Research Article **ISSN (Online): 2589-8760, ISSN (Print): 2589-8779**

Journal of Current Medical Research and Opinion

Journal homepage: http://cmro.in/index.php/jcmro

DOI: https://doi.org/10.15520/jcmro.v1i06.87

The Correlation of the Level of Community Knowledge and Education with the Level of Leprosy Occurrence in Central Jakarta Area year 2017

Zahra M[1], Setiasih N.L[2], Bubakar A.H.A[3]

Abstract

Leprosy is caused by *Mycobacterium leprae* (*M. leprae*) and the manifest is damage to the skin and peripheral nerves. Humans are still believed to be the main source of *M. leprae* transmission, especially in patients with highly infectious lepromatous. There is a correlation between leprosy with the level of education and human knowledge of the occurrence of leprosy from the past's point of view. Based on statistical test of Rank Spearman Correlation, the acquired p-value that is equal to 0,000 < α = 0,05, then H_1 is accepted which means there is a significant correlation between the level of knowledge of the community with the incidence of leprosy in the area of Central Jakarta in 2017 and 0,062 > α = 0,05 p-*value* is acquired, thus H_0 is accepted which means there is no significant correlation between community education level and the occurance of leprosy in the area of Central Jakarta area in 2017. It can be concluded that there is a significant correlation between the level of community knowledge and there is no significant correlation between the level of community education with the occurance of leprosy in the area of Central Jakarta in 2017.

Keywords: *Mycobacterium leprae,* Leprosy, Level of Community Knowledge and Education

Introduction

Leprosy is caused by *Mycobacterium leprae* (*M. leprae*) and the manifest is damage to the skin and peripheral nerves[1]

Early diagnosis and immediate treatment of all new cases of leprosy with *Multi Drug Therapy(MDT)* remains the main strategy of leprosy control. The strong commitment of the national government, together with the technical guidance of World Health Organization (WHO), ongoing support from donors, the availability of MDT, long-term collaboration with non-governmental organizations and the participation of networks of people affected by leprosy, has resulted in a decrease of the prevalence rate of > 5 million cases in the mid-1980s to < 200,000 cases by the end of 2016. The prevalence declined to < 1 case per 10,000 populations at the global level in 2000 and then at the national level in the most endemic countries in 2005 it is marked as an important milestone in the elimination of leprosy as a public health problem. Nonetheless, new cases continue to occur[2] (WHO, 2017).

The leprosy burden is divided into two, namely high leprosy load (new case finding rate which is more than 10 per 100,000 population) and low leprosy load (new case finding rate which is less than 10 per 100,000 population). Based on the 2011-2013 data, 14 out of 33 provinces in Indonesia have high leprosy burden. The highest leprosy burden is found especially in children in 13 provinces. New cases of leprosy are most prevalent in the provinces of East Java, West Java, Central Java, Papua and South Sulawesi. The highest proportion of child leprosy cases is found in the provinces of Nusa Tenggara Timur, Papua and North Sumatra. Number and trends of new cases of leprosy in 2011-2013 (Oentari, 2015).

Humans are still believed to be the main source of *M. leprae* transmission, especially in patients with highly infectious lepromatous. Many factors effect the transmission of leprosy such as the length of contact, relationship closeness, immunity status, nutritional status, socioeconomic, genetic, hygiene, and environmental sanitation, economics, and the several ways of transmission. The main way of transmission is through contact with a leprosy patient (skin contact, intimate contact, repeated contact). The *M. leprae* of the leprosy patients, especially leprosy type Multibacillary (MB) enters a person's body through the respiratory tract[3]

Knowledge takes place after a person has sensed an object. Knowledge can also be gained from the learning experience of formal and non-formal education[4]

The knowledge measurement by Machfoedz (2009) is:

1. High, when the subject is able to correctly answer 76-100% of all statements.

[1] Faculty of Medicine YARSI University Departement of Medical Education YARSI University
[2] Faculty of Medicine YARSI University Departement of Medical Education YARSI University
[3] Faculty of Medicine YARSI University Departement of Medical Education YARSI University

