

# The Impact of Education and Income on Environmental Health Aspects in Urban Households

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## ABSTRACT

Population density in urban areas increases in line with the increase in urbanization. One of the guidelines for healthy living is Clean and Healthy Life Behaviour (CHLB) in which one of the aspects discussed is environmental health. This study aimed to determine the correlation between the level of educational level and income to the environmental health aspect in CHLB of household order. Based on the purpose of this research, the method employed in this work was correlational analytic research. The research design used is included in the explanatory survey design. The sampling technique utilized in this research is purposive sampling. The research instrument employed in this study was in the form of a questionnaire. The data analysis technique used in this work was Spearman's Coefficient of Correlation with the level of significance of 0.05. There is a significant correlation between the educational level and income to the environmental health aspect in CHLB of household order. Education level is correlated to level of understanding and also related with healthy behavior. Income and healthy behavior are correlated with the need pyramid in Maslow theory. In the low income family, it stimulates to prioritize the fulfillment of life need than applying healthy behavior. In addition to self-motivation, healthy behavior can change with concerning in some aspect such as improve the level of community education, increase employment from various sectors, and encouraging them in community empowerment in the health sector.

**Keywords:** Education, Income, Environmental health aspects, CHLB of household order, Malang City.

## 1. INTRODUCTION

The rural area has classical problems such as limited facilities, infrastructure, and low job opportunities. On the other hand, the condition of the urban area is identical to the high number of job vacancies. This gap stimulates the increase in the people's movement from village to the city (urbanization). The urbanites aim to get a better life.

The population density stimulates the growth of slums. The majority of the slums do not fulfill the determined principle of environmental sanitation because they are built without good planning. The Mayor of Malang's decree on the Determination of Housing Environment and Slum 2015 mentions that there are 29 urban villages in Malang City categorized as dirty urban villages. Among the 29 political districts, Bareng Urban Village becomes the most defiled place with 81.56 hectares of soiled area. From eight Hamlets

in Bareng Urban Village, Hamlet 8 becomes the main priority in ordering the environment. It is due to the population density of Hamlet 8 that reaches 366.53 people/hectare and it is categorized as high.

One of the government programs that can be the guideline for people to live healthily is the Clean and Healthy Life Behaviour (CHLB) of Household Order. The CHLB also becomes one of the indicators as studied in Basic Health Research 2013. Based on the Basic Health Research 2013, the proportion of household that fulfills the criteria of CHLB in East Java is still above the national mean. However, East Java Province is at the lowest rate compared to the other provinces in East Java.

Based on the Profile of Health of Malang City 2014, the household with CHLB in 2014 reached 41.4% of 43386 households monitored in Malang City. Meanwhile, the working area of the community health center reached 1622 households (58%) from 2797

monitored households. However, this number has not fulfilled the target determined in the Development Strategy of National Health 2010-2014 in which one of the strategic targets determined is the improvement of CHLB in the household should achieve the level of 70%.

Some factors that possibly cause low CHLB is the low educational level and income. Based on the research of Ambarwati (2013:49) and Roni, et al. (2013), there is a significant relationship between education and income as well as the CHLB [1][2]. Goswami & Manna (2013:19) also explained that there are three important elements in human development namely healthy life, education, and financial welfare (income) [3].

This research focused more on the implementation of the environmental health aspect in the CHLB in the slums and this aspect is correlated to education and income. It is different from the research of Ambarwati (2013:49) and Roni, et al. (2013) that included all aspects of CHLB and the study was conducted in the low CHLB generally.

## 2. METHOD

This research aimed to determine the correlation between the educational level and income to the environmental health aspect in CHLB of household order. The populations of this research were all households in Hamlet 8, Bareng Urban Village; they were 929 households. The sampling technique used was purposive sampling. Based on the formulation of the number of samples for the correlational research in Sopiudin Dahlan's book entitled The Number of Sample and Sampling Technique in Research of Medicine and Health, the number of the needed samples are 92 houses. The instruments employed in this research were questionnaire, documentation, and observation.

## 3. RESULTS AND DISCUSSION

Both correlations were analyzed using Spearman Rank test. However, since the samples were 92 (>30), the t-test of the ranking should be done to test the significance. The following is the result of Spearman rank test.

**Table 1. The result of spearman rank test**

Variables	p	t Counting	t Table (5%)
Educational Level	0.530	5.930	1.645
Income	0.405	10.375	1.645

Table 1. explains that for the two correlations analyzed. The conclusion is that there is a significant correlation between the education and income to the

environmental health aspect in the CHLB of household order. That conclusion is aligned with several previously conducted research and some theories stated by some experts.

### 3.1. General Description of Research Location

Bareng Urban Village is one of eleven urban villages in Klojen Sub-District, Malang City. This urban village has a large area of 10.650 km<sup>2</sup> or 11% of the total large Klojen Sub-district area. The area of Bareng Urban Village is divided into eight hamlets and 74 neighborhoods.

