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The Influence of Socioeconomic Conditions on the Healthy Life Behavior

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Abstract

The purpose of this research is to find out the influence of economic, social and availability of information variable on the healthy life behavior of the people in Suruh Sub-district, Semarang Regency. The primary data source is collected by distributing the questionnaires to and by interviewing the people of Suruh Sub-district, Semarang Regency as the research respondents with the research analytical instrument of Probit binary responses regression. The availability of domestic wastewater disposal facilities is the dependent variable, while the household expenditure (economic variable), healthy life motivation (social variable) and maintenance of domestic wastewater disposal system (healthy life behavior) are the independent variables. The results show that the healthy life motivation and maintenance of domestic wastewater disposal system variables have positive and significant influence on the availability of domestic wastewater disposal facilities with α = 5% and the household expenditure variable has positive and significant influence with α = 10%. In general, it shows that the economic variable and the household expenditure determine the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency as the higher the individual's income, the higher their allocation to the household expenditure, including to the domestic wastewater management.

Key words : *Household expenditure, domestic wastewater management, binary probit, healthy life motivation, health.*

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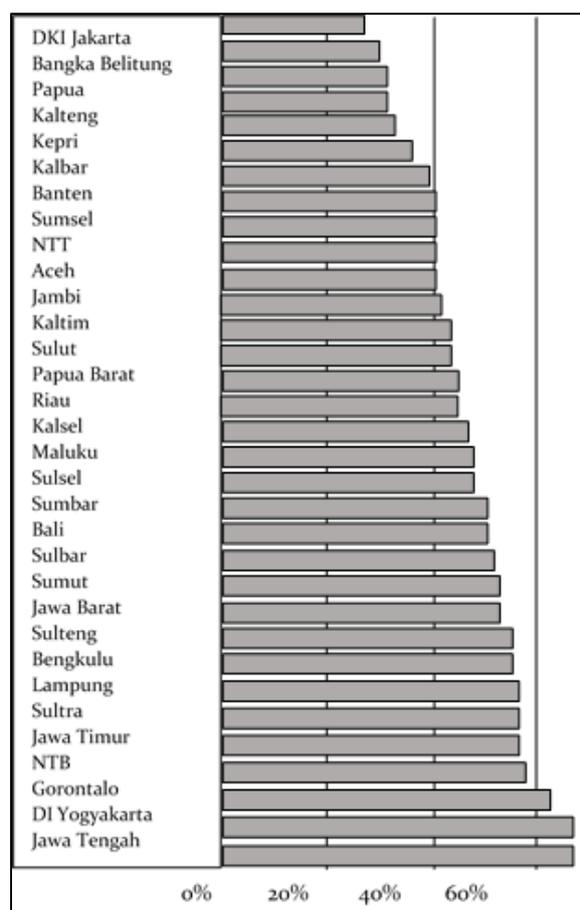 E-mail: lesta.fe@mail.unnes.ac.id

INTRODUCTION

Economic development is a process made by the people to create an environment that influences the results of economic conditions. The environment concerned as the source of planning includes the physical environment, regulations and behavior (Bambang & Lesta, 2013). The relationship between the economic growth and the environment has been studied by Grossman & Alan (1995), stating that the economic growth may not be separated from the environment. An improvement of economic growth may result in environmental damage.

An environment may be considered healthy when it consists of clean water supply, waste management, human waste disposal facilities, and wastewater management (Hapsari, Puti & Jualianty, 2009). Clean water and sanitation are the seventh objective of the Millennium Development Goals (MDG) and in 2015 it is expected that the people without access to drinkable clean water and basic sanitation may decrease up to half of the population. Therefore, Indonesia still needs to improve its access to clean water for 68.9 percent and to sanitation for 62.4 percent.

Figure 1 explains that the percentage of households with access to better sources of clean water in Central Java Province is of the highest percentage compared to any other province in Indonesia. Domestic wastewater is one of the most often occurring environmental issues. Domestic wastewater is a wastewater generated by household activities, which may potentially be polluting the environment when it is not appropriately managed (Sugiharto, 1987).