Corresponding author:
Zahra M, Faculty of Medicine YARSI University Departement of Medical Education YARSI University

2. Average, if the subject is able to answer correctly 56-75% of all statements.
3. Low, if the subject is able to answer correctly < 56% of all statements (

Education is universal and continuous from generation to generation anywhere in the world. The effort of humanizing human beings through education is ran in accordance with the views of life and within the socio-cultural background of each particular society. Therefore, even though education is universal, there are certain differences in the way of life and sociocultural background. In other words, education is based on the philosophy of life and socio-cultural of every society, including in Indonesia (Tirtarahardja & Sulo 2015).

Education level according to Law No. 20 Year 2003 is: 1. Basic/Lower Education (Primary school – Junior Secondary School). 2. Secondary Education (Senior General Secondary School/Senior Vocational Secondary School) 3. Higher Education (University)[5]

Method :

The type of research conducted is a quantitative research, which is a research that requires quantitative data relevant with variables formulated in the research problem and can be analyzed statistically. The analysis is needed to prove whether or not the hypothesis that has been previously formulated is accepted.

This study is a descriptive observational study using Cross Sectional data where the independent and bound variables are measured at the same time. The research data was obtained from the Community Health Clinic throughout Central Jakarta which showed the data of patients infected with leprosy. After the research data is obtained, then to see a meaningful relationship between the level of public knowledge and the level of education with the occurance rate of leprosy, Spearman Rank correlation analysis is used.

The population in this study is the people infected with leprosy in the area of Central Jakarta. The study was conducted at a community health center in Central Jakarta where the health clinic location of the research was a health clinic that treated leprosy patients.

Sample determination is by using simple random sampling method by considering the criteria of inclusion and exclusion that have been set. The sample size in this research is divided into two parts, namely case group and control group. The case group consisted of 17 interviewed people who are leprosy patients which was obtained through tracing medical record data, while the control group consists of 17 people whom did not suffer from leprosy but lived in one district with the leprosy patients.

The type of data is primary data which is quantitative data obtained from the questionnaire instrument that aims to determine the level of knowledge and public education with the incidence of leprosy in the area of Central Jakarta in 2017. The instrument of data collection used is questionnaire. The data in this study consists of primary data including filling questionnaires to obtain identity and anamnesis. The variable of leprosy patients are acquired by using questionnaires while for other variables such as level of knowledge and public education is acquired also by using questionnaire .

The data that has been collected through questionnaires then underwent the cleaning process to ensure completeness and accuracy. Then proceeded with the computer input process using the coding system. Presentations and analysis are performed on a computer using the SPSS 22 for Windows program by using the appropriate statistical analysis. The results are presented in the form of tables, the data obtained were in the form of categorical data and was analyzed using the adjusted statistical test.

The analysis used to know the significance of the correlationbetween the two variables is Rank Spearman analysis. This correlation is used when the two correlated variables have an ordinal scale of measurement(Husaini dan Purnomo, 2006).

Result:

This research is on the significance of the level of knowledge and public education with the occurance of leprosy in the area of Central Jakarta in 2017. The data used are primary data obtained directly from interviews with 34 respondents consisting of 17 case groups and 17 control groups.

Based on the above table with a sample size of 34 respondents, it can be seen that the frequency of respondents who have low knowledge level of leprosy is as much as 15 respondents (44%). Morevoer, respondents who have the average knowledge level of leprosy are 6 respondents (18%) and the respondents who have high knowledge level of leprosy disease are 13 respondents (38%).

Based on the table above, from 34 samples in this study, it was found that respondent with no education is as many as 1 respondent (3%). And respondents who have an elementary education are 8 respondents (24%). Furthermore, respondents who have a junior high education are 6 respondents (18%). Whereas respondents who have a high school education are 16 respondents (47%) and 3 respondents (9%) have a college education.

Based on the research data obtained with a sample size of 34 respondents, it can be seen that the frequency of leprosy patients and those who are not suffering from leprosy is the same, which is 17 respondents (50%) each. This is because case control is used to know the relationship between knowledge level and education level with leprosy patients.

