

Relationship between Fisherman Knowledge About Environmental Sanitation, Healthy Life Attitude, and Income on Quality of Fisherman Environmental Healthy Housing

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Abstract

This research aims to determine the relationship between knowledge about environmental sanitation, healthy life attitude, and income on quality of environmental healthy housing at Muara Angke North Jakarta, Indonesia. The method used was quantitative with a correlation study by applying regression and correlational analysis. Research results showed there was a significant correlation between fisherman knowledge about environmental sanitation, healthy life attitude, and income with fisherman quality of environmental healthy housing (0.01), where the figure was much lower than the level of sig 0.05. These results indicated that knowledge about environmental sanitation, healthy life attitude, and income has significantly contribution on the quality of environmental healthy housing. Therefore, if fisherman quality of environmental housing should be improved, factors such as knowledge about sanitation, healthy life attitude and income could be taken into consideration.

Keywords: Knowledge environmental sanitation; Healthy life attitude; Income; Quality environmental healthy.



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1. Introduction

Fishery is an important sector in most of the developed and developing countries of the world from the standpoint of income and employment generation. The experience in these countries indicate that the growth of the fishing sector stimulates the development and employment in related industries which contribute significantly to the total economic growth of the country. Besides providing direct employment, the industry is also an income generator as it supports canneries, processing establishments, gear and equipment manufacture, boat yards, refrigeration and ice making plants, and transport services in addition to those working in governmental and private fisher based institutions. Fisheries play an important role in augmenting food supply and raising nutritional levels of the population. Besides being an article of protein rich food, fish also yields several by-products such as fish oil, fish meal, fish manure fish leather, fish glue and isinglass etc.

Fishermen are groups of people who relied heavily on sea condition (Kusnadi, 2007). According to the Central Statistics Agency (BPS) in 2016, the poor in Indonesia reached 34.96 million of people and 63.47% of them are people who live in coastal and rural areas. The National Committee of Indonesian Fishermen Organization (KPNNI) of 2016 states that approximately 90% of fishermen in Indonesia live in poverty. The data shows that the development and management of coastal areas has not contributed to the welfare of fishermen.

Conditions of fishing communities or the coastal communities in the various regions in Indonesia are generally characterized by the presence of several characteristics, such as poverty, social and cultural backwardness, low quality of human resources because most people only primary school or have not completed primary school, lack of function from the presence of Enterprise Group (KUB), Microfinance Institutions (MFIs), or the capacity of civil society organizations (Kusnadi, 2007).

Satria (2009) argues that poverty, unequal social structures, environmental degradation and lack of basic infrastructure are some of problems faced by the fishermen. It was also stated by Dahuri (1996), that the conditions and problems commonly experienced by fishermen are as follows: isolated coastal village, basic services facilities including physical infrastructure is still limited, poorly maintained environmental conditions, which that does not meet the requirements of health standard, low income people, because the technology does not support large scale fishing, limited fishing equipment ownership, equity issues because of the scarcity of financial institutions, education and knowledge of people is generally low.

Budihardjo (2009) suggested that a viable and healthy home should at least meet the following criteria: (a) Must meet the physiological needs; include optimal temperature in the house, lighting, protection against noise, good ventilation, as well as the availability of space for exercise and play for children. (b) Must meet the psychological needs; include guarantees "privacy" is enough, opportunity and freedom to be a normal family life, a harmonious relationship between parents and children, the fulfillment of the requirements of social manners, and so on. (c) May provide protection against the transmission of disease and contamination; include the availability of water supply that meets the requirements, the sewerage facilities, availability of facilities to store food, avoid insects or other pests that may play a role in the spread of the disease. (d) Can provide protection / prevention against the risk of an accident in the house; include robust construction, to avoid the danger of fire, the prevention of the possibility of accidental falls or other mechanical accidents.

The majority of residents in the study area is fishermen with low income. With very limited economic conditions, the condition of the house was also very simple and can even be said to be not in accordance with the terms of health standard (not habitable). Housing conditions were less well maintained and condition of high-density residential (houses attached to each other) were vulnerable in case of fire. The condition of the house was not well maintained and with high population density, did not meet the physiological and psychological needs (susceptible to noise, lack of lighting, air circulation is not good, the lack of space for children's play and the lack of adequate privacy). The residents in the study area are not able to provide protection against the transmission of disease and accidental fire hazard. Therefore, it can be concluded that the circumstances were not yet habitable. Inadequate housing is also one of the problems encountered in the study area.

The fishermen just completed primary school education and some have not finished primary school, so that knowledge and skills are extremely limited. Therefore when the fishermen not work in case of bad weather, generally they are unemployed because they do not have sufficient skills to work on other activities. These conditions impact on low economic level in particular the fishermen families. This is one reason that drives women (wives of fishermen) to participate in the economic burden of the family by working. Earned income can help to sufficient needs of daily life when the head of the family (fisherman) not being at sea in a long time. Hence the limited of people skills is also a problem encountered in the study area.

