



## Strategy on family communication and the extent of environmental health awareness in coastal area<sup>☆</sup>



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Received 29 May 2019; accepted 15 July 2019

### KEYWORDS

Family communication;  
Strategy;  
Environmental health;  
Coastal areas

### Abstract

**Objective:** The purpose of this study was to analyze and correlate family communication strategies and the level of community health awareness that is particularly vulnerable in coastal areas in South Sulawesi, Indonesia.

**Method:** The study used the correlation and regression methods. The study was conducted in Watang Soreang Village, Parepare City, Indonesia. This study used data collection techniques in two ways, namely secondary data and primary data from the results of the questionnaire. Data were analyzed using imperative statistics to analyze and correlate family communication strategies and the level of community health awareness that is particularly vulnerable in coastal areas.

**Results:** This study showed that the level of public awareness in coastal areas towards environmental health is good enough and understandable. This is evident from the results of tests that are significant and positively influence the family communication strategy and level of public awareness. Testing of family communication strategies and the level of awareness of the community indicates that there are an influence and significance of the family communication strategy together on the level of public awareness (Y) with the coefficient of determination produced = 0.604, indicating there are 60.4% of family communication strategies influenced by variable levels of public awareness, while the remaining 39.6% is explained by other causes not disclosed in this study.

<sup>☆</sup> Peer-review under responsibility of the scientific committee of the International Conference on Women and Societal Perspective on Quality of Life (WOSQUAL-2019). Full-text and the content of it is under responsibility of authors of the article.

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*Conclusion:* It can be concluded that there is a significant influence between family communication strategies on environmental health community awareness level with the magnitude of the communication strategy influence on the health level of Watang Soreang Village, Soreang Sub-District, Parepare City of 39.6% not influenced by the family communication strategy applied by the head family.

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## Introduction

Indonesia's potential as the world's largest archipelago consists of 17,499 islands spread from Sabang to Merauke. Overall the total area of Indonesia is 7.81 million km<sup>2</sup>, covering 2.01 million km<sup>2</sup> of land, 3.25 million km<sup>2</sup> of ocean, and 2.55 million km<sup>2</sup> of Exclusive Economic Zone (EEZ). The sea area of 3.25 million km<sup>2</sup> which is wider than the land area of 2.01 million km<sup>2</sup> causes the South Sulawesi region to be in the coastal area, including the City of Parepare. The research subjects were located on the coast of Cempae Beach, Wattang Soreang Village, Soreang District, Parepare City, South Sulawesi.

Environmental health issues in South Sulawesi, especially Parepare City which is directly adjacent to the coast and community settlements. This condition has direct implications for the marine ecosystem that is in the surrounding environment because people are active along the coast. Based on data from the Ministry of Environment and Forestry (KLHK) in March 2019 there were cases of sea pollution due to vomiting of diesel fuel from tankers MT Golden Pearl XIV. This pollution inundated the sea, and the coast of Cempae Beach which directly affected settlements, seawater pollution, and disrupted the community livelihood system in the Wattang Soreang Village.

The public awareness factor is the central point for instilling, socializing, stimulating children and the family environment.<sup>1</sup> Environmental health is an effort to obtain a balance between the environment and humans, and how humans manage the environment in order to create clean, healthy, comfortable and safe environmental conditions and avoid various diseases. Environmental health can help humans learn and manage environmental change and potentially disrupt public health. For example, the level of public awareness in removing garbage and aspects that can pollute the marine ecosystem as a livelihood as traditional fishermen.

Pollution of marine ecosystems has the potential to occur due to the low awareness of coastal communities about environmental health. Based on data that the production of plastic waste, especially at sea in the Jambeck JR Journal is titled Plastic Waste Inputs from Land into the Ocean in 2015, Indonesia is the largest country after China that produces plastic waste. Furthermore, the Philippines in the third-place produced plastic waste to the sea reaching 83.4 million tonnes, followed by Vietnam which reached 55.9 million tonnes, and Sri Lanka which reached 14.6 million tonnes per year. Data per year in 2010, plastic waste produced by

Indonesia reaches 3.2 million metric tonnes/year. The data shows that environmental pollution in Indonesia due to plastic waste is quite alarming. While in the World Bank report per 2016, the total global plastic waste has reached 242 million tonnes or contributes 12% of the components that cause environmental pollution.

