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# THE RELATIONSHIP BETWEEN KNOWLEDGE LEVEL AND THE INCIDENCE OF SEAFOOD POISONING IN THE ISLAND REGION IN 2020

By

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## ABSTRACT

Seafood is a term for food in the form of marine animals and plants that are caught, fished, taken from the sea or cultivated. Society is a set of human beings who due to the demands of needs and influence certain beliefs, thoughts, and ambitions are united in collective life. The purpose of this study is to determine the relationship between knowledge levels and the incidence of seafood poisoning in the archipelago in 2020. This study uses a correlational descriptive research design with the approach used is *cross sectional*. The sampling technique used is *Non probability sampling*, namely 49 communities in the working area of the Tembeling Health Center, Bintan Regency. Data collection is carried out by distributing questionnaires. Data analysis using Univariate and Bivariate analysis. The results showed that the majority of people had gained knowledge about seafood poisoning as much as 70% and almost some people had never experienced the incidence of seafood poisoning, namely as much as (55%). The results of the bivariate analysis showed that there was a significant relationship between the level of knowledge and the incidence of seafood poisoning  $p = 0.002$ . The results of this study concluded that the more ever and higher in obtaining public knowledge, the better it will be in preventing the occurrence of seafood poisoning.

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## 1. INTRODUCTION

According to the Big Indonesian Dictionary (KBBI), the meaning of seafood is food derived from marine animals, such as shrimp, crabs, and various types of fish or marine plants. Seafood, seafood or seafood (English: seafood) is a term for food in the form of marine animals and plants that are caught, fished, taken from the sea or cultivated. Birds and waterbirds found in the sea are not included in the seafood (Central Stekom University, 2021).

In some countries, the term "seafood" also includes marine mammals, fish and shellfish that fishermen catch or collect from freshwater (lakes and rivers). Seafood is a source of protein, fat, vitamins, and minerals (zinc, iron, selenium, magnesium, and iodine) (Central Stekom University, 2021).

Seafood has been consumed by humans since ancient times. The ancient Egyptians used seafood as a source of protein. Seafood is obtained by fishing in the Mediterranean Sea and the Nile, as well as keeping fish in ponds. The ancient Greeks also ate fish and shellfish in fresh or dried form (Central Stekom University, 2021).

In the process of life in the sea, fish and shellfish need plankton as food, including phytoplankton which can produce organic matter and act as a primary producer. There are different types of phytoplankton, which are generally dominated by diatoms and dinoflagellate groups. There are several types of phytoplankton that can produce toxins (toxins) especially from the dinoflagellate group. The lack of public understanding of the presence of toxins in plankton often causes poisoning and even death when they eat dishes from fish or shellfish contaminated by toxic phytoplankton, such as those that occur in some locations in Indonesia.

Cases of food poisoning often occur in various environments because hygiene is not guaranteed. The tools and materials used are unhygienic, exposure to street dust due to heavy traffic. Microorganisms that are widespread in nature cause non-sterile food products. The growth of microorganisms in foodstuffs can result in unwanted physical

and chemical changes, so that foodstuffs become unsuitable for consumption. Food poisoning can be caused by mold, yeast and bacteria, of the three microbes, food damage is dominated by bacteria (Alfreds Rorong & Fenny Wilar, 2020).

According to the World Health Organization (WHO), as many as 582 million people in the world died from food poisoning from 2010 to 2015. According to WHO, it is estimated that 70% of the approximately 1.5 billion foodborne diseases. For example, in the United States there are an estimated 48 million cases of food poisoning each year. Based on 1998 data, the incidence of food poisoning in the United States resulted in 128,000 people being hospitalized and about 3,000 people dying. In 2000 in Japan there was also a major case of food poisoning contaminated with staphylococcus aureus and resulted in more than 14,000 people experiencing poisoning (Lestari, 2020).

The Indonesian Food and Drug Administration in 2017 recorded that the number of people exposed to food poisoning was 5293 people. The cases of extraordinary events (KLB) of food poisoning reported in 2017 were 2041 sick people, 3 people died with an Attack Rate (AR) of 38.56% and a Case Fatality Rate (CFR) of 0.15%. Food poisoning outbreaks still occur in Java Island, the 5 provinces with the highest food poisoning outbreaks in 2017 are West Java with 25 incidents, Central Java with 17 incidents, East Java with 14 incidents, Bali with 13 incidents and NTB with 12 incidents. This shows that food poisoning outbreaks are still a public health problem that needs to be prioritized for handling (Fitriana, 2021).

## 2. RESEARCH METHOD

This study used a correlational descriptive research design. The approach used is *cross sectional*, which is to measure data only at one time, but that does not mean that measurements are only carried out on the same day or time, but variable is measured once, so there is no follow-up on the variables studied. The variables used in this study are bound variables, namely community knowledge and free variables, namely respondent characteristics including age, gender, religion, education, sources of information.

The research will be conducted at Desa Tembeling in the working area of the Tembeling health center, Bintan Regency, Riau Islands. Implementation for 8 months, starting from January 2019 to October 2020. The population in the study was all patients who experienced poisoning and were treated at the IGD Puskesmas tembeling for the period January 2019 to October 2020 which was in Tembeling Village, Bintan Regency, Riau Islands with a jumlah 68.