Table 1 explains that the proportion of households in Central Java Province based on wastewater reservoir is good enough, although some conditions are higher compared to the conditions of Indonesia,

such as waste disposal condition with open reservoir and direct flow to sewage/river, with 15.3 percent and 49.4 percent respectively. This shows that the proportion is higher compared to the proportion in Indonesia for open reservoir with 13.2 percent and direct disposal to river with 46.7 percent.

Source: Riskesdas, 2013

Figure 1. Percentage of households with access to better sources of clean water

People's concern about the environment may not arise automatically, but it needs various parties' participation in order to produce qualified human resources concerning on the environmental conditions (Beni, IGB & Ruslan, 2014). A good environment may influence the economy in addition to the people's better welfare. The environmental condition may directly lead to the development achievement involving the people's participation.

Table 1. Proportion of Households Based on Wastewater Reservoir by Province in Java Island

Province	Disposal of Wastewater from Bathroom/Washing/Kitchen				
	closed, in the yard	open reservoir	reservoir out of the yard	without reservoir	direct disposal to sewage/river
Special Capital Region of Jakarta	9.6	1.9	1.3	0.3	87
West Java	17.4	9.8	7.6	4.8	60.3
Central Java	15.6	15.3	6.2	13.5	49.4
Yogyakarta Special Region	49.4	12.1	3	15.3	20.2
East Java	12.2	18	7.2	18.4	44.2
Indonesia	**15.5**	**13.2**	**7.4**	**17.2**	**46.7**

Source: Riskesdas, 2013

The development implementation process needs the people's participation not only as the subject, but also the object of development. The qualified human resources may be identified through the improved health, people's level of education, life expectancy, and access to the resources for decent living. People's health is an important investment for a state in assuring the quality of health to enable each individual to live productively in socioeconomics (Hapsari, Putri & Julianty, 2009). Brown, Pricscila and Leo (2016) state that obtaining safe and clean drinking water and sanitation is an important human right that people may enjoy their life and it is considered as an absolute human right. Green in Notoatmodjo (2007) states that the behavioral and non-behavioral factor may influence an individual's health the most. An individual's behavior may be formed through formal and informal educations as well as through education in the family environment. The theory of planned behavior explains an individual's intention to conduct certain activity or behavior that someone may be considered capable of observing any motivational factors which influence an individual's behavior. In the theory of planned behavior, there is a perceived behavioral control factor considered as an individual's own control perception in connection with certain behavior (Ajzen, 1991).

H.L. Blum (1974) in Hapsari (2009) states that an individual's health status is determined by the internal and external factors. Internal factors refer to an individual's psychic and physical factors, while the external factors refer to the social, political, and economic factors. In addition, there are some other factors influencing an individual's health status, such as environmental factor by 45%, behavioral factor by 30%, health services factor by 20% and genetics factor by 5%. The negative influence on people when they pay less attention to healthy behavior is significant in case of diarrhea (Ferbriza, *et al.*, 2015). The importance of maintaining the environment healthy is not only due to the influence on an individual, but also in creating a healthy and comfortable environment, and making it appropriate for the human residence. Some factors causing the decrease of environmental quality include the low level of people's education and environmental knowledge which lead them to be less responsive

in receiving the beneficial information (Hermawan, 2005).

Health information diffusion is one important aspect to accelerate the achievement success on health development objectives. This information diffusion process is one strategic study in media and communication science as a successful diffusion process in order to give the significantly multiple influences. Information diffusion is a process in which information or innovation is communicated through certain channel during a certain period among members of a social system (Rogers, 2003). According to Effendy (2001), health information is a part of education defined as the health education is identical to health counseling because both of them are oriented to expected change in behavior, that is, healthy behavior. Thus, health issues as one effort to improve a group's or family's health may be recognized.

