

# Effect of Health Education with N-SMSI (*Ners-Short Message Service Intervention*) on Knowledge Tuberculosis Patient about Tuberculosis

Reni Asmara Ariga<sup>1</sup>, Siti Zahara Nasution<sup>1</sup> and Rina Amelia<sup>2</sup>

<sup>1</sup>Faculty of Nursing, Universitas Sumatera Utara, Prof. Maaf Streer No. 3 Kampus USU, Medan, Indonesia

<sup>2</sup>Faculty of Medicine, Universitas Sumatera Utara, dr. Mansyur street No. 9 Kampus USU, Medan, Indonesia

**Keywords:** Health Education, N-SMSI, Tuberculosis

**Abstract:** Tuberculosis is a common problem in public health that affects one-third in the world wide. The importance of providing true and true information to the patient's knowledge of TB is important in providing patient understanding of the illness to increase the quality and efficiency of the health care provided. Increased knowledge is done by providing health education through telenursing known as N-SMI (Ners- Short Message Service Intervention). N-SMSI is a form of intervention by community nurses sending SMS to Pulmonary TB patients.

## 1 INTRODUCTION

Tuberculosis is a common problem in public health that affects one-third in the world wide. Tuberculosis (TB) is the most common causes of mortality in 2015. A total of 10.4 million people are estimated to have TB by 2015 with 5.9 million men (56%), women as many as 3.5 million people (34%) and children as many as one million people (10%). Furthermore, WHO noted in 2015, 60% of all cases were contributed by six countries, India followed by Indonesia, China, Nigeria, Pakistan and South Africa (WHO, 2016). In Indonesia, coverage of tuberculosis cases between men and women was 298,128 cases in 2016, while in North Sumatera province the coverage of tuberculosis cases between men and women was 17,798 cases in 2016 which is the fifth number of province in Indonesia (Ministry of Health, 2017).

Currently, tuberculosis is a lung disease that becomes a treatment priority for treatment. In addition to the burden of disease that is too high and the deteriorating physical condition experienced can affect the patient's attitude toward his treatment adherence (Ukwaja, Alobul dan Onyewe, 2013). The patient becomes non-participating and refuses for his treatment. The patient's negative attitude is due to a lack of patient knowledge (Uchenna, Uchukwu, Oshi, Nwafor dan Meka, 2014). The importance of providing true and correct information to the patient's knowledge of TB is important in providing

patient understanding of the illness to increase the quality and efficiency of health care provided (Ukwaja, Alobul and Onyewe, 2013)

One of the factors influencing treatment is the knowledge of TB like understanding TB, transmission, prevention, medication adherence, stigma of patient TB (Tolossa, Medhin and Legesse, 2014). Some ways to increase one's knowledge of one with health education. TB controls that have been done by the government, among others through health education. The results of the research were conducted by Bisallah, Rampal, Lye, Sidik, Ibrahim, Iliyasu and Onylio (2018) that health education is influence in increasing the knowledge and attitudes about TB in HIV patients at Minna Nigeria Hospital ( $p = 0,000$ ). Poor patient knowledge of the drug, raises the patient's risk of disobedient run of therapy. One way to improve nursing care and the range of health services is to use nursing technology called telenursing known as N-SMSI (Ners-Short Message Service Intervention). N-SMSI is one form of community nursing intervention, where community nurses send SMS to Pulmonary TB patients. The SMS contains a reminder message about TB Lung. This research aims to improve the recovery rate of pulmonary TB patients and reduce mortality by increasing knowledge through N-SMSI (Ners-Short Message Service Intervention).

## 2 METHOD

The Research is about the influence of health education through Ners-Short Message Service Intervention (N-SMSI) to the knowledge of Pulmonary TB patients on pulmonary tuberculosis in Medan using quasi-experiment method, population of 72 people. Total sampling was used to get the sample. The inclusion criteria in this study were the new intensive phase intensive TB patients expressed by the Johor Medan Community Center and the Medan Amplas Community Health Center (Puskesmas Medan Amplas), patients with tuberculosis aged 21-60 years, patients with mobile phones, were willing to be respondents.

This research was conducted for 2 months. Starting from April to June 2018. The reason for the study was to select the working area of Medan Johor Health Center and Puskesmas Medan Amplas as a research site because this location is a densely populated location with TB patients and Puskesmas have TB program. The questionnaire knowledge of pulmonary TB patients used in this research with CVI value (Content Validity Index) = 0.83. Instruments have been tested reliability with Cronbach's Alpha value = 0.9. The process of collecting data is done by 1) the researcher fill out the format of assessment of respondent characteristics that include age, sex, occupation, and education level, and patient's cellular contact number; 2) the researcher assessed TB patient's knowledge about TB before N-SMSI (pre-test) on the first day; 3) Researchers conducted N-SMSI implementation for 2 months by sending a short message containing health education about pulmonary tuberculosis. SMS is sent at 19300 WIB every Wednesday and Saturday. This is because the time is a time of rest (premiere time) and the most common time a person uses a communication tool. SMS contains information on TB information, such as TB definition, TB transmission prevention, drug side effects and coughing and sneezing ethics 4) researchers reevaluate lung TB patients' knowledge (post test) using a pulmonary tuberculosis patient's TB questionnaire about pulmonary tuberculosis. Analysis of this research data is processed by using SPSS program.