The skill and mastery of fisheries technology is also very minimal. Skills and technology used in fishing is unsophisticated and very limited capital owned. This conditions and any limitations do not support the large-scale fishing. Therefore the income of the fishermen in the study area is low and erratic. The fishermen in the study area have limited and very ordinary tools. Capital problem due to scarcity of financial institution also happened in the study area. Limited financial institutions that are able to reach the low-income community, especially fishermen became one of the obstacles face.

Kusnadi (2007) argued that the conditions of fishing communities or the coastal communities in various areas generally characterized by the presence of several characteristics, such as poverty, social and cultural backwardness and the poor quality of human resources (HR). The low level of education and knowledge of the society are also found in the study area. The majority of residents in the fishermen area and most of the fishermen were low levels of education and lack of skills and knowledge. They have limited employment opportunity. In addition to the problems mentioned above, there are also some problems that occur in the study area. Those problems are as follows: (1) The risks of accidents at sea. At the time of fishing, there is often a fisherman who lost in the waves, especially in the bad weather. (2) The problem of limited fuel for ships. When solar scarce, the fishermen are very difficult to meet the fuel needs, consequently forced fishermen not to sail. (3) Although in Muara Angke many fish factories exist, that the fishermen feel that the market price of fish often unstable. The fishermen really hope the government can provide a solution to this problem.

According to Hasanuddin *et al.* (2013), the result shows that poverty is still a major problem faced by the fishermen in the study area. Poverty is evident in economic life of the fisherman and their housing condition. Basically, the problems faced by the fishermen can be classified into two general problems, namely (1) the problems encountered related to socio-economic life of fishermen and (2) the problems related to the physical condition of housing/ settlement area. In terms of socio-economic sustainability of the profession as a fishermen, the problems faced include low income, limited capital and fishing equipment, low education level and lack of skill and technology. While in terms of physical condition of the fishermen settlement area, the problems faced include lack of basic services, lack of water supply and inadequate sanitation, poorly maintained environmental conditions as well as conditions of fisherman housing that looks slum and unhealthy. In an effort to improve the welfare of the fishermen and poverty eradication, local governments have established some policies and development programs. Our study shows that the implementation of the policies and programs has not been able to overcome the problems faced by fishermen and not been able to eradicate fisherman poverty. Government assistance given to fishermen are often not effective and not appropriate with the needs of the fishermen.

Building quality of environmental healthy housing of people across the nation including Indonesia is faced with difficult and complex decisions about how to respond to change, plan wisely, and improve the quality of life for all its members. Suburban societies deal with a group of people who threaten the quality of the environment and space that initially attracted the attention of citizens. The human building resources by improving the quality of environmental healthy housing through the fulfillment of basic living standards. Wayne and Hoy (2013) on the basic human hierarchy of needs theory: physiological needs, the need for security, the need for love and social relationships, the need to be respected, and the need for self-actualization. So human life can continue to survive when these basic needs can be fulfilled.

Lunenburg and Orstein. (2012), said that the quality of environmental healthy housing can also be influenced by the social environment, human as individuals and as members of society, human interaction with other communities will foster a sense of togetherness in developing quality of life. Maslow's hierarchy of needs theory that social needs is the third basic need, social needs include affection, affiliation, friendship, and love. Those who reach the third level in this hierarchy have satisfaction especially the physiological and security needs. Michalos (2007) defines quality of life or wellbeing of an individual or community as a function of the actual conditions of that life and what an individual or community makes of those conditions. What a person or community makes of those conditions is in turn a function of how the conditions are perceived, what is thought and felt about those conditions, what is done and, finally, what consequences follow from all these inputs.

Domains of the QOL serve as a framework for propositions for change. The identified 10 domains that reflect a consensus of past scholarly work. The 10 domains are subject to modification in a specific society, depending upon

the cultural norms that define the good life. Domains include survival of the species, social acceptance, mastery, affective autonomy, intellectual autonomy, egalitarian commitment, harmony, conservatism, hierarchy, and health. These 10 domains provide the framework of this study. In what follows, I shall define each of the 10 domains, show some redundancy among them, and state propositions that will point to a better QOL. While the 10 domains were based upon the categories identified by numerous scholars of the QOL, they correspond in the main with categories developed by the Organization for Economic Co-operation and Development (OECD) in the 1990s.

OECD has promoted the development of national social reports and provided an outline of topics, which is essentially the same as the categories proposed as a comprehensive taxonomy of social quality. The OECD categories of social quality are listed below. The corresponding domains used herein are in parentheses (Ferriss, 2010): (1) Health – length of life, healthfulness of life (Survival, Health); (2) Education – use of educational facilities, learning (Intellectual Autonomy); (3) Employment – availability of employment, quality of working life (Mastery, Hierarchy); (4) Command over goods and services – income, wealth (Hierarchy); (5) Physical environment – housing conditions, access to services, environmental nuisances (Harmony); (6) Personal safety – exposure to risk, perceived threat (Conservatism); (7) Social environment – social attachment (Social Acceptance, Affective Autonomy); (8) Time and leisure – use of time (Egalitarian Commitment, Health).