The other factors influencing an individual's or people's health are economic and social factors. Economic factor is related to expenditure each individual makes in conducting economic activities. Meanwhile, Widoyono (2008) explains that when reviewed according to socioeconomic factors, the level of income is one of the factors influencing the level of the people's discourse of sanitation, environment and residence which influence the amount of household's expenditure. The theory of Engel states that consumption of a good or type of good is significantly influenced by the level of income. The proportion of income incurred to buy any type of food may decrease due to the improved rate of income. This theory proves that the higher a person's income, the lower his/her percentage of income issued to buy food will be. Case, lubotsky and Paxson (2002) conduct a research onincome allocated for

health. The research results show clearly that income enables an individual to buy goods and services (e.g., Nutrition, heater, health insurance) necessary to maintain his/her health. In addition, higher income is attributed to healthier behavior.

The purpose of this research is to find out the influence of economic variable, social variable and health information to healthy life behavior of the people of Suruh Sub-district, Semarang Regency.

A research related to healthy life behavior influenced by socioeconomic conditions has also been conducted by Pampel, Patrick and Justin (2010) in their research which discusses the relationship of socioeconomic status and healthy life behavior. The results show that SES status may be influenced by incentive or motivation for healthy behavior. Low SES group may have fewer reasons when compared to the high SES group that it is expected to remove the short term pleasure of unhealthy behavior for long term benefit in long life. The arguments related to stress, limited benefit, difference in class, and awareness of risks respectively emphasizes how SES establishes motive for healthy behavior.

Aue and Jutta (2010) conduct a research on comparing socioeconomic status and a combined poverty indicator as a determinant of healthy life behavior. The research results show that both multidimensional indicators of this study show that both of the multidimensional indicators enable to identify the reverse relationship between low SES poverty and some types of healthy life behavior. However, by comparing both indicators, it is obvious that individuals are influenced by the poverty in different ways with various influences on their healthy life behavior. In addition, future researches must focus not only on the measurement of multidimensional poverty, but also on the dynamical effects.

Cesur, Bahadir & Naci (2014) in their research The Impact of Education on Health and Healthy life behavior in a Middle-Income, Low-Education Country. The results show that for the 18-30 years old women, education has no influence on the health, BMI, overweight, obesity, or self-reported tendency to smoke or smoking intensity. Education does not influence the consumption of fruits, vegetables or women tendency to flu injection. The same results are obtained for men at the equal age with one exception: education improves men BMI and tendency to overweight and obesity. Potential explanation for these findings is provided.

A research conducted by Bunning (2013) on Does New Health Information Affect Healthy life behavior? The Effect of Health Events on Smoking Cessation. The empirical results provide strong evidence that smokers' response to different health occurrences because of different causes. Suffering from physical health issues improves the tendency to stop smoking, the opposite occurs to mental disorder, while accident does not influence healthy life behavior at all. Analysis on the heterogeneity of effects further reveals that the same type of information influences various sub-groups of population differently.

RESEARCH METHODS

This study is classified into a qualitative research conducted using the primary data and secondary data. The research data source is derived from those published by WHO, *Bappeda,* Central Bureau of Statistics *(BPS),* and others as the secondary data, while the primary data is derived from the distributed questionnaires and interviews.

The research location is Suruh Sub-district, Semarang Regency. This research focuses on people's healthy life behavior as the independent variable and household expenditure, healthy life motivation and maintenance of domestic wastewater disposal system as the dependent variable.

Population in this research is 21.639. The proportional sampling is used as the research sampling technique and Solvin calculation is conducted to obtain 100 respondents as the research samples.

There are some variables which may influence the availability of people's domestic wastewater disposal facilities in Semarang Regency, such as economic, social and information variables. Economic variable may be influenced by several factors, such as the rate of a person's expenditure and income. Social variable represents the rate of an individual's participation in the social environment and information variable represents the availability of information and motivation for healthy life.

Economic variable is represented by the rate of household expenditure, social variable is represented by healthy life motivation derived from an individual or the surrounding environment where the people live, and healthy life behavior is represented by the maintenance of wastewater disposal facilities.

