The Analysis of Community Epidemiological Chraracteristics on The Prevention of Pulmonary TB Cases in The Coastal Areas

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Abstract: Pulmonary tuberculosis is an infectious disease caused by the bacterium Mycobacterium tuberculosis. In 2014 there were 9 cases of pulmonary TB in the working area of the Teunom Public Health Center, in 2015 there was a decrease in 7 cases and then in 2016 it increased again to 15 cases. This increase occurred due to lack of knowledge of coastal communities in efforts to prevent pulmonary TB disease. The purpose of this study was to determine the relationship of characteristics (knowledge and attitudes) of coastal communities in epidemiology to the prevention of pulmonary TB. The study was conducted on 9 October - 9 November 2017 using a cross-sectional design. Total population of 9,547 people, sampling using purposive sampling technique as many as 99 people. Data were analyzed by univariate, bivariate, and multivariate using multiple linear regression tests. The results showed a relationship between knowledge and attitudes of communities towards the prevention of pulmonary TB (P. Value> 0.05). For multivariate analysis results show that the knowledge of communities has a stronger influence in the prevention of pulmonary TB (Exp.B. 29, 25). There is a very significant relationship between knowledge and attitudes of communities in epidemiology towards the prevention of pulmonary TB. Public knowledge has a stronger relationship on the prevention of pulmonary TB. It can be further enhanced by various educational programs related to the prevention of pulmonary TB, so as to increase public knowledge and understanding in the prevention of infectious diseases, especially pulmonary TB.

Keywords: Knowledge, attitude, prevention of pulmonary TB

Introduction

World Health Organization (WHO) mentions that in 2013 9 million people in the world had been infected with Tuberculosis (TB) bacteria (WHO, 2014). In 2014 there were 9.6 million world population infected with TB germs (WHO, 2015). In 2014, the largest number of pulmonary TB cases occurred in Africa (3.7%), Southeast Asia (28%) and the Eastern Mediterranean region (17%) (WHO, 2015).

The latest World Health Organization (WHO) report, the 2016 Global Tuberculosis Report estimates that in 2015, there were 10.4 million cases of pulmonary TB in the world. Around 60% of the total number of TB cases globally are in India, Indonesia, China, Nigeria, Pakistan and South Africa. In 2015, an estimated 1.8 million people died of TB. Of the total number of cases of death from TB there are 0.4 million people of whom possess a Human Immunodeficiency Virus (HIV) infection (WHO, 2016)

In Indonesia In 2013 a total of 327,094 cases were discovered (Health Profile of the Indonesian Ministry of Health, 2013). Furthermore in 2014 324,539 cases were found (Ministry of Health of Republic of Indonesia Republic of Health, 2014). In 2015 there were 330,910 cases of tuberculosis (Health Profile of the Republic of Indonesia Ministry of Health, 2015). While in 2016 cases of pulmonary TB in Indonesia were found as many as 298,128 cases (Health Profile of the Indonesian Ministry of Health, 2016).

The number of patients with pulmonary TB in Aceh province in 2013 was 4,381 cases (Aceh Health Profile, 2013). Furthermore in 2014 there were 5,200 cases found (Aceh Health

Profile, 2014). Whereas in 2015 the number of cases of pulmonary TB was found to be 5,935 cases (Aceh Health Profile, 2015). In 2016, pulmonary tuberculosis cases in Aceh province decreased, which was found to be 5,363 cases (Aceh Health Profile, 2016).

Aceh jaya regency is one of the regencies located in Aceh Province, Aceh jaya regency was formed in 2002 as a result of the division of Aceh Barat District. Cases of pulmonary TB in Aceh Jaya Regency itself were obtained from data on the number of patients with pulmonary TB in 2013 totaling 157 cases (Health Profile of Aceh Jaya Regency, 2013). Furthermore in 2014 there were 172 cases (Health Profile of Aceh Jaya Regency, 2014). Furthermore in 2015 there were 196 cases (Health Profile of Aceh Jaya Regency, 2015). Whereas in 2016 TB cases were found in 101 cases (Health Profile of Aceh Jaya District, 2016).