The analysis used to correlate the level of public knowledge and education with the occurance of leprosy is Rank Spearman correlation. In this study, the correlation significance of each calculation between independent variables with dependent variable is tested.

1. Correlation between Knowledge and Leprosy Occurance

The hypothesis of the inferential statistical calculation to see the relationship of knowledge level with leprosy occurance in the area of Central Jakarta in 2017 are:

$H_0 : \rho = 0$ (There is no correlation between the level of knowledge of the people with the occurance level of leprosy)

$H_1 : \rho \neq 0$ (There is a correlation between the levels of knowledge of the people with the occurance level of leprosy)

$\alpha = 0.05$

Table 1. Frequency Distribution of KnowledgeLevel Variables

Knowledge Level	Frequency	%
Low	15	44%
Average	6	18%
High	13	38%
Total	34	100%

Source: Processed primary data, 2017

Table 2. Frequency Distribution of Education Level

Education	Frequency	%
No education	1	3%
Elementary School	8	24%
Junior High School	6	18%
High School	16	47%
University	3	9%
Total	34	100%

Source: Processed primary data, 2017

Based on the research data obtained, the cross tabulation between the level of knowledge with the occurance of leprosy is as in the following table

The table above shows that there are 17 respondents suffering from leprosy (cases), 3 respondents who have low knowledge level of leprosy, then there are 3 respondents who have medium knowledge level and 11 respondents who have high knowledge level. Whereas there are 17 respondents who do not suffer from leprosy (control), where there are 12 respondents who have low knowledge level of leprosy, 3 respondents who have medium knowledge level and 2 respondents who have high knowledge level.

Test results on the correlation between knowledge levels and leprosy occurance are as follows:

The testing criteria will accept H_1 if p-*value* < α, and accept H_0 if p-*value* > α. Based on the statistical test of Rank Spearman Correlation according to the table above, p-value that is 0,000 < α = 0,05, then H_1 is accepted which means there is a significant relationship between the level of knowledge of the community with the incidence of leprosy in the area of Central Jakarta in 2017.

1. Correlation Level of Education with the Occurance of Leprosy

The hypothesis of inferential statistical calculation to see the correlation of education level with leprosy occurance in Central Jakarta area in 2017 are:

$H_0 : \rho = 0$ (There is no correlation between the education level of the people with the occurance level of leprosy)

$H_1 : \rho \neq 0$ (There is a correlation between the education level the people with the occurance level of leprosy)

$\alpha = 0.05$

Based on the research data obtained, the cross tabulation between the level of education with the occurance of leprosy is as in the following table:

The table above shows that there are 17 respondents who suffer from leprosy (cases), there is 1 respondent who has no education, then there are 6 respondents who have an elementary education, 2 respondents who have junior high school and 8 respondents who have high school education. Whereas there are 17 respondents who are not suffering from leprosy (control), where there are 2 respondents who are in elementary level, then there are 4 respondents who have junior high school education, 8 respondents who have high school education level and 3 respondents who have a college education.

Test results on the correlation between education levels and leprosy occurance are as follows:

The testing criteria will accept H_1 if p-*value* < α, and accept H_0 if p-*value* > α. Based on the statistical test of Rank Spearman Correlation according to the table above, p-*value* is 0,062 > α = 0,05, then H_0 is accepted which means there is no significant correlation between community education level and the occurance of leprosy in the area of Central Jakarta area in 2017.

Discussion :

Respondents' reaction related to the characteristics that include gender, age, employment and ethnicity.

Based on the research data obtained, it can be seen that the respondents in the study were dominated by male sex. Then based on age it is dominated by the age equal and less to 20 years old. Furthermore, if viewed based on dominated occupation, most are house wifes and students, and when viewed by ethnic groups it is dominated by the Betawi ethnic.