Household expenditure (X_1), stated in rupiah unit, is the spending value made by each household in Suruh Sub-district, Semarang Regency to buy goods and services during certain period in order to satisfy their needs such as clothing, food, shelter, health, education, etc.

Healthy life motivation (X_2) is the people's motivation in conducting the healthy life behavior resulted from the facilitation of access to information which may improve their awareness of the importance of healthy life behavior.

Maintenance of domestic wastewater disposal system (X_3) is an activity conducted by the people with social interaction leading to the

healthy behavioral changes that they may improve their own health, family, and group.

The availability of domestic wastewater disposal facilities (Y) is the proxy of healthy life behavior variable stated in number of households in Suruh Sub-district, Semarang Regency with domestic wastewater disposal facilities.

Table 2. Definition of Variables

Variable	Code	Remarks	Description
Availability of wastewater disposal facilities	1	Available	As dependent variable
	0	N/A	
Economy		Data in rupiah unit	Amount of expenditure made by each household
Social	1	Health	Motivation for conducting healthy life
	0	Surrounding Environment	
Healthy life behavior	1	Routine	Maintenance of waste disposal
	0	Not Routine	

Source: Primary data, processed

Dependent variable model of binary responses is used in this research as the dependent variable used (Y= the availability of domestic wastewater disposal facilities) has only two values, one (1) and zero (0). This research used probit model. The model used in probit regression is:

$$P_i = F(Z_i) = F(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_i)..(1)$$

Household expenditure (X_1), healthy life motivation (X_2), and maintenance of wastewater disposal system (X_3) variables are used in this research, which may be examined against the availability of domestic wastewater disposal facilities (Y) in Suruh Sub-district, Semarang Regency.

Hypothesis

Ha_1 = There is influence between household expenditure variable and the availability of domestic wastewater disposal facilities variable partially.

Ha_2 = There is influence between healthy life motivation variable and the availability of domestic wastewater disposal facilities variable partially.

Ha_3 = There is influence between the maintenance of domestic wastewater disposal system variable and the availability of domestic wastewater disposal facilities variable partially.

Ha_4 = There is influence between the household expenditure, healthy life motivation and maintenance of domestic wastewater disposal system variables and the availability of domestic wastewater disposal facilities simultaneously.

RESULTS AND DISCUSSION

The information on respondents used in this study is as follows.

Table 3. Respondent's Characteristics Based on the Availability of Wastewater Disposal Facilities

No	Indicator	Number of Respondents	
		Frequency	Percentage
1	Availability of wastewater disposal facilities		
	Available	32	32%
	N/A	68	68%
	Total	**100**	**100%**

Source: Primary data, processed

Table 3 shows that more than a half of total respondents or 68% do not have wastewater disposal facilities. Wastewater disposal facilities are greatly important to the household as they serve as reservoir or a place for disposal of waste generated from the daily household activities.

Table 4. Respondent's Characteristics Based on Health Information

No	Indicator	Number of Respondents	
1	Health Information	Frequency	Percentage
	Health Care Officer	42	42%
	Electronics	58	58%
	Internet	0	0
	Newspaper	0	0
2	Healthy life motivation		
	Health	43	43%
	Surrounding Environment	57	57%

Source: Primary data, processed

Table 4 shows respondent's characteristics based on health information and only 42% of the people receive information directly from health care officers. This condition illustrates that the role of health care officers in distributing or providing health information related to possession or management of domestic wastewater facilities is still limited. Thus, many people receive information from the electronic media.

Table 5. Respondents' Characteristics Based on the Household Expenditure

No	Amount of Household Expenditure	Frequency	Percentage (%)
1	< Rp. 499,000	0	0
2	Rp. 500,000 – Rp. 999,000	2	2
3	Rp. 1,000,000 – Rp. 1,499,000	80	80
4	Rp. 1,500,000 – Rp. 1,999,000	17	17
5	≥ Rp. 2,000,000	1	1

Source: Primary data, processed

People's motivation to implement healthy behavior is 57% still influenced by their surrounding environment. While the remaining number have implemented healthy behavior because they have observed the benefit and influences they may obtain for their survivability and quality of life, and this motivational background is often related to the surrounding people's behavior.

