healthy home (X₄); healthy living (X₅); attitude towards the environment (X₆); commitment (X₇); care (X₈); motivation to care for the environment (X₉); and income level (X₁₀). The instruments used were knowledge tests, true-false models, and questionnaires that refer to the Likert model. Data were collected by giving knowledge tests and questionnaires to the entire sample. Data were analyzed using descriptive and inferential statistical analysis. The inferential model was Stepwise Multiple Regression.

Results and Discussion

A. Results

The descriptive statistical analysis results of healthy living behavior, attitudes towards the environment, commitment, care, as well as motivation to maintain the environment are classified as low with the income level ranging from IDR5,100,000 to IDR7,500,000. Meanwhile, the analysis results of knowledge about the environment, ecosystems, as well as healthy homes, and living are classified as moderate, while the knowledge of environmental conservation is low.

The first round of multiple regression analysis results for the step-wise model showed that all variables included have a significant effect on people's behavior towards healthy living (Y). The variable with the smallest contribution was the commitment to the environment (X₇), hence it was excluded from the regression model. In the second round, the variable with the smallest contribution was the motivation to care for the environment (X₉), thereby it was also dismissed. Meanwhile, the variable with the smallest contribution in the third round was environmental awareness (X₈), consequently it is eliminated. In the fourth round, the variable with the smallest contribution was the attitude towards the environment (X₆). To determine the variables that become models of healthy living behavior when five independent variables are assessed simultaneously, the fifth round of multiple regression analysis was conducted with the Step Wise model and the results are presented in Table 1.

Table 1. Variables that become models of healthy living behavior when five independent variables are assessed simultaneously

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	7218.64	6	7218.64	639,95	.000 ^b
	Residual	1612.97	143	11,28		
	Total	8831,61	149			

a. Dependent Variable: Y

b. Predictors: (Constant). B X1 = 1.31; BX2 = 3.76; BX3 = 2.06; BX4 = 2.91; BX5 = 3.98; B X10 = 2.71

R Square = .8724

The fifth round of multiple regression analysis results for the Step Wise Model showed a significance value of $F = 0.000 < \alpha 0.05$. This indicates that all variables included in the regression model, namely X₁, X₂, X₃, X₄, X₅, and X₁₀ together affected Y by 87.24%. The variable with the smallest contribution was ecosystem knowledge (X₁), hence, it was excluded in the next regression model. The behavior model of healthy living in a small type housing complex in South Sulawesi Province when five variables were assessed simultaneously comprises knowledge about the environment, environmental conservation, healthy homes, and living, as well as income levels. To determine the variables that become models of healthy living behavior when four independent variables are assessed simultaneously, the six-round Step Wise multiple regression analysis was performed and the results are presented in [Table 2](#).

Table 2. Variables that become models of healthy living behavior if four independent variables are assessed simultaneously

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	7136.24	5	7136.24	642,9	.000 ^b
	Residual	1596.82	144	11,10		
	Total	8733,06	149			

a. Dependent Variable: Y

b. Predictors: (Constant). BX2 = 3.73; BX3 = 1.31; BX4 = 2,82; B X5 = 3,96; B X10 = 2.16

R Square = .8390

The Sixth Round Step Wise Model Multiple Regression Analysis results showed the significance of $F = 0.000 < \alpha 0.05$. This figure indicates that all variables included in the regression model, namely X₂, X₃, X₄, X₅, and X₁₀ affected Y by 83.90%. The variable with the smallest contribution was knowledge of environmental conservation (X₃), hence, it was excluded from the regression model. Based on the results, the model of behavior for healthy living in a small type housing complex when the four variables were assessed simultaneously comprises knowledge of the environment, healthy homes and living, as well as income levels. To assess the variables that become models of healthy living behavior when three independent variables are analyzed simultaneously, the seventh round Step Wise multiple regression analysis was conducted and the results are presented in [Table 3](#).