Environment is one of the determinants of health of individual, family and community at large people's health is affected by the quality of place they live and work and air they breathe, the water they drink and the food they consume. It is the environment which predisposes people to various agents it may have and may cause any disease or health problems. The quality of environment is deteriorating very fast especially because of population explosion, industrialization and urbanization, deforestation, automobiles, nuclear technology and green revolution. In 2012, a study conducted by World Health Organization reported that, there was a return of 5.5 USD with respect to lower health costs, more productivity and fewer premature deaths for every 1 USD invested in sanitation. Though, since 1990, there has been an improvement in sanitation with the proportion of people having access increasing from 54% to 68%, the Millennium Development Goal target by 2015 was not achieved, as up to 700 million people remaining to attain the target, were still without adequate sanitation.

About 2.4 billion people globally live under highly unsanitary conditions and have such poor hygiene behaviors that their exposure to risks of incidence and spread of infectious diseases, are enormous. Water stored at home is frequently contaminated by inadequate water management in the home. These issues are receiving increasing attention, but considering the huge backlog within the sector there is still a need for greater mobilization of resources and involvement of decision-makers at all levels. Sectoral demands for water are growing rapidly in India owing mainly to urbanization and it is estimated that by 2025, more than 50% of the country's population will live in cities and towns. Population increase, rising incomes, and industrial growth are also responsible for this dramatic shift. National Urban Sanitation Policy 2008 was the recent development in order to rapidly promote sanitation in urban areas of the country. India's Ministry of Urban Development commissioned the survey as part of its National Urban Sanitation Policy in November 2008. In rural areas, local government institutions in charge of operating and maintaining the infrastructure are seen as weak and lack the financial resources to carry out their functions. In addition, no major city in India is known to have a continuous water supply and an estimated 72% of Indians still lack access to improved sanitation facilities Kumari *et al.* (2016). Progress bringing about a clean environment which has relied on a philosophy of pollution control; this has involved sometimes costly measures and controversial political decisions. Developing countries, poor communities and financially enterprises have often argued that the environment is an expensive luxury that diverts resources from more productive uses.

A study from (Supraba, 2015) on the relationship between social activity and social interaction and family function with quality of environmental healthy housing of elderly concluded that most respondents aged 60-74 years (83.33%), female sex (76.39 %), low education (83.33%), unemployment (79.86%), low income (65.52), normal nutritional status (63.19%), married status (71.53%), health status (58.33%), Quality of life is less likely to occur in older elderly, women, low educated, not working, low income, widow or widower status, social activity, social interaction, family function correlated significantly with quality of environmental healthy housing elderly and the most closely related factors with the quality of environmental healthy housing of the elderly are family functions.

The research results from international journals (1991) held in Brussels, on quality of environmental healthy housing relevant to health and health care. The public promotes rigorous health-related quality of life measurement studies from conceptualization to application and practice, educational outreach, and collaborative support for quality life initiatives (Walters, 2009). Previous research on quality of environmental healthy housing, social support and gender is a study conducted by Xu *et al.* (2012), the results of his study provide an overview of HRQL status (health relation quality of life) to civil servants in China concludes that lifestyle factors affect HRQL. Further research conducted by Gomez-Piriz *et al.* (2014). The results showed that active parents felt a better quality of environmental healthy housing than parents who did not perform activities, a statistically significant difference for dimensions directly related to their daily lives. The usual perception of pain affects activities, perceptions of general health, mental health and general wellbeing and even differences in handling their emotional problems.

Based on the results of previous research, in this study the quality of environmental healthy housing is associated with knowledge about environmental sanitation, healthy life attitude, and income. Therefore, this research would like to study about the relationship between knowledge about environmental sanitation, healthy life attitude, and income on quality of environmental healthy housing.

2. Literature Review

The traditional fishers who had no other employment option suffered as a community they continued to lag behind others in the rest of the state in all areas of development (Bindu, 2011). Fishermen mean the person who engaged mainly in fishing and related activities for their livelihood (Ambili, 2007). They are very close to nature and element of great risk to life make him as superstitious as he is generous and care free. The greatest asset of fishermen in Muara Karang is their accumulated Knowledge about the fish, fish habits, waves, currents and stars. They have a tradition of learning by doing, handed over from generation to generation (Kurien, 1986). Bhagawathi in Joseph (2015). Family background influences mental ability of children through pre-natal and post-natal care, intake of food, and the ability to go through a sustained educational process.