The community in the working area of the Teunom Puskesmas in Aceh Jaya district showed that four out of five respondents answered that they did not know how to spread pulmonary TB disease while one of them said that pulmonary TB transmission occurred if they were close to or associated with the pulmonary TB sufferer, further the community did not know the concept of prevention , this is evident from the four of them answering do not know and one of them answering ways of prevention that is not close to the suffering of pulmonary TB.

Further interviews regarding community attitudes towards tuberculosis obtained results from 5 of the same visitors and all five said that they did not care much about the prevention of pulmonary TB disease and also one of the respondents assumed as long as they did not interact with people with pulmonary TB, they would not contract the disease pulmonary TB. Respondents also said that when sneezing and swallowing did not close his mouth, and also sometimes throw saliva or sputum in any place.

Related research related to pulmonary TB has been done in Indonesia but mostly is limited to the success of treatment alone and to the agrarian community. This research was conducted on the coastal community, to see the influence of knowledge and attitudes of coastal communities towards prevention of pulmonary TB disease.

Research Methods

This type of quantitative research, with cross sectional study design, is a research design that is used to examine an event at the same time (once in a while), so that the dependent and independent variables are examined simultaneously. The population of all communities aged 18 years and over and located in coastal areas, precisely in the Teunom Community Work Unit of Aceh Jaya District in 2017 was 9,547 people. The total of samples was 99 people who chose the proportion random sampling technique. The sample criteria for this study are residents over the age of 18 years and domiciled for a minimum of 10 years in the Teunom Community Health Center. Data collection methods use secondary and primary data, and will be analyzed univariate and bivariate and multivariate.

Results and Discussion
Results
Characteristics of Respondents

Based on the results of data collection that researchers have done to 99 respondents who are in the Teunom Work Area of Aceh Jaya District, the distribution of respondent characteristics based on gender, age, education and occupation is obtained as follows:

Table 1. Frequency Distribution of Respondent Characteristics by Gender and Age.

No.	Category	Frequency	Percent
	Gender		
1.	Male	59	59,6
2.	Female	40	40,4
	Age (Years)		
1.	21-28	20	20,2
2.	29-36	29	29,3
3.	37-44	26	26,3
4.	45-52	10	10,1
5.	53-60	8	8,1
6.	61-68	3	3,0
7.	69-76	3	3,0

Based on Table 1. above it is known that respondents who have male sex are 59 respondents (59.6%) and respondents who have female sex are 40 respondents (40.4%). Table 1. also shows that the most respondents by age were 29-36 years old respondents (29.3%) and the least respondents were 61-68 years old and 69-76 years old respectively 3 respondents (3.0%).

Table 2. Distribution of Frequency of Knowledge and Attitudes of Respondents Associated with Efforts to Prevent Pulmonary TB

No	Variabel	Frequency	Percent
	Knowledge		
1.	Good	48	48,5
2.	Not Good	51	51,5
	Attitude		
1.	Positive	43	43,4
2,	Negative	56	56,6
	Prevention of Pulmunary TB		
1.	Good	45	45,5
2.	Not Good	54	54,5

Source: Primary Data (Processed in 2017)

In Table 2. it is known that respondents who were stated to have good knowledge were 48 respondents (48.5%) and respondents who were stated to have poor knowledge were 51 respondents (51.5%). It can be seen in Table 2. it is known that respondents who were stated to have a positive attitude were 43 respondents (43.3%) and respondents who were stated to have a negative attitude were 56 respondents (56.6%). For respondents who were declared good in their efforts to prevent pulmonary TB as many as 45 (45.5%) and respondents who were declared not good in their efforts to prevent pulmonary TB as many as 54 (54.5%).

Bivariate Analysis and Multivariate

Table 3. Relationship of Knowledge and Attitudes Towards Prevention of Pulmonary TB Disease

Konwledge	Prevention of Pulmunary TB				Total		P.Value	OR 95% CI
	Good		Not Good					
	n	%	n	%	f	%		
Good	29	60,4	19	39,6	48	100	0,007	3,3
Not Good	16	31,4	35	68,6	35	100		(1,4-7,6)

Source: Primary Data (Processed in 2017)

Table 3. shows that of the 48 respondents who had good knowledge in the effort to prevent pulmonary TB as many as 29 respondents (60.4%) and respondents in the unfavorable category in the prevention of pulmonary TB as many as 19 respondents (39.6%) . Respondents who have poor knowledge with good categories in efforts to prevent pulmonary TB as many as 16 respondents (31.4%) and respondents with unfavorable categories in the prevention of pulmonary TB as many as 35 respondents (68.6%).