The family communication strategy is a way to instill value so that early childhood children stimulate and have an awareness of the importance of protecting the surrounding natural ecosystems. Consistent and sustainable informative messages can be instilled in individuals or groups. According to Onong Uchjana Effendi that communication strategy consists of two aspects, namely: Macro (Planned multimedia strategy) In micro (medium communication medium strategy) Both aspects have a dual function, namely: disseminating communication messages that are informative, persuasive and instructive systematically to the target to obtain optimal results.<sup>2</sup> Through a strategy of family communication carried out in the family environment and factors that are aware of the importance of environmental health can be preventive measures to maintain and preserve the natural ecosystem. The form of communication strategies based on application in the family is openness, mutual support, and equality.

Forms of interpersonal communication effectiveness among others: first, interpersonal communication is openness. Openness is a reaction to the disclosure or our response to the present situation and provides information openly. Hidayat cites the opinion of Emmert and Brooks that the characteristics of the person who has an openness are assessing the message objectively, using data, seek information from various sources, and seek to understand the message that does not comply with a series of beliefs.<sup>3</sup> Second, empathy (empathy) to feel what others feel. Interpersonal communication able to takes place with the condition when the communicator (the sender) show empathy to the communicant (recipient of the message). Third, the characteristic of support (supportiveness) is openly situation to support effective communication.

## Method

This research is located on the coast of Cempae Beach, Wattang Soreang Village, Soreang District, Parepare City, South Sulawesi. The choice of location of the study is based on representative considerations directly adjacent to the sea. The activities and livelihoods of the people in Watang Soreang Village are very dependent on the coastal area with the main

livelihood as fishermen. These communities can be directly affected by the destruction of natural ecosystems. This type of research uses a quantitative approach that can generalize the results of the research. The type of explanatory research is because this study aims to analyze the effect of family communication strategies used on the level of public awareness.<sup>4</sup> Data sources were obtained from secondary data and primary data in the form of questionnaires. The research hypothesis has the following variables: first, the independent variable (Independent) in this study is a family communication strategy ( $X$ ), including; ( $X_1$ ) openness, ( $X_2$ ) supportiveness, ( $X_3$ ) empathy. Second, the dependent variable in this study is public awareness ( $Y$ ). Based on the population of the Head of the Family as many as 2.176 Samples were drawn with a 10% error rate through the drawn Isaac and Michael Tables as many as 236 Samples.<sup>5</sup> The research data collection technique uses a questionnaire in the form of a questionnaire for the sample representing the population in the coastal research location of Cempae Beach,<sup>6</sup> Wattang Soreang Village, Soreang District, Parepare City, South Sulawesi. Analysis of research data using quantitative analysis techniques to support inferential statistics. Hypothesis testing is used to test the effect that occurs or the level of determination of the independent variable with regression tests and regression equations. Multiple and multivariate regression equations to predict the effect of the tested research variables, through the equation:

$$Y = a + bx \text{ and/or } Y = a + b_1x_1 + b_2x_2 + b_3x_3$$

where ( $Y$ )=Public Awareness; ( $X$ )=Family Communication Strategy; ( $X_1$ )=Openness; ( $X_2$ )=Supportiveness; ( $X_3$ )=Empathy;  $A$ =Constant.

## Results

The concept of family communication strategy and level of public awareness is measured based on three variables, namely openness, supportiveness, and empathy. Early public awareness of children in coastal areas understands the importance of maintaining natural ecosystems in residential areas. The research hypothesis tested there are three hypothesis variables the influence of  $X_1$ ,  $X_2$ , and  $X_3$  on variable  $Y$ .