To go to school implies keeping away from fishing. Most of the arts of fishing, particularly with traditional craft ad gear, can only be pick up through a process of learning by doing from young age. Consequently schooling on one hand result in putting the out of their traditional occupation (Kurien, 1986) and also the dropout rate is higher in fisher folk. Mainly because of the reason such as : (a) Problem of crowding, (b) Health condition, (c) The Housing Problem, (d) Recreational Facilities, (e) Economic backwardness, (f) Behavioral issues, (g) Teacher-Student relationship, (h) Lack of Finance, (i) Inadequate facilities for studying, (j) Lack of parallel attention and encouragement from parents, (k) Influence of political party, (l) Mass Media Participation, (m) The high rate of unemployment among the educated children of fishermen have a negative influence on educational development.

The understanding on the quality of life of fishermen is taken from the definition of quality of life. The best way of approaching quality of life measurement is to measure the extent to which people's 'happiness requirements' are met - ie those requirements which are a necessary (although not sufficient) condition of anyone's happiness - those 'without which no member of the human race can be happy' (McCall, 1975). Grant *et al.* (1990) also define quality of life as 'a personal statement of the positivity or negativity of attributes that characterize one's life'. Taking these definitions into account, health related quality of life is defined here as optimum levels of mental, physical, role (e.g. work, parent, carrier, etc.) and social functioning, including relationships, and perceptions of health, fitness, life satisfaction and well-being. It should also include some assessment of the patient's level of satisfaction with treatment, outcome and health status and with future prospects. It is distinct from quality of life as a whole, which would also include adequacy of housing, income and perceptions of immediate environment.

Puja, (2015) in Kumari *et al.* (2016), Environment: The term environment has been derived from a French word "Environia" means 'to surround'. It refers to both a biotic (physical or non-living) and biotic (living) environment. The word environment means surroundings, in which organisms live. Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater.

According to Olawale and Olatunji (2014), that regular environmental sanitation helps reduce the risk of epidermis in the community. The study therefore recommended that people should be enforced to participate in the monthly environmental sanitation program and punish offenders so as to serve deterrent to others in the community. Also, the refuse incinerators should place in market place and motor parks so that people will be able to dump their waste inside instead of roadside or inside the rivers. WHO (2017) in Duru (2017), Environmental sanitation is a set of actions or a fundamental process of collecting and safely disposing all kinds of waste within the environment with the intention of protecting and promoting the individual health and quality of life of communities. Environmental sanitation generally includes the provision of facilities and services for the safe disposal of waste, the maintenance of hygienic conditions and the prevention of diseases. So it is a key public health intervention that is essential for social and economic development especially in developing countries. This leads to the improvement of health, well-being and economic productivity and benefits the individual, household and community through the provision and practice of adequate sanitation, good hygiene and the use of safe water Mara *et al.* (2010).

Blaxter (2005), said that the Health was identified as having three dimensions: the simple absence of disease, a 'reserve' of health determined by temperament and constitution, and a positive state of well-being or 'equilibrium'. In relation to health, health status is increasingly referred to as quality of life, and, so as to narrow down its operationalization in research studies, quality of life is increasingly referred to as health related quality of life. Health-related quality of life, like subjective health status, is patient based, but focuses more on the impact of a perceived health state on the ability to live a fulfilling life.

According Hahn *et al.* (1988), This perspective is giving way to a new paradigm stating that neglecting the environment can impose high economic and, even financial costs, while many environmental benefits can in fact be achieved at low cost. The sole dependence of people on marine fishery for their livelihood itself is a major challenge. The stock of resources is reported as depleting and the resulting conflict prevails between the traditional fishermen and the capitalists. The policy connected with deep sea fishing is allegedly making distress to fishermen. All this indicate that the future of fishermen will be in darkness. Most of the fishermen are severely indebted, addicted to alcohol & drugs, under educated and lacking skills for alternate employment. It helps occasionally in mushrooming of the illegal activities and attracts more and more unemployed youth. Darkened expectation in life, illiteracy, lack of awareness & counselling support, rising influence of alcohol and drugs, rise in communalism and criminal tendencies, etc. are some of the reasons for such social issues. On a whole, backwardness becomes the hallmark of fisherman. This vicious circle of poverty needs to be broken so that a virtuous circle of prosperity is set in motion by 2030.

Socio-Economic development refers to the increase in the per capita income and enhancement of living standard. Economic growth invariably reflects the social status of the community. Contrary to that in the case of fisherman, even though the marine fisheries development came about for the last four decades put more money in

their hands; the social standard of living doesn't show any appreciable improvement. It was due to the fact that, fisherman had been exploited by middle man. The schemes implemented by the Government to improve the socio-economic status of fishermen can't also completely reach to the fisherman. The economic development of fisher folk is mainly correlated with fish catch, its beach price, number of effective man days, fuel cost, expenditure pattern, education status, health care etc.

3. Methodology

The purpose of the research is to find a positive relationship between knowledge about environmental sanitation with fisherman quality of environmental healthy housing; between healthy life with fisherman quality of environmental healthy housing; between income with fisherman quality of environmental healthy housing; and between knowledge about environmental sanitation, healthy life, and income together with fisherman quality of environmental healthy housing.