## 3. RESULTS AND ANALYSIS

### 3.1. Characteristics of Respondents

Characteristics of Respondents Characteristics of research respondents according to age, knowledge, gender, education, religion, sources of information, and events. The characteristic frequency distribution of respondents knowledge regarding seafood poisoning obtained in the island community, namely:

**Table 1. Characteristic picture of respondents**

No	Variable	Frequency	Percentage (%)
1	Knowledge		
	Ever	28	70%
	Never	12	30%
Age Group	15-45	24	60%
	>45	16	40%
	3	Gender	
	Man	22	55%
	Woman	18	45%
4	Education		
	Low	24	60%
	Tall	16	40%
5	Religion		
	Islamic	40	100%
	Non-Muslim	0	
6	Sources of Information		
	Television	12	30%
	Media Online	18	45%
	Penkes	10	25%



7	Event		
	Happen	22	55%
	Did not happen	18	45%

Based on Table 1, the knowledge picture regarding seafood poisoning is that most of them have never gained knowledge with a percentage of 70% or as many as 28 respondents. The age group profile regarding seafood poisoning was almost a part of the respondents with an age group of 15-45 with a frequency of 24 respondents or with a total of 60%. The gender profile regarding seafood poisoning was half of the respondents with a gender of 55% i.e. 22 respondents were male. The education picture on seafood poisoning was 60% of respondents with low education, which was 24 respondents. There were 40 respondents or 100% of the religious beliefs or beliefs regarding seafood poisoning. The list of sources of information about seafood poisoning, almost some respondents got information sources from online media, namely 18 respondents or 45%. Most of these incidents of seafood poisoning occurred with a percentage of 55% or as many as 22 respondents.

### 3.2. Discussion

The knowledge of respondents who had gained knowledge was 22 people (70%). This is in line with research according to Carter (2011), that the higher the level of education a person will be more receptive to information so that the more experience possessed, the more knowledge possessed otherwise less education will hinder the development of a person's attitude towards new values introduced. Thus it can be concluded that the knowledge received by respondents who are low and moderately educated and do not rule out the possibility for those who are highly educated, come from the surrounding environment.

According to research conducted by Gumbo in Zimbabwe, the age group most at risk of food poisoning is the age group of 36 – 45 years (Gumbo, 2015). However, it is different from the research conducted by Teschke that the age group of 10 – 19 years is 16.2% more at risk than other age groups (Teschke, 2010).

Seafood poisoning in the working area of the Tembeling Health Center is more common in the male sex. This is different from previous studies where women are more numerous than the male sex (Abd-Elhaleem, 2011 ; Gumbo, 2015; Teschke, 2010). Research conducted by Wennberg (2012) and Jahns (2014), differed in showing that female sex consumes more fish than men (Jahns, 2014; Wennberg, 2012). But basically food poisoning can occur in all types of dark. However, what only needs to be emphasized is the prevention efforts by conducting health promotion in the form of counseling to the community, especially women, to store, process and prepare food appropriately to avoid food contamination. As well as washing hands after and before touching foodstuffs and foodstuffs and using different equipment when processing raw food and cooked food.

The majority of respondents have a low level of education due to a simple economy and lack of awareness about the importance of education so that people only take the level of elementary education. This is in line with research (Ardhany, Anugerah, & Harum, 2016) namely that the most respondents are from the elementary school education level.

Based on this study, it shows that the religion of the respondents is 100% Muslim, which is the most in the study. According to *the Commission international religious freedom* (2017) the majority of Indonesia's population is Muslim, which is 87% or around 258,000,000 people

Sources of information are everything that intermediaries in conveying information, affecting abilities and the more sources of information obtained, the more knowledge possessed. Information media for mass communication consists of print media, namely newspapers, magazines, books, and for electronic media, namely radio, TV, film and so on (Notoatmodjo, 2003). The source of information in this study is exposure to information about poisoning, ertahow to deal with poisoning at home which is directly or indirectly provided by health workers (nurses/midwives, doctors), books, and the internet, as well as social media. Respondents of information sources in this study that are widely found on television are as many as 16 people (50%).

The relationship between the level of knowledge and the incidence rate regarding theeracunan makanan.

**Table 9. The relationship of knowledge level to incidence rate**

P.	T.		Event		PR (95% CI)	p-value
	Knowledge	Happen	Did not happen			
	F	%	F	%		
Ever	28	70%	18	45%	5,4(3,09-9,45)	<0,002
Never	12	45%	22	55%		

Based on table 5.5 above, it shows that the proportion of the level of knowledge of the majority of people about seafood poisoning is (70%) while never (45%) the incidence rate that has experienced seafood poisoning in the

community is almost partially 45% . Based on the results of the bivariate analysis, there is a relationship between the level of knowledge about seafood poisoning with a value of  $p = 0.002$   $PR = 5.4$   $CI95\% = 3.09- 9.45$ . The results of this analysis are similar to the results of research conducted by Totelesi (2011) on the knowledge, attitudes and practices of seafood handlers about food safety in restaurants which showed that there was a positive relationship between food safety knowledge and food handler practices by 70.5%. Then it can be said that people who have a good level of knowledge have a tendency to prevent the occurrence of the next incident of seafood poisoning.

#### 4. CONCLUSION

The study used a correlational descriptive research design, by taking a *cross-sectional approach*. The results of the study conducted on 49 respondents in the working area of the Tembeling health center, Bintan Regency, it can be concluded that people have received knowledge about poisoning and almost part of it has never occurred seafood poisoning. The results of the analysis of the relationship between knowledge and the incidence of seafood poisoning were obtained = 0.002 so that there is a relationship between the two variables, it can be said that the better the community if they have obtained knowledge, the better the prevention of the occurrence of the incidence rate. $p$

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