$H_1$ . "There are influence and significance between family communication strategies ( $X_1$ ,  $X_2$ , and  $X_3$ ) together towards the level of environmental awareness ( $Y$ )"

$H_0$ . "There is no influence and significance between family communication strategies ( $X_1$ ,  $X_2$ , and  $X_3$ ) together towards the level of environmental awareness ( $Y$ )"

Based on data analysis using regression tests to discuss predictions (forecasting), in this case, whether the level of public awareness ( $Y$ ) is predicted if the family communication strategy together ( $X_1$ ,  $X_2$ , and  $X_3$ ) is known. Based on the calculation results for the analysis of two variables (linear)  $X_1$ ,  $X_2$ , and  $X_3$  (family communication strategy) on the level of public awareness ( $Y$ ), it is presented in Table 1.

The data table above, referring to the multiple regression equation that can be done can be concluded that: first, the

results of the calculation of two variables (linear)  $X_1$  (openness) to the level of public awareness ( $Y$ ) shows the results of a regression coefficient of 0.732 means each addition of one unit of openness can increase public awareness in the field of environmental health by 0.723. The results showed a positive effect, to test the significance of the effect (significant) using the  $t_{\text{test}}$ , then compare the value of  $t_{\text{count}}$  obtained with  $t_{\text{count}}$ . The result is  $t_{\text{count}}$  = equal to 22,052  $df$  = 234 and a significant level of 5%, the  $t_{\text{table}}$  value of 1960 means. It means that there is a positive and significant effect of openness ( $X_1$ ) on the level of public awareness ( $Y$ ). The significance has a coefficient of determination of the variance value of = 0.58. The results show that 58% of the public awareness level is explained/influenced by the openness variable.

Furthermore, testing of variable  $X_2$  (supportiveness) towards the level of public awareness ( $Y$ ) shows the results of the regression coefficient of 0.413 means that each addition of a unit of interdependence can increase public awareness by 0.413. The test results show a positive effect, to test the significance of the effect (significant) using the  $t$ -test, then compare the value of  $t_{\text{count}}$  obtained with  $t_{\text{table}}$ . The result is  $t_{\text{count}}$  = 5.620  $df$  = 234 and a significant level of 5%, the  $t_{\text{table}}$  value of 1.960. It means there is a positive and significant influence on mutual support ( $X_2$ ) on the level of public awareness ( $Y$ ). Meaning can be seen in the coefficient of determination of the variant with a value of = 0.12 which means that 12% of the level of public awareness is explained/influenced by the variables of mutual support.

Testing the analysis of two variables (linear)  $X_3$  (empathy) on the level of public awareness ( $Y$ ) shows the results of the regression coefficient of 0.425 means that each addition of one unit of empathy can increase the level of community empowerment by 0.425. Demonstrate a positive influence, to test the significance of the effect (significant) using the  $t$ -test, then compare the value of  $t_{\text{count}}$  obtained with  $t_{\text{table}}$ . The result is  $t_{\text{count}}$  = 4.124  $df$  = 234 and a significant level of 5%, the  $t_{\text{table}}$  value of 1.960. It means there is a positive and significant influence of empathy ( $X_3$ ) on the level of public awareness ( $Y$ ). Meaning is not in the coefficient of determination of the variant with a value of = 0.32 which in this case means 32.0% of the family communication strategy is explained/influenced by the variable empathy.

The research hypothesis was carried out through multivariate regression analysis to predictions with three predictors, in this case, whether the level of public awareness ( $Y$ ) can be predicted if ( $X_1$ ) openness, ( $X_2$ ) supportiveness, ( $X_3$ ) empathy.

Based on this regression equation family communication strategies ( $X_1$ ,  $X_2$ , and  $X_3$ ), the level of public awareness ( $Y$ ) is 10.332. The results of multivariate regression analysis of three predictors ( $X_1$ ,  $X_2$ , and  $X_3$ ) together with  $Y$  indicate that the regression coefficient predictor  $X_1$  = 0.732,  $X_2$  = 0.413,  $X_3$  = 0.325, indicating that each addition of one unit of openness ( $X_1$ ) is 0.723 can increase the level of public awareness ( $Y$ ) of 0.604, as well as each addition of one unit of supportiveness in various respects ( $X_2$ ) of 0.413, empathy and ( $X_3$ ) of 0.325 and the regression coefficient will increase public awareness by 0.604.