Questionnaires and interviews were conducted on 34 respondents, where for the lepers' variable there are as many as 17 respondents who are lepers (cases) and 17 respondents are not leprosy patients (control). Then for the variable of public knowledge level, as many as 15 respondents have low knowledge level, 6 respondents have medium knowledge level, while 13 other respondents have high knowledge level. While for education level, 1 respondent does not have an education, 8 respondents have elementary education level, 6 respondents have junior high education level, and 16 respondents have high school education level, while 3 other respondents have college education level.

To analyze the relationship between the levels of knowledge of the community with the occurane rate of leprosy Rank Spearman correlation is used. This study tested the zero hypothesis that there is no correlation between the

Table 3. Cross Tabulation of Knowledge with Leprosy

Knowledge Level	Suffer from Leprosy		Total
	(+)	(-)	
Low	3	12	15
Average	3	3	6
High	11	2	13
Total	17	17	34

Source: Processed primary data, 2017

Table 4. The Correlation of Level of Knowledge with Leprosy

Education Level	Suffer from Leprosy		Total
	(+)	(-)	
No Education	1	0	1
Elementary School	6	2	8
Junior High School	2	4	6
High School	8	8	16
University	0	3	3
Total	17	17	34

Source: Processed primary data, 2017

Table 5. Cross Tabulation of Education with Leprosy

Correlations				
			Education Level	Suffer from Leprosy
Spearman's rho	Knowledge Level	Correlation Coefficient	1.000	-.584**
		Sig. (2-tailed)	.	.000
			34	34
	Suffer from Leprosy	Correlation Coefficient	-.584**	1.000
		Sig. (2-tailed)	.000	.
			34	34
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Processed primary data, 2017

Table 6. The Correlation of Education Level with Leprosy Occurrence

Correlations				
			Suffer from Leprosy	Education Level
Spearman's rho	Suffer from Leprosy	Correlation Coefficient	1.000	.323
		Sig. (2-tailed)	.	.062
			34	34
	Education Level	Correlation Coefficient	.323	1.000
		Sig. (2-tailed)	.062	.
			34	34

Source: Processed primary data, 2017

levels of public knowledge to the level of leprosy occurance (with $\alpha = 5\%$).

Based on statistical test of Rank Spearman correlation 0.000 *p-value* is acquired. This result shows that *p-value* $<\alpha$ resulted in the rejection of H_0 and the acceptance of H_1. This means that there is a significant correlation between the levels of knowledge of the community to the level of occurrence of leprosy in Central Jakarta area 2017.

The results of this study also indicate that the Rank Spearman correlation is equal to - 0,584 which indicates that there is a negative correlation between the level of public knowledge and of the occurrence rate of leprosy. This means that a person without leprosy will have a low level of leprosy knowledge, and if a person has leprosy, the knowledge level of leprosy will be high. In addition to that, the value of correlation can also be known that there is a significant correlation between the levels of knowledge of the community with the occurance of leprosy in Central Jakarta area in 2017.

Most respondents consider leprosy symptoms that appear are skin diseases such as ringworm, so there is a lack of awareness to check themselves in health services. Many of the leprosy respondents know about leprosy after they have been treated at health services and were diagnosed with leprosy. The community health service has already given information to the general public through health cadres in several sub-districts but it is less effective because many are not present in the counseling.

As for analyzing the correlation between the levels of education to the occurance rate of leprosy disease Rank Spearman correlation is used. This study tested the zero hypothesis that there is no correlation between education level to leprosy occurance rate (with $\alpha = 5\%$).

Based on statistical test of Rank Spearman correlation the acquired p-value is equal to 0,062. This result indicates that *p-value* $>\alpha$ results in the acceptance of H0 and rejection of H1. This means there is no significant correlation between the levels of education with the level of leprosy occurance in Central Jakarta area 2017.

The results of this study also shows that the Rank Spearman correlation is 0.323 which indicates that the relationship between the levels of education to the occurance of leprosy disease is positive. This means that someone who does not have leprosy will have a higher level of education, and a person suffering from leprosy has a low level of education. Besides that, from the correlation value it can be seen that there is a low but sure correlation between the levels of education with the occurance of leprosy in Central Jakarta area 2017.