This research used survey method. Sampling is done by simple random sampling. The method used was survey with a correlational study by involving 120 sample. The technique of validity testing of grains is done by determining the correlation coefficient between grain score and total score. Determination was using product moment correlation formula. While to determine the coefficient of instrument reliability is calculated by using Cronbach alpha formula. There were four instruments which measured Fisherman quality of environmental healthy housing (rel. 0.91), Knowledge about environmental sanitation (rel. 0.79), Healthy life (factual data), and Income (rel. 0.92). Testing requirements analysis consisting of normality test and homogeneity test. Normality test in this research is Lilliefors test. Homogeneity test is done to see the degree of difference or variation of individual data values that exist in the data set. Homogeneity test was done by Bartlett.

Data analysis in this research is done by descriptive statistic and inferential statistic. Descriptive statistics are used to describe data of research variables, among others, in the form of mean, median, mode, range, and standard deviation. Descriptively, data is also displayed in the form of frequency distribution and histogram. Inferential statistics are used to test hypotheses using correlation and regression techniques.

Testing the first, second and third hypotheses each performed with a simple correlation and regression technique is the product moment of Pearson. Meanwhile, the fourth hypothesis testing is done by correlation and multiple regression techniques. In addition to testing the hypothesis, in the analysis is also done testing the correlation coefficient by controlling certain independent variables in stages to other independent variables called partial correlation coefficient.

4. Results and Findings

The shape of the relationship between knowledge about environmental sanitation with quality of environmental healthy housing could be seen in the regression equation which generates the direction of regression coefficients and constants $b = 0.78 = 21.78$. To determine the degree of significance (level of significance). The F was subsequently tested, as shown in the following table:

Table-1. Linear Regression ANOVA Table Y on X_1 ; $\hat{Y} = 21.78 + 0.78X_1$

Source of Variance	Degree of freedom (df)	Sum of Square (SS)	Means Square (MS)	F _{count}	F _{table}	
					0.05	0.01
Total	120	154.492				
Coefficient (a)	1	151.230				
Regression (b/a)	1	1053.63	1053.63	56.30**	3.93	6.86
Residual	118	2208.37	18.71			
Deviation from linearity	13	433.70	33.36			
Error	105	1774.70	16.90	1.97 ^{ns}	1.84	2.32

According to the table above, it shows that, the resulting regression equation was significant where the F count = $56.30 > F_{table} = 6.86$ with a regression model $\hat{Y} = 21.78 + 0.78X_1$. Therefore there was a positive relationship between quality of environmental healthy housing with knowledge about environmental sanitation which was very significant. Next a large correlation coefficient between knowledge about environmental sanitation with on quality of environmental healthy housing was found, as shown in the following table:

Table-2. Test of Coefficient Correlation (r_{y1})

Correlation coefficient	t_{count}	t_{table}	Explanation
$r_{y1} = 0.57$ $n = 120$	7.60**	2.33	The correlation coefficient is highly significant at $\alpha = 0.01$. The correlation coefficient = 0.57. The determination coefficient = $(0.57)^2 \times 100\% = 32.49\%$. Means that : There is highly significant correlation between the knowledge about environmental sanitation with quality of environmental healthy housing. The variation on quality of environmental healthy housing is determinate by 32.49% of the knowledge about environmental sanitation variation through the regression model $\hat{Y} = 21.78 + 0.78X_1$.

The shape of the relationship between healthy life attitude with quality of environmental healthy housing could be seen in the regression equation which generated the direction of regression coefficients and constants $b = 0.79 = 3.58$. To determine the degree of significance (level of significance). F was next tested, as shown in the following table:

Table-3. Linear regression ANOVA Table Y on X_2 : $\hat{Y} = 3.58 + 0.79X_2$

Source of Variance	Degree of freedom (df)	Sum of Square (SS)	Means Square (MS)	F_{count}	F_{table}	
					0.05	0.01
Total	120	154.492				
Coefficient (a)	1	151.230				
Regression (b/a)	1	1600.06	1600.06	113.61**	3.93	6.86
Residual	118	1661.94	14.08			
Linearity Deviation	20	410.40	20.52	1.61 ^{ns}	1.69	2.07
Error	98	1251.50	12.77			

** $P < .01$ ^{ns} = Non significant

According to the table above, it showed that, the resulting regression equation to be significant where the F count = 113.61 > F table = 6.86 with a regression model $\hat{Y} = 3.58 + 0.79X_2$. Therefore there was a positive relationship between the quality of environmental healthy housing with healthy life attitude which were very significant.

Next, a large correlation coefficient between healthy life attitude with quality of environmental healthy housing was found, as shown in the following table:

Table-4. Test of Coefficient Correlation (r_{y2})

Correlation coefficient	t_{count}	t_{table}	Explanation
$r_{y2} = 0.69$ $n = 120$	10.3**	2.33	The correlation coefficient is highly significant at $\alpha = .01$ The correlation coefficient = 0.69 The determination coefficient = $(0.69)^2 \times 100\% = 47.61\%$ Means that : There is highly significant correlation between the healthy life attitude with on quality of environmental healthy housing. The variation of quality of life is determinate by 47.61% of the healthy life attitude variation through the regression model $\hat{Y} = 3.58 + 0.79X_2$.