Hypothesis testing proves that there is a positive influence of family communication strategies ( $X_1$ ,  $X_2$ , and  $X_3$ ) together towards the level of public awareness ( $Y$ ). To test the significance or significance of the effect of the  $Y$  variable

**Table 1** Bivariate regression result

Variable pair	Regression coefficient	$r^2$	Constant	$t_{\text{count}}$	$t_{\text{table}}$		Test result hypothesis
					$\alpha = 0.05$	$\alpha = 0.01$	
$Y - X_1$	0.732	0.58	18.211	22.052	1.960	2.576	$H_i$ Accepted
$Y - X_2$	0.413	0.12	29.112	5.620	1.960	2.756	$H_i$ Accepted
$Y - X_3$	0.325	0.32	20.532	4.124	1.960	2.756	$H_i$ Accepted

**Table 2** Multivariate regression result

Regression coefficient	$R^2$	Constant	$F_{\text{Count}}$	$F_{\text{table}}$		Significance (2-ways)
				$\alpha = 0.05$	$\alpha = 0.01$	
$Y - X_{1,2,3}$	0.604	10,332	27,663	2.62	3.83	0.000

on family communication strategy variables ( $X_1$ ,  $X_2$ , and  $X_3$  together), using the  $F_{\text{test}}$ , compare the  $F_{\text{Count}}$  value with the  $F_{\text{table}}$  value. Then the results of the  $F_{\text{table}}$  value = 276.63, with a significant level of 5% and 1%  $F_{\text{table}}$  values consulted based on the numerator  $df = 3$  and the denominator  $(236-3-1) = 234$ , obtained  $F_{\text{table}}$  values worth 2.62 for 5% and  $F_{\text{table}} = 3.83$ . This means that the  $F_{\text{Count}}$  value is far greater  $F_{\text{table}}$  and a smaller probability value of 0.005 indicates that there is a very significant influence family communication strategy ( $X_1$ ,  $X_2$ , and  $X_3$ ) on the level of public awareness ( $Y$ ). With the resulting coefficient of determination = 0.604, indicating that in this case, it means 60.4% dimensions of family communication strategies can be explained/influenced by variable levels of public awareness (Table 2).

## Discussion

Some previous studies have suggested that communication strategies can influence awareness about environmental health. However, to increase its effectiveness, it needs to be combined with other strategies such as multi-faceted delivery methods, and community-based participatory research.<sup>7,8</sup>

Coastal areas are areas that need special attention through increasing public awareness of the health environment. The status of environmental health has a direct impact on health which also ultimately has implications for socio-economic life. One approach that can be done is through changing the mindset of the family without forcing it, with an effective communication strategy, especially for people with middle economic level and low education.<sup>9,10</sup> This research confirms the importance of communication in the family as the smallest unit in the community, especially the coastal area in building a positive mindset.<sup>11,12</sup>

## Conclusions

Testing of family communication strategies and the level of awareness of the community indicates that there are an influence and significance of the family communication strategy together on the level of public awareness ( $Y$ ). With the coefficient of determination produced = 0.604, indicating there are 60.4% of family communication strategies

influenced by variable levels of public awareness, while the remaining 39.6% is explained by other causes not disclosed in this study.

## Conflict of interest

We would like to thank the Institute for Research and Community Services, Hasanuddin University (LP2M Unhas) for trust and funding in 2018. Furthermore, the South Sulawesi provincial/regency/city government, especially the community of Watang Soreang sub-district, Soreang District, Parepare City, South Sulawesi province which participated in the research process. Hasan Al Husain and Linda Alla as a team of enumerators who have contributed to the implementation of research.

The authors declare no conflict of interest.

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