Based on the results of statistical analysis using the chi square test between knowledge and prevention of pulmonary TB disease, the value of P.Value = 0.007 means that there is a relationship between knowledge and prevention of pulmonary TB in the coastal community (in the Work Area of the Teunom Puskesmas) Aceh Jaya District. OR value = 3.3 (1.4-7.6) indicates that people who have poor knowledge will be at risk 3.3 times less likely to make efforts to prevent pulmonary TB compared to people who have good knowledge.

Table 4. Relationship between Attitudes and Efforts to Prevention of Pulmonary TB Disease in the Community

Attitude	Prevention of Pulmunary TB				Total		P.Value	OR 95% CI
	Good		Not Good					
	n	%	n	%	f	%		
Positive	32	74,4	11	25,6	43	100	0,000	9,6
Negative	13	23,2	43	76,8	56	100		(3,8-24,2)

Source: Primary Data (Processed in 2017)

Table 4. shows that of the 43 respondents who had a positive attitude in both categories in the prevention of pulmonary TB as many as 32 respondents (74.4%) and respondents in the unfavorable category in efforts to prevent pulmonary TB as many as 11 respondents (25.6%). Respondents who have a negative attitude with a good category in the effort to prevent pulmonary TB as many as 13 respondents (23.2%) and respondents with a less good category in the prevention of pulmonary TB as many as 43 respondents (76.8%).

Based on the results of statistical analysis using the chi square test between attitude and prevention of pulmonary TB disease, the value of P.Value = 0,000 means that there is a relationship between attitude and efforts to prevent pulmonary TB in people in coastal areas (in the Work Area of Teunom Puskesmas) Aceh Jaya District. The value of OR = 9.6 (3.8-24.2) shows that people who have a negative attitude will have a risk of 9.6 times less likely to make efforts to prevent pulmonary TB compared to those who have a negative attitude.

Table 5. Relationship between knowledge and attitudes of people in coastal areas against efforts to prevent pulmonary TB

Variable	Category	P-value	95% CI		Exp.B
Knowledge	- Good	0,000	5,634	-	29, 25
	- Not Good		341,243		
Attitude	- Positive	0,002	3,435	–	27,32
	- Negative		232,325		

The logistic regression test results with p <0.05 (95% CI: 4,634 - 341,243), this shows that there is a very strong relationship between public knowledge and prevention of pulmonary TB disease. Likewise, the attitude variable shows that the p value <0.05 (2,445 - 232,325), proves that community attitudes have a strong relationship with the prevention of pulmonary TB. In the table it can also be seen that the value of Exp.B for knowledge is 29.25 while the value of Exp. B for the attitude to the community of 27,32.

Discussion
Knowledge

The results of research conducted on the community in the Teunom Community Health Center work area showed that good respondents in the prevention of pulmonary TB disease were mostly found in respondents who had good knowledge of 60.4%. On the other hand, respondents who were less good in their efforts to prevent pulmonary TB were more likely to have respondents who had poor knowledge of 39.6%.

The results of statistical analysis using the chi square test showed that the value of P.Value = 0.007 means that there is a relationship between knowledge and prevention of pulmonary TB in the community in the Work Area of the Teunom Puskesmas, Aceh Jaya Regency. The value of OR = 9.6 (1.4-7.6) indicates that people who have poor knowledge will have a risk of 9.6 times less likely to make efforts to prevent pulmonary TB compared to people who have good knowledge.

According to Notoatmodjo (2010) that knowledge is the result of knowing and this happens after someone senses a certain object. Most of human knowledge is obtained through the eyes and ears. Knowledge is needed as support in generating confidence and attitudes and behavior every day, so it can be said that knowledge is the most domain for the formation of one's actions. Furthermore, someone will have good knowledge, if someone has obtained various sources of information that are useful for the formation of an action.