** $P < .01$

The shape of the relationship between income with quality of environmental healthy housing could be seen in the regression equation which generated the direction of regression coefficients and constants $b = .08 = 27.93$. To determine the degree of significance (level of significance). The F was subsequently tested as shown in the following table:

Table-5. Linear Regression ANOVA Table Y on X_3 ; $\hat{Y} = 27.93 + 0.08X_3$

Source of Variance	Degree of Freedom (DF)	Sum of Square (SS)	Means Square (MS)	F _{count}	F _{table}	
					0.05	0.01
Total	120	154.492				
Coefficient (a)	1	151.230				
Regression (b/a)	1	1723.64	1723.64	132.21**	3.93	6.86
Residual	118	1538.36	13.04			
Linearity Deviation	11	248.36	22.58	1.87 ^{ns}	1.88	2.43
Error	107	1290	12.06			

** P < 0.01 ^{ns} = Non significant

According to the table above, the resulting regression equation demonstrated that it was significant where the F count = 132.21 > F table = 6.86 with a regression model $\hat{Y} = 27.93 + 0.08X_3$. Therefore there was a positive relationship between the quality of environmental healthy housing with income which was very significant. A large correlation coefficient between income with quality of environmental healthy housing could be seen in the following table:

Table-6. Test of Coefficient Correlation (r_{y3})

Correlation coefficient	t _{count}	t _{table}	Explanation
$r_{y3} = 0.73$ $n = 120$	12**	2.39	The correlation coefficient is highly significant at $\alpha = 0.01$ The correlation coefficient = 0.73 The determination coefficient = $(0.73)^2 \times 100\% = 53.29\%$ Means that : There is highly significant correlation between the income with quality of environmental healthy housing. The variation on quality of environmental healthy housing is determinate by 53.29% of the income variation through the regression model $\hat{Y} = 27.93 + 0.08X_3$.

** P < .01

The shape of the relationship between knowledge about environmental sanitation, healthy life attitude, and income with quality of environmental healthy housing could be seen in the regression equation which produced a directions regression coefficient $b_1 = 0.48$, $b_2 = 0.29$, $b_3 = 0.05$, and the constant = 14.92. To determine the degree of significance (level of significance). The F was tested, as shown in the following table:

Table-7. ANAVA Multiple Regression Table; $\hat{Y} = 14.92 + 0.48X_1 + 0.29X_2 + 0.05X_3$

Source of Variance	Degree of freedom (df)	Sum of Square (SS)	Means Square (MS)	F _{count}	F _{table}	
					0.05	0.01
Total Direduc	119	3262				
Regression	3	2394.48	798.16			
Residual	116	867.52	7.48	106.73**	2.68	3.95

** P < 0.01

According to the table above, the resulting regression equation showed it was significant where the F count = 106.73 > F table = 3.95 with a regression model $\hat{Y} = 14.92 + 0.48X_1 + 0.29X_2 + 0.05X_3$. Therefore, there was a positive relationship between on quality of environmental healthy housing with the knowledge about environmental sanitation, healthy life attitude, and income which was very significant.

A large correlation coefficient between knowledge about environmental sanitation, healthy life attitude, and income with quality of environmental healthy housing could next be seen, as shown in the following table:

Table-8. Table of Relationship between knowledge about environmental sanitation, healthy life attitude, and income with quality of environmental healthy housing

Correlation coefficient	F _{count}	F _{table}	Explanation
$R_{y123} = 0.86$ $n = 120$	106.73**	3.95	The correlation coefficient is highly significant at $\alpha = 0.01$ The correlation coefficient = 0.86 The determination coefficient = $(0.86)^2 \times 100\% = 73.96\%$. Means that : 73.96% of the quality of environmental healthy housing variation determinate together with the variations of the knowledge about environmental sanitation, healthy life attitude, and income through the linier regression model, as follows: $\hat{Y} = 14.92 + 0.48X_1 + 0.29X_2 + 0.05X_3$.

** P < 0.01

From the table above, the value of the correlation coefficient between the knowledge about environmental sanitation, healthy life attitude, and income with quality of environmental healthy housing of $R_{y123} = 0.86$. The higher the knowledge about environmental sanitation, healthy life attitude, and income, the higher was the quality of environmental healthy housing.

Results of testing the first hypothesis, suggested that knowledge about environmental sanitation was positively related to the quality of environmental healthy housing. The shape of the positive relationship indicated by the regression equation $\hat{Y} = 21.78 + 0.78X_1$ with t count > t table and the strength of the relationship $r_{x1y} = 0.57$ with a coefficient of determination of 32.49.