Table 3. Variables that become models of healthy living behavior when three independent variables are assessed simultaneously

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7114.29	4	7114.29	652,09	.000 ^b
	Residual	1582.53	145	10.91		
	Total	8696.82	149			

a. Dependent Variable: Y

b. Predictors: (Constant). BX2 = 2.76; BX4 = 2.51; BX5 = 3.62; BX10 = .98

R Square = .7656

The Step Wise Model Multiple Regression Analysis results in the seventh round showed a significance of $F = 0.000 < \alpha 0.05$. This figure indicates that X_2 , X_4 , X_5 , and X_{10} affected Y by 76.56%. The variable with the smallest contribution was the level of income (X_{10}) hence, it was excluded from the regression model. Based on the results, the behavioral model of healthy living in a small type housing complex in South Sulawesi Province when the three variables were assessed simultaneously includes knowledge of the environment, as well as healthy homes and living. To determine the variables that become models of healthy living behavior when two independent variables are assessed simultaneously, the seventh round Step Wise multiple regression analysis was performed and the results are presented in [Table 4](#).

Table 4. Variables that become models of healthy living behavior when two independent variables are assessed simultaneously

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7100.56	3	7100.56	661,74	.000 ^b
	Residual	1566.24	146	10,73		
	Total	8666,80	149			

a. Dependent Variable: Y

b. Predictors: (Constant). BX2 = 2.76; BX4 = 2.32; BX5 = 3.62

R Square = .6822

The Step Wise Model Multiple Regression Analysis results in the eighth round showed a significance of $F = 0.000 < \alpha 0.05$. This indicates that X_2 , X_4 , and X_5 affected Y by 68.22%. The variable with the smallest contribution was knowledge about healthy homes (X_4) hence, it was excluded in the next regression model. It can be concluded that the behavior model of healthy living in a small-type housing complex in South Sulawesi Province when the two variables are assessed simultaneously includes knowledge of the environment and healthy living. To determine the variables that become models of healthy living behavior when only one independent variable was assessed, the seventh round of Step Wise multiple regression analysis was performed and the results are presented in [Table 5](#).

Table 5. Variables that become models of healthy living behavior when only one independent variable was assessed simultaneously

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6854.72	2	6854.72	662,29	.000 ^b
	Residual	1521.89	147	10,35		
	Total	8376,60	149			

a. Dependent Variable: Y

b. Predictors: (Constant). BX2 = 2.51; BX5 = 3.47

R Square = .5505

The ninth round of multiple regression analysis results showed a significance of $F = 0.000 < \alpha 0.05$. This indicates that X_2 and X_5 affected Y by 55.05%. The variable with the smallest contribution was environmental knowledge (X_2) hence, it was excluded in the regression model. Based on the results, the behavior model of healthy living when only one variable was assessed includes knowledge about healthy living.

B. Discussion

People's behavior in healthy living, attitudes towards the environment, commitment, concern, motivation to care, and income levels need to be increased. Therefore, regulations from the local government are needed to create a healthy and comfortable residential environment. The residents need to also maintain, conserve, and love a healthy environment as well as increase their income.

Public knowledge related to healthy living and the environment already exists, but needs to be improved. Therefore, regulations for counseling and training on healthy living, the environment, and housing are needed. The government, the private sector, environmentalists, and other relevant parties are recommended to develop programs targeted at improving five variables. These include knowledge about the environment, environmental conservation, healthy homes and living, as well as income levels. These variables need to be considered by various parties in the form of coaching, counseling, and training for the community by the government, the private sector, environmental observers, and other relevant parties related to these variables. This will lead to high and sustainable healthy living in the small type housing complex in South Sulawesi Province.

Conclusion

Based on the results, (1) behavioral model of healthy living, knowledge about ecosystems, environment, healthy living and homes, are classified as moderate, environmental conservation is classified as low, while attitude towards the environment, environmental commitment, care, and motivation are classified as moderate. In addition, the income level in general ranges from IDR5,100,000 to IDR 7,500,000 in small type housing complexes in South Sulawesi Province. (2) The variable that forms the behavior model of healthy living when only 1 variable is assessed by the relevant parties is knowledge about healthy living, followed by 2: healthy living and the environment, 3: healthy living, the environment, and healthy home; 4: healthy living, the environment, healthy homes, and income levels, 5: healthy living, the environment, healthy homes, income levels, and environmental conservation.

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