## 3 RESULT

The result showed that demographic data, the majority of age <40 years old were 43,1% (31), 66,7% (48) male majority, 54,2% (39) private

employees, the majority of private sector employees occupy 54.2% (39), the majority of private employment is 54.2% (39), the majority live with households with the wife as much as 48.6% (35), the majority of home high humidity home conditions are 38.9% (28), the majority of high school education as much as 62.5% (45), the majority of respondents had contact with patients in contact with previous patients as much as 54.2% (39). Description in table 1.

Table 1: Characteristic Of Patient Demographic

| Demography Characteristics                                   | F  | %    |
|--|----|------|
| Age  |    |      |
| <40 year   | 31 | 43.1 |
| 40-60 year   | 33 | 45.8 |
| >60 year   | 8  | 11.1 |
| Sex  |    |      |
| Female   | 24 | 33.3 |
| Male   | 48 | 66.7 |
| Profession   |    |      |
| Labor  | 7  | 9.7  |
| Farmer   | 1  | 1.4  |
| Civil Servant  | 6  | 8.3  |
| employe  | 39 | 54.2 |
| Dealer   | 19 | 26.4 |
| Families live at home  |    |      |
| Main Family (father, mother, children)                       | 13 | 18.1 |
| Extended Family (father, mother, children, the other family) | 10 | 13.9 |
| House condition  |    |      |
| In front of hightway   | 17 | 23.6 |
| No window  | 27 | 37.5 |
| Stuffy house   | 28 | 38.9 |
| Education  |    |      |
| Primary school   | 2  | 2.8  |
| Junior High School   | 8  | 11.1 |
| Secondary School   | 45 | 62.5 |
| Diploma  | 10 | 13.9 |
| Bachelor   | 7  | 9.7  |
| History of contact with tuberculosis patients                |    |      |
| Yes  | 33 | 45.8 |
| No   | 39 | 54.2 |
| Culture  |    |      |
| Batak  | 38 | 52.8 |
| Jawa   | 26 | 36.1 |
| Minang   | 8  | 11.1 |
| Get TB Information   |    |      |
| Yes  | 66 | 91.7 |
| No   | 6  | 8.3  |
| Total  | 72 | 100  |
| TB Resource  |    |      |
| Television   | 41 | 56.9 |
| News paper/ magazine   | 4  | 5.6  |
| Flip Chart   | 22 | 32.8 |
| Total  | 57 | 100  |

The results showed the knowledge characteristics of TB patients before and after intervention, ie before the action the majority of knowledge of the patient is in the category of 51.4% enough. After the action, the majority of the patient's knowledge is in the good category of 68.1%. Description can be seen on the graph below.

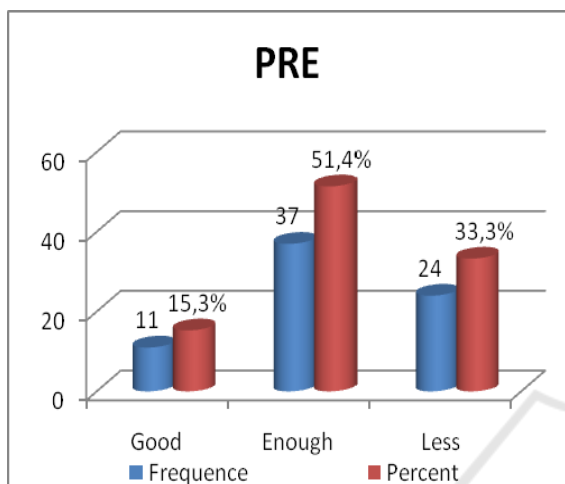


Figure 1: Knowledge of Tb patients before Health Education through NSMSI

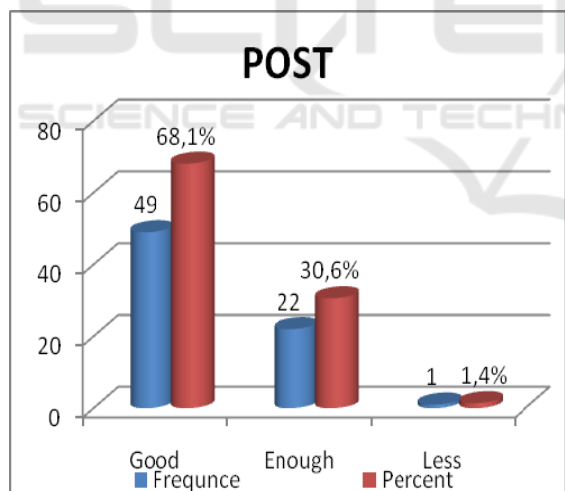


Figure 2: Knowledge of Tb patients after Health Education through NSMSI

The result of statistical test by using Wilcoxon Signed Test found that  $p = 0,000$ , there is influence of health education through NSMI to TB patient's knowledge about TB. Description in table 2