Increased the quality on environmental healthy housing was shown to be determined by knowledge about environmental sanitation. The knowledge about environmental sanitation in the study included the terms, facts, customs, trends, classifications, categories, methods, principles, theories and structures concerning water supply facilities, waste water disposal facilities, human waste disposal facilities, and waste disposal facilities.

The basic theoretical reference used in describing the quality on environmental healthy housing such as knowledge about environmental sanitation using the theory of Responsible Behavior Models to the Environment adapted from Model Hines *et al.* (1986). And Convoy Model of Social Relations by Mollenkoph and Walker (2007). Further research results by Feinstein *et al.* (2006), We conclude that the health productivity of learning requires considerably more attention from policy makers than it has hither to received. This is not primarily a question of providing more specific health-based learning but of recognizing and investing in the wider impact of general learning in education contexts through the life course.

The results of testing the second hypothesis, suggested that healthy life attitude was positively related to the quality on environmental healthy housing. The shape of the positive relationship indicated by the regression equation $\hat{Y} = 3.58 + 0.79X_2$ with t count > t table and the strength of the relationship $r_{x2y} = 0.69$ with a coefficient of determination of 47.61. Increased the quality on environmental healthy housing was shown to be determined by healthy life attitude. The healthy life attitude in the study included the dimensions of cognitive, affective, and conative to attitude objects include disease prevention and treatment, nutrition fulfillment, home and environmental hygiene, mental and social health.

The basic theoretical reference used in describing the quality on environmental healthy housing such as healthy life attitude using the theory of Responsible Behavior Models to the Environment adapted by from Model (Hines *et al.*, 1986). According to Whittington and Lauria (1992), that attitudes toward healthy living will encourage better sanitary conditions in residential neighborhoods.

The third hypothesis testing results, showed that income was positively related to the quality on environmental healthy housing. The shape of the positive relationship indicated by the regression equation $\hat{Y} = 27.93 + 0.08X_3$ with t count > t table and the strength of the relationship $r_{x3y} = 0.12$ with a coefficient of determination of 73.96. The success of the quality on environmental healthy housing was determined by the income. The income total amount of Rupiah received by the head on the household or household members derived from various sources of income from the main occupation of income from other sources within a period of one month. According to Nasir (1990) which states that people with low incomes, the quality of the health of their home environment is not healthy. (Whittington and Lauria, 1992), in his research in the Kumasi community of Ghana said, to get a better sanitary environment settlement conditions required some funds. Sanitation facilities obtained by communities in developing countries are adjusted to the existing funds. In general, with high incomes they are able to purchase or establish a better means of environmental sanitation facilities.

Results of testing the fourth hypothesis, suggested that the knowledge about environmental sanitation, healthy life attitude, and income together were positively and significantly associated with the quality on environmental healthy housing. The shape of the positive relationship shown through regression equations $\hat{Y} = 14.92 + 0.48X_1 + 0.29X_2 + 0.05X_3$ with t count > t table and the strength of the relationship $r_{x123y} = 0.86$ with a coefficient of determination of 73.96. Increased the quality on environmental healthy housing was shown to be determined by its the knowledge about environmental sanitation, healthy life attitude, and income. The quality on environmental

healthy housing is the condition on the head of the family regarding his or her position in the cultural context and the value system in which they live in the study included: (a) Objectives include Physical, Economic, Social indicators. With sub indicators of healthy lifestyles, residential feasibility, environmental safety, residential living comfort, having sufficient income, sufficient need fulfillment, having perspective on education, social position, involvement in society, and (b) Subjective includes indicator of Psychology with sub indicators : an inward, inner, spiritual, and intellectual sense of contentment, related to the well-being, purpose of life, hope, and standard of living.

Previous research conducted by Deeg Mollenkoph and Walker (2007), the importance of aspects the quality on environmental healthy housing such as health, good housing, happy families, and income are considered important by more men, while strong beliefs, a lot of wasteful expenditure, and many friends are considered unimportant. The study illustrates that the quality on environmental healthy housing of male headed households believes strong beliefs, large expenditures, many friends are unimportant and this can the quality on environmental healthy housing of the head of the family with male gender. Thus the results of the study found that heads of families in coastal environments with a gender of men with strong social support had a lower the quality on environmental healthy housing compared with heads of families in coastal environments with a gender of men with poor social support.

5. Conclusion

Research results revealed that, there is a positive and significant correlation between knowledge about environmental sanitation with fisherman quality of environmental healthy housing; there is a positive and significant correlation between healthy life with fisherman quality of environmental healthy housing; there is a positive and significant correlation between income with fisherman quality of environmental healthy housing; and there is a positive and significant correlation between knowledge about environmental sanitation, healthy life, and income together with fisherman quality of environmental healthy housing

Based on the results of this research and discussion, it can be concluded that knowledge about environmental sanitation not just the factors that determine on quality of fisherman environmental healthy housing, but it also depends on healthy life attitude, and income. The more positive knowledge about environmental sanitation, healthy life attitude, and income, the greater on quality of fisherman environmental healthy housing.