Based on Table 5, household expenditure according to the respondents is often exceeding their income and is mostly used to satisfy their need for food. This is caused by several factors, such as dependents, standard of living of respective household, etc.

Z test is a testing instrument conducted to examine the significance of each independent variable on the dependent variable. The research results show that based on Table 6 the variables influencing the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency are the entire research variables, including household expenditure, healthy life motivation, and maintenance of domestic wastewater disposal system with significant influence.

Table 6. Z test

Variable	z-Statistic	Prob.
X_1	1.646	0.099
X_2	1.896	0.057
X_3	5.302	0.000

Source: Primary data, processed

The research results are shown in Table 6 for X_1, stating that that the z value of household expenditure variable is 1.646 with significance of 0.099. It shows that influence between household expenditure and the availability of domestic wastewater disposal facilities in Semarang Regency partially, because the z-statistic value > z-table, that is, 1.646< 1.645 or

the probability value $< \alpha$, that is, $0.099 < 0.10$. Variable X_1 or household expenditure may influence the availability of domestic wastewater disposal facilities with $\alpha = 10$ %. The household expenditure variable significantly and positively influences the availability of domestic wastewater disposal facilities for 2.123. This may imply that in case of increase or decrease of household expenditure in Suruh Sub-district, Semarang Regency, there is a possibility of the availability of domestic wastewater disposal facilities to improve by 2.12% when compared to those people with lower household expenditure.

Due to the improvement in household expenditure resulted from the income that each household receives, there is a possibility of the availability of domestic wastewater disposal facilities to improve. This is due to the more established financial condition and the ability to satisfy the need for food appropriately which may result in higher purchasing power. Thus, the allocation of household expenditure to make available domestic wastewater disposal facilities may also have higher possibility.

Referring to the Theory of Engel related to household expenditure, Engel states that consumption of a good or type of good is significantly influenced by the level of income. The proportion of income incurred to buy any type of food will decrease as the level of income increases. This theory proves that the higher a person's income, the lower the percentage of income he/she may spend to buy food.

According to table 5 for X_2, the z value is 1.896 with significance of 0.057. It shows that influence between healthy life motivation and the availability of domestic wastewater disposal facilities in Semarang Regency partially, because the z-statistic value $>$ z-table, that is, $1.896 < 1.645$ or probability value $< \alpha$, that is, $0.057 < 0.100$. The results of probit binary regression analysis show that there are three explanatory variables which may significantly influence the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency, namely, healthy life motivation variable and maintenance of domestic wastewater disposal system variable which significantly influence the availability of domestic wastewater disposal facilities with $\alpha = 5$% and 10%.

Variable X_2 or healthy life motivation positively and significantly influences the availability of domestic wastewater disposal facilities with the coefficient value of 0.78. It implies that due to the improvement of people's motivation for healthy living in Suruh Sub-district, Semarang Regency, there is a possibility for the availability of domestic wastewater disposal facilities when compared to the people without healthy life motivation. People's motivation to implement the healthy living by 57% is still influenced by the surrounding environment. While the remaining numbers have applied healthy behavior as they have observed the benefits and influences they may obtain for their survivability and quality of life. Environment may form their healthy life motivation since healthy life motivation is also related to the information obtained by the people, thus their participation may directly preserve the environment such as in community work, simultaneous counseling provided by the sub-district officers in cooperation with health care officers.

In line with the statement of Effendy (2001) related to health information, it explains that health information is a part of education, because the definition of health education is identical to health counseling as both of them are oriented to expected change in behavior, that is healthy life behavior. Health information may

greatly influence the educated people's decision in terms of the availability of domestic wastewater disposal facilities.