Most lepers have low education because they are ashamed of their disease which makes it hard for them to interact in school environments, thus many lepers did not apply in schools and decided to not have an education. This is inversely proportional to respondents who do not suffer from leprosy who have higher education.

Conclusions:

Based on the results of the discussions that have been described on the correlation between knowledge and education level of society with the occurance of leprosy in the area of Central Jakarta in 2017, it can be concluded that there is a significant correlation between the level of knowledge of the community with the level of leprosy occurance in the area of Central Jakarta in 2017 and there is no significant correlation between the level of education with the occurance of leprosy in the area of Central Jakarta in 2017.

6–21

References

1. S LDS. Leprosy: Too Complex A Disease For A Simple Elimination Paradigm. *Bulletin of The World Health Organization* 2005; 83: 230–235. URL :.
2. Santé O and Organization WH. Global leprosy update, 2016: accelerating reduction of disease burden. Weekly Epidemiological Record. *[Online]* 2017; 92(35): 501–519.
3. Mudatsir. Faktor–faktor yang mempengaruhi terjadinya infeksi kusta. E-Jurnal, 2010.
4. Gultom TY. *Tingkat Pengetahuan Pasien Diabetes Mellitus Tentang Manajemen Diabetes Mellitus di Rumah Sakit Pusat Angkatan Darat Gatot Soebroto Jakarta Pusat. S.Kep*. Skripsi, Universitas Indonesia, 2012.
5. RISTEKDIKTI. UNDANG-UNDANG REPUBLIK INDONESIA NOMOR 20 TAHUN 2003 TENTANG SISTEM PENDIDIKAN NASIONAL. *[Online] [Accessed 29th* 2016; .
6. Central Leprosy Teaching & Research Institute. Classification & Treatment. *CLTRI [Online] [Accessed 19th* 2017; .
7. Central Leprosy Teaching & Research Institute. Pathogenesis & Manifestation of Leprosy, Suspect Lepros. CLTRI.
8. ST C and P S. History and Phylogeography of Leprosy. *In: Nunzi E, Massone C Leprosy A Practical Guide* 2012; .
9. IA C. Hubungan Tingkat Pengetahuan, Pekerjaan dan Personal Hygiene dengan Kejadian Penyakit Kusta di Kecamatan Kunduran Kabupaten Blora Tahun, 2016.
10. FS L. Dermatologic Manifestations of Leprosy Clinical Presentation. Medscape, 2017.
11. C M and AMG B. Classification. *In: Nunzi E, Massone C Leprosy* 2012; : 43–44.
12. Muharry A. Faktor Risiko Kejadian Kusta. Jurnal Kesehatan Masyarakat. *[Online] [Accessed 29th* 2014; .
13. E N, C M and S N. Diagnostic Work Up. *In: Nunzi E, Massone C Leprosy A Practical Guide* 2012; : 272–273.
14. Rakhmat J. *Psikologi Komunikasi. Bandung*. 1993.
15. TH R and RL M. Leprosy and Epidemiology. In W K, AG L, IK S et al. (eds.) *J.L. Fitzpatrick's Dermatology in General Medicine. Seventh Edition. United States of America: The McGraw-Hill Companies*. pp. 1786–1787.
16. F R, E C and A A. Update on the epidemiology, diagnosis, and treatment of leprosy. *Médecine Et Maladies Infectieuses* 2015; 45: 383–393.
17. DS S. Leprosy treatment and management. Medscape, 2017.
18. Suzuki K, Akama T, Kawashima A et al. Current status of leprosy: epidemiology, basic science and clinical perspectives. *The Journal of Dermatology* 2012; 39: 121–129.
19. H U and PS A. Pengantar Statistika Edisi Kedua. Bumi Aksara, 2006.
20. *Ilmu Penyakit Kulit dan Kelamin. Edisi 7. Jakarta: Badan Penerbit FKUI.*
21. Yuniarasari Y. Faktor Risiko yang Berhubungan dengan Kejadian Kusta. *Unnes Journal of Public Health [Online] [Accessed 29th* 2014; https://journal.unnes.ac.id/artikel_sju/ujph/3163.