Associated with knowledge about tuberculosis and prevention efforts, a person can get it from various sources, such as mass media, instructors or even information from friends who know about tuberculosis. The researcher's assumption is related to the fact that there are respondents who have poor knowledge and no effort to prevent tuberculosis because the respondent has never obtained information and has never attended counseling from a health worker at the Teunom Community Health Center.

This study is in line with research conducted by Astuti (2013) in his study entitled the relationship between the level of knowledge and people's attitudes towards prevention of tuberculosis in RW 04, Lagoa, North Jakarta. Based on the results of research conducted on 60 respondents showed that there are 17 respondents (28.3%) who have good knowledge and 34 respondents (71.7%) who have less knowledge. The statistical test results obtained P. Value = 0,000 means that there is a relationship between community knowledge and efforts to prevent tuberculosis in RW 04 Lagoa Kelurahan, North Jakarta.

Another study conducted by Susanti (2015) showed that the relationship between the level of knowledge and prevention efforts for pulmonary TB was obtained in the direction of a

direct correlation and a sufficient correlation value of 0.446 with a value of p = 0.010. This shows that there is a significant relationship between the level of knowledge and prevention of pulmonary TB due to the significance level <0.05. This means that the better the family knowledge of pulmonary TB patients, the better the prevention of TB is done.

Attitude

The results of research conducted on the community in the Work Area of the Teunom Community Health Center showed that good respondents in the prevention of pulmonary TB disease were more likely to have respondents who had a positive attitude of 74.4%. On the other hand, respondents who were not good enough in their efforts to prevent pulmonary TB were more likely to have a negative attitude of 76.8%.

Attitudes are feelings, thoughts, and tendencies of someone who is more or less permanent in knowing certain aspects of their environment. The components of attitude are knowledge. feelings, and inclination to act. The attitude contained in the individual will give color or style of behavior or actions of the individual concerned. By understanding or knowing an individual's attitude, it can be predicted the response or behavior that will be taken by the individual concerned (Notoatmodjo, 2010).

The attitude of most people towards their pulmonary TB said about their opinion that pulmonary TB is dangerous because it can be infected. I'm another person and can even be deadly. But there is a small portion of being silent not giving an opinion about pulmonary TB. Researchers' assumptions about the persistence of community attitudes in the prevention of pulmonary TB due to low education and low socioeconomic status In addition, there are still various community habits that become obstacles in overcoming pulmonary TB, such as eating, drinking and even sleeping together in one room.

The results of statistical analysis using the chi square test showed that the value of P.Value = 0,000 means that there is a relationship between attitudes and efforts to prevent pulmonary TB in the community in the Work Area of the Teunom Health Center in Aceh Jaya Regency. The value of OR = 9.6 (3.8-24.2) shows that people who have a negative attitude will have a risk of 9.6 times less likely to make efforts to prevent pulmonary TB compared to those who have a negative attitude.

Another study conducted by Susanti (2015) showed that the relationship between attitudes toward prevention of pulmonary TB disease was obtained in the direction of a direct correlation and a sufficient correlation value of 0.414 with a value of p = 0.019. This shows that there is a significant relationship between family attitudes and efforts to prevent pulmonary TB due to the significance level <0.05. This means that the better the family attitude of the pulmonary TB patient, the better the prevention efforts made against the pulmonary TB disease.

This study is in line with research conducted by Ayurti (2014) that out of 10 respondents (100%) have good knowledge. Of the 10 respondents (100%) there were 9 respondents (90.0%) had less behavior, 1 respondent (10.0%) had good behavior. Based on the results of statistical tests showed p value = 0.004 so it can be concluded that there is no relationship between attitudes towards family behavior in preventing tuberculosis transmission in the Oesapa Community Health Center Work Area.

Conclusion

There is a relationship between knowledge and attitudes of the people in the coastal area towards prevention of pulmonary TB disease (P. value <0.05). Knowledge gives a greater relationship to efforts to prevent pulmonary TB disease (P.Value 0,000) and with a CI

value of 5,634 - 341,243. Public knowledge variables provide the strongest relationship to the prevention of pulmonary TB disease.

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