According to tabel 5 for X_3, the z value is 5.302 with significance of 0.000. It shows that influence between maintenance of domestic wastewater disposal system and the availability of domestic wastewater disposal facilities in Semarang Regency partially, because the z-statistic value < z-table, that is, 5.302>1.906 or probability value > α, that is, 0.000<0.05. Variable X_3 or maintenance of wastewater disposal system positively and significantly influences the availability of domestic wastewater disposal facilities with the coefficient value of 2.966. due to the improvement of more routine maintenance of domestic wastewater disposal system in Suruh Sub-district, Semarang Regency, there is a possibility for the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency to increase when compared to those people who do not routinely perform the maintenance of domestic wastewater disposal system. It shows that the behavior of people who routinely perform the maintenance or awareness of good environmental health may influence every household to make the domestic wastewater disposal facilities available with the higher possibility when compared to those people who do not routinely perform the maintenance.

People's improvement on their awareness due to the importance of environmental health may encourage people's concern on the environmental health. People's concern on the environmental health may not arise automatically yet require various parties' participation to produce the qualified human resources concerning on the environmental condition (Beni, IGB & Ruslan,

2014). Thus, it proves that the other parties' encouragement may influence an individual's behavior. The theory of planned behavior explains a person's intention to conduct certain activity or behavior. In the theory of planned behavior, there is a perceived behavioral control factor that is considered as an individual's control perception he/she owns in connection with certain behavior (Ajzen, 1991).

In Likelihood Ratio Test, H_1 states that there is influence between household expenditure, healthy life motivation and maintenance of domestic wastewater disposal system and the availability of domestic wastewater disposal facilities in Semarang Regency simultaneously. Based on the calculation research results, the probability of LR-statistic value is 0.000. It shows that H_1 is accepted, because the probability value < α, that is, 0.000 < 0.050.

In this logistic regression test, the determination (R^2) is also analyzed. Determination coefficient (R^2) is in principle used to measure to what extent the model is able to explain the variation of dependent variable. The value of determination will be 0 – 1. Based on the calculation research results, the Mc Fadden R-Squared value is 0.6191. It shows that 61.91% of independent variable may explain its influence to the dependent variable, and 39% is determined by the other variable. Below is the results of probit binary regression, all variables are significant with α=5% and α=10%.

Table 7. Results of Probit Regression

Variable	Coeff	z-Stat	Desc.
C	-32.509	0.075	-
X_1	2.123	1.646	Significant**
X_2	0.786	1.896	Significant**
X_3	2.966	5.302	Significant*

Source: Primary data, processed

Explanation: (*) significant at 5%, (**) significant at 10%

Refers to Table 7, the regression may be formulated as follows:

$$P_i = -32.509 + 2.123X_1 + 0.786X_2 + 2.966.X_3 + \varepsilon_i$$

....(4)

The *Likelihood Ratio* testing results show that the household expenditure, healthy life motivation, and maintenance of domestic wastewater disposal system variable significantly influence the availability of domestic wastewater disposal facilities.

Thus, the economic variable, namely the household expenditure plays an important role in the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency. The higher the individual's income, the higher the chances of an individual to make allocations on their household expenditure, especially not related to their need for food or the provision of domestic waste facilities as they are already supported with the availability of adequate domestic waste management facilities.

CONCLUSION

Based on the results of analysis, it can be concluded that the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency is influenced by the economic, social and maintenance of domestic waste management facilities behavior factors. The household expenditure variable significantly and positively influences the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency.

It shows that most people in Suruh Sub-district, Semarang Regency have allocated their household expenditure to domestic wastewater disposal facilities. Access facilitation to information makes most people in Suruh Sub-district, Semarang Regency have healthy life motivation and awareness in the maintenance of wastewater disposal system. These encourage people in Suruh Sub-district, Semarang Regency to build domestic waste management facilities. However, other factors influencing the availability of domestic wastewater disposal facilities in Suruh Sub-district, Semarang Regency are undeniable. Due to the facts that healthy life behavior has not become the priority of some people that this study still requires the other indicators to be developed. Healthy life may lead to the people's welfare and productivity in their participation and may become an important part in the development processes, particularly those who concern on the economic activities.

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