The area of Hamlet 8 in Bareng Urban Village is passed through by Brantas River. The high population density brings about the riverbank area functions as housing land. The constriction of the river dimension also gives rise to the river water to overflow when the rain falls. The relatively serious problem is the people's behavior that is throwing away the feces into the river so that the river water is contaminated and polluted by the feces.

### 3.2. Educational Level

The educational level discussed in this research is the educational level of the head of the family. In this case, the head of the family becomes the highest decision-maker in a family so that all things happening in the family must be agreed on by the head of the family [4]. The following is the distribution of respondents' educational level.

**Table 2. Educational Level**

Indicator	n	%
Do not go to school / do not graduate from school	2	2.2
Graduate from primary school	19	20.7
Graduate from Junior Hingh School	16	17.4
Graduate from Senior Hingh School	45	48.9
Graduate from University	10	10.9
<b>Total</b>	<b>92</b>	<b>100</b>

Table 2 shows that most of the respondents are the graduates of Senior High School or equivalent which are 45 people (48.9%). There are three significant elements of human development namely a healthy life, education, and welfare. When such elements are not well fulfilled, the continual problem of any aspect will happen. The slum is one of the real examples. There is a relationship between the elements three components.

Income is always related to the standard of people's welfare level. One of the essential components in human development is welfare or income [3]. The following is the distribution of respondent's income.

**Table 3. Income**

Indicator	Frequency	Percentage (%)
Below the average (<Rp 1,639,022)	57	62.0
Above the average (>Rp 1,639,022)	35	38.0
Total	92	100

The respondents with a salary of less than Rp1,639,022 were 57 people (62%) from 92 respondents. Besides, the average income of Rp 1,639,022 is so far different from the minimum wage of Malang City that is Rp 2,470,073.29.

The poverty in the slum area causes limited access to any prime services. The highest spending is for accomplishing the need for food and living place. Such needs are not optimally met. The limited income leads to consume the food without caring for the principle of balanced nutrient and to live in an indecent place [5].

### 3.3. The Aspect of environmental Health in CHLB

Health has a strong relationship with social factors, such as the household, environment, school, peers, and neighbors [6]. The household order is a people's basic order in social scope. All aspects including behaviour, personality, growth, and risk of people's health are greatly affected by the household environment [7].

A household must fulfill all aspects of CHLB to be categorized as a "household with CHLB". In this research, the CHLB is only focused on the aspect of the environmental health. Only 35.9% of the respondents have accomplished all aspects of the environmental health in CHLB of household order. That number is still far from the expected target in National Health Development Strategy 2010-2014 that the enhancement of CHLB at the household level from 50% to 70%. One way to improve public health by promoting health. In modern era, an effective health promotion strategy is to utilize technology [8]. The following is the table related to the environmental health aspect in CHLB.

**Table 4. The aspect of environmental health in CHLB**

Aspect of CHLB	Percentage (%)	
	Yes	No

The Availability of Healthy Latrine	62.0	38.0
The Availability of Clean Water	78.3	31.7
Waste-Free	91.3	8.7
Housing Density	70.0	29.3
House Waterproof Floor	94.6	5.4

Based on the Table, the aspects of environmental health in CHLB in the society of Hamlet 8, Bareng Urban Village has relatively various levels. The below is the explanation of the aspects environmental health in CHLB.

### 3.4. The Aspect of the Availability of Healthy Latrine

The availability of the latrine is a human effort to keep the health and cleanness in the local environment. The good latrine does not pollute the drink water source and land surface completed with a septic tank. Generally, the distance between the water source and the septic tank is 10 meters [9].

The infeasible latrine may increase the risk of infection transmission, especially caused by parasite transmission [10] [11]. Access to healthy latrine could decrease diarrhea cases in households. Providing healthy latrine must be followed by good maintenance from the owner [12].

The condition in Bareng Urban Village looks better compared to the slum area in Mumbai. Mumbai, the densest city in India has more serious problems regarding the availability of the latrine. About 78% of households in that area that do not have the latrine in each home. Meanwhile, there is 8% of the households that still use the pit latrine [13].

The government of India has also undergone a big-scale sanitation program. That program includes the provision of a public toilet and the extension of a subsidy for poor families. Nevertheless, although that program cooperates with NGOs, it does not run maximally. The built toilets are not feasible. Moreover, people's awareness to use healthy latrine is still low [14].

Bareng Urban Village has carried out some efforts regarding the problem of septic tank availability by making a communal septic tank. That program is still implemented in the small scope. However, there is planning to expand the implementation of such a program so that it can reach all people who need it. The government of Indonesia has attempted to put into practice the healthy latrines in all elements. Based report from the Ministry of Health in 2014, the government promotes the program of People-Based Total Sanitation where one of the pillars is the behavior of stopping to defecate carelessly.

There are 4 obstacles for certain people to execute the sanitation well in their environment, namely individual, household, community, and social factors [15]. From them, the social and community factors are the principal factors of the unrealized healthy latrine in Bareng Urban Village. The factor of community is related to the financial difficulty of some households while the building and repairment of latrine need a relatively expensive cost. The social factor is related to the less suitable land condition and the flood disaster that often hits some points in that area.