References

- Ambili, C. S. (2007). *Educational Performance of Marginalized Group- a case study of Traditional Fisher Folk in Kerala*: Trivandrum: Kerala University.
- Bindu, G. (2011). Kochi: Cochin University.
- Blaxter, M. (2005). *Healthy and Lifestyles*. Routledge: New York.
- Budihardjo, E. (2009). *Housing and settlement in indonesia*. Alumni: Bandung.
- Dahuri, R. (1996). *Integrated Management of Coastal Resources and Oceans*. Pradnya Paramita: Jakarta: PT.
- Duru, C. B. (2017). Environmental sanitation practices: A case study of solid waste management in semi-urban communities in orlu, imo state nigeria. *Scientific Research Pubhlishing, Occupational Diseases and Environmental Medicine*, 5: 17.
- Feinstein, L., Sabates, R., Anderson, T. M., Sorhaindo, A. and Hammond, C. (2006). The Wider Benefits of Learning and the MRC National Survey of Health and Development, University College London, on 6th December 2005. Paper presented at the Proceedings of the Copenhagen Symposium" Measuring the Effects of Education on Health and Civic Engagement.
- Ferriss, A. L. (2010). Approaches to improving the quality of life: How to enhance the quality of life. . *Springer Social Indicators Research Series*, 42(1).
- Gomez-Piriz, P., Puga González, E., Jurado Gilabert, R. and Pérez Duque, P. (2014). Perceived quality of life and the specific physical activities by the elderly. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 14(54): 238.
- Grant, M., Padilla, G. V., Ferrell, B. R. and Rhiner, M. (1990). Assessment of quality of life with a single instrument. *Paper presented at the Seminars in Oncology Nursing*.
- Hahn, R. W., J., G., McRae, Jana, B. and Milford. (1988). Coping with Complexity in the Design of Environmental Policy. *Journal of Environmental Management*, 27: 16.
- Hasanuddin, N. L., Noor., N. and Happy, R. S. (2013). Is it possible to eradicate poverty in the fishermen village? *International Journal of Environmental Sciences*, 4(2).
- Hines, J. M., Hongerford, H. R. and Tomera, A. N. (1986). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *Journal of Environmental Education*, 18(2): 8.
- Joseph, A. B. J. (2015). The Quality of Life of Fishermen Community A micro level study.
- Kumari, B. V., Kalpana, B., Vineela, M. and Jyothi, B. (2016). *A study to assess the knowledge regarding environmental sanitation among women in selected rural villages at. IJAR*: Nellore. 2: 511-14.
- Kurien, J. (1986). Kerala marine fisheries development- Socio economic profile. Trivandrum: Centre for development studies.
- Kusnadi, E. A. (2007). *Living Strategy of Fishermen Society*. BLKIS Pelangi Aksara: Yogyakarta.
- Lunenburg, F. C. and Orstein., A. C. (2012). *Educational administration*. Wadsworth Cengage Learning.: Australia.
- Mara, D., Lane, J., Scott, B. and Trouba, D. (2010). Sanitation and health. *PLoS medicine*, 7(11).
- McCall, S. (1975). Quality of Life. *Social Indicators Research*, 2: 19.

- Michalos, A. (2007). Education, happiness and wellbeing, paper written for the International Conference on 'Is happiness measurable and what do those measures mean for public policy? *University of Rome April*.
- Mollenkoph, H. and Walker, A. (2007). *Quality of life iin old age international and multi-disciplinary perspectives*. Springer: Netherlands.
- Nasir, M. (1990). *The Impact of Fisherman Community Quality on Environmental Health in Kodya Padang*. IKIP Padang: Padang.
- Olawale, J. O. and Olatunji, I. A. (2014). *Knowledge and attitudes of people on monthly environmental sanitation programme in osun state*. Nigeria.
- Satria, A. (2009). *Coastal and ocean for people*. IPB Press: Bogor.
- Supraba, N. P. (2015). *Relationship of social activities, social interaction and family function with quality of elderly life in the working area of puskesmas i denpasar*. Universitas Udayana: Denpasar.
- Walters, S. J. (2009). *Quality of life outcomes in clinical trials and health-care evaluation: a practical guide to analysis and interpretation*. John Wiley & Sons. 84.
- Wayne, K. and Hoy, C. G. M. (2013). *Educational Administration*. Ninth edn: McGraw Hill: New York.
- Whittington, D. and Lauria, D. T. (1992). *Household demand for improved sanitation services; a case study of kumasi, ghana:Sanitation and water supply, Practice lesson from the decade In s. C. Cross*. IBRD: Washington.
- Xu, J., Qiu, J., Chen, J., Zou, L., Feng, L., Lu, Y. and Zhang, J. (2012). Lifestyle and health-related quality of life: a cross-sectional study among civil servants in China. *BMC Public Health*, (12): 1.