Besides such factors, the active role of people and health workers around the area is also very important. The increase in people's awareness to use the healthy latrine, the visiting people's houses done by the health workers periodically and the maintenance of the available latrine should not be ignored [16].

### **3.5. The Availability of Clean Water**

There are five criteria of water source including the category of the clean water source, namely the available water source in each house, tasteless water, unsmelled water, uncolored water, and the space of the water source is minimally 10 meter from the septic tank especially for well water source.

Three parameters in those criteria are the basic parameters in detecting the clean water and they are easily applied by common people in case of color, taste, and smell. The watercolor indicates the presence of organic substances in the water such as industrial wastewater, metal content, and decomposing organic substance. The water smell is caused by some factors such as the organic substance content, the activity of bacteria, industrial waste, and the others [17].

### **3.6. Waste-Free**

There are three phases of waste management, especially solid waste, namely the stage of collection and storing, carrying, management, and destruction. The stage of waste collection and storing is managed by every household. The crucial thing in temporary storage is the construction must be strong, solid, covered, easy to be opened without dirtying the hands and easy to be carried away. The stage of waste carrying although commonly it has been handled by the cleanness worker, people's role also contributes to the process ease. The last is the phase of waste management and destruction. In this phase, all processes become the regional government responsibility [17].

The good waste management and following the procedure is essential, especially to harmful waste [18]. This case is because dangerous waste could contaminate food, water, air, and around the ground.

### **3.7. Housing Density**

The housing density becomes one of the requirements of a healthy house. There are four requirements of a house to be categorized as a healthy house namely house location, physical, physiological, and psychological requirements. The housing density has an important role in psychological requirement [17]. The high housing density causes physical and mental health problems [19]. Respiratory disease is easily transferred in the household environment especially the house with excessive density [20]. The housing density also raises the disturbance for the serenity, individual, family, or people around. The members of the house with the high density also bring about the enhancement of stress level indicated by, for example, the increase in blood pressure.

### **3.8. House Waterproof Floor**

The occupant of the house with soil or sand floor has a higher prevalence of worm infection and transmitted through soil than the house with a waterproof floor. The soil or sand-floor is very difficult to be cleaned so that it leads all types of pathogens to gather and the household environment is contaminated [21].

### **3.9. Educational Level and Environmental Health Aspect in Clean and Healthy Life Behaviour of Household Order**

The knowledge level is correlated to someone's level of understanding and awareness in implementing the CHLB [1]. Someone with higher education has a better understanding of a clean and healthy life. Hence, consciously, the principles of healthy life will be implemented in daily life. Not only that, but high education also improves someone's intellectual maturity. This case makes an individual think in the long term so that it orients more on the preventive action [22].

High education well influences health. Education fixes someone's chance of getting a job. Education also enhances the income so that it enables an individual to access better health services and live in a better environment [14]. Based on the RIVM Forecast Report 2014, the educational level gives an impact on someone's life expectancy. The life expectancy of a highly educated person is six years longer than low educated people [23].

Based on the theory stated by Talcott Parson, the behavior is influenced by the social and cultural systems as well as personality. Education is an element of the social structure affecting the social system so that it can be concluded that education gives an effect on behavior [2]. There is also a theory explained by H.L. Blum that healthy behavior is affected by social, cultural, economic, and political factors. One of the social factors is education [2]. Another theory of behavior is

explained by Lawrence Green. In this theory, education is a supporting factor in someone's behavior change [7].

### 3.10. *Income and Environmental Health Aspect in CHLB of Household Order*

The income level influences their CHLB. The income will impact someone in obtaining information on health [22]. By gaining the information, someone can easily understand the information on health and determine the choice of whether that information is useful and can be applied in daily life. Generally, people understand the CHLB. Nevertheless, because of the low income, most of the people could not apply the CHLB totally [2].

Research explains that family income influences the CHLB [1]. The low family income stimulates the family to prioritize the fulfillment of life need than applying CHLB. It is by the need pyramid mentioned in Maslow's theory.

Maslow states in his theory of the need pyramid that everyone looks for satisfaction in fulfilling his/her increasing needs. The needs are divided into five levels starting from the lowest one namely basic physiology need, safety, social need, award need, and the need for self-actualization. In this hierarchy, the higher need cannot be met before accomplishing the previous lower need [24]. From the level of need pyramid, health is in the need for safety. Before fulfilling such needs, someone must accomplish the physiological need first [24]. The family with low income will tend to accomplish the basic needs first. Eating, clothing, housing, and the other biological needs are attempted to be fulfilled although in not optimal conditions.

One of the main problems of urbanization is the inability of the city to build the infrastructure. On another side, the public facility is necessary for the process of certain city development [25]. Besides, the poor basic facility in the slum area will impact on the health of the residents in the slum. As a consequence, the limited income is still reduced to balance the negative effects of the slum [13].

## 4. CONCLUSION

The level of education and income has a significant relationship with environmental health aspect in the CHLB of the household order. In addition to self-motivation, healthy behavior can change with concerning in some aspect such as improve the level of community education, increase employment from various sectors, and encouraging them in community empowerment in the health sector.

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