Table 2: Influence of Health Education through N-SMSI to Patient Knowledge Tb Patient

|      | Mean | N  | P-Value |
|------|------|----|---------|
| Pre  | 5,57 | 72 | 0,000   |
| Post | 9,10 | 72 |         |

## 4 DISCUSSION

### 4.1 Knowledge of Tuberculosis Patient before N-SMSI

Result of research based on knowledge characteristic before NSMSI intervention got knowledge on enough category 37 people counted 51,4% and less 24 people counted 33,3%. The several factors affect the knowledge. One of which is information gained previously. In this study the patient had obtained previous TB information as much as 91.7%. The study conducted by Tolossa, Medhin and Legesse (2014) that 94.9% of patients have heard of previous TB. Having had prior knowledge then will understand and understand. If it has obtained information repeatedly then the information will be stored and when faced with the same information then there will be a process of recalling the brain and can have experience with previous information (Notoatmodjo, 2012).

### 4.2 Knowledge of Tuberculosis Patient after N-SMSI

Result of research based on knowledge characteristic after NSMSI intervention got knowledge on good category 49 people counted 68,1% and enough 22 person 30,6%. Such The several factors affect the knowledge, one of which is the age of the respondent. The result showed that majority of age <40 years old was 45,8% (33). Age affect of people's ability and paradigm. Increased age will also develop the capability to catch and the paradigm so the knowledge gets better and the older the more experienced, the more information encountered and more and more things done so increase his knowledge (Notoatmodjo, 2012). The study conducted by Bisallah, Rampal, Lye, Sidik, Ibrahim, Ilyyasu and Onylio (2018) that the average age of TB patients is 38 years old. Notoadmodjo (2012) argues that a people who have the high education will be the easier to accept or adjust to new things, because education affects the learning process. The results obtained that the majority of high school education respondents as much as

62.5% (45). The research conducted by Bisallah, Rampal, Lye, Sidik, Ibrahim, Iliyasu and Onylio (2018) that the average education level of 226 respondents is at the Secondary 84 level of 37.2% (Tolossa, Medhin and Legesse, 2014).

### 4.3 Effect N-SMSI on Knowledge of Tuberculosis Patient

Result used Wilcoxon Signed Test get that  $p = 0,000$  that there is influence of health education through NSMI to knowledge of patient TB about TB. Knowledge was outcome knowing after people make sense the object. Knowledge is a necessary needed domain for actions (Notoatmodjo, 2012; Mirowsky and Ross, 2017). The result of study by Liu *et al.* (2015) that there is an increase in knowledge after being educated either peer-led or teacher-led in the prevention of tuberculosis in schools in China. Knowledge enhancement is made through telenursing based NSMI. Telenursing in Asia can improve the quality of nursing care by providing broad access to consultation and improving client knowledge (Durrani and Khoja, 2015). One telenursing service has the form of services such as assessment and intervention, education, supportive care, discharger follow up and management of disease. In this study the researchers conducted an education about tuberculosis disease that includes the definition, causes, signs and symptoms of disease transmission by using NSMSI for 2 months. Application of NSMSI is very effective. This is because the provision of care services nursing care is not only limited to the health center but the provision of care services can be done at any time to discuss the complaint of disease complaints. At the time of implementation NSMSI respondents were very cooperative. When researchers submitted health education materials many enthusiastic respondents inquired and discussed about their improved condition.

## 5 CONCLUSION

NSMS (Ners-Short Message Service Intervention) is a maintenance management model. N-SMSI (Ners-Short Message Service Intervention) can improve the knowledge of Pulmonary TB patients about TB. The action is so important that not only the patient knows, but the patient becomes aware of the conditions experienced and obedient to the treatment that is run. Patient knowledge is very important. This is because if the patient does not

know about the disease it will cause impact not only for patients, especially for his family such as transmission TB to people who contact with TB patients. If this happens it will be difficult to break the chain of TB transmission that occurs in the community.

## ACKNOWLEDGEMENTS

This research is financed by TALENTA USU of 2018 Year.

## REFERENCES

- Bisallah, C., Rampal, L., Lye, M., Sidik, S., Ibrahim, N., Iliyasu, Z., Onyilo, M., 2018. Effectiveness Of Health Education Intervention In Improving Knowledge, Attitude, And Practices Regarding Tuberculosis Among HIV Patients In General Hospital Minna, Nigeria – A Randomized Control Trial. *PloS One* 13 (2): 1 – 14.
- Durrani, H., Khoja. 2015. A systematic review of the use of telehealth in Asia countries. *Journal of Telemedicine and Telecare* 15: 175-181.
- Kogozi, N., Heunis, J., Engelbrecht, M., Rensburg, P., Rensburg, H., 2017. Tuberculosis Knowledge, Attitudes And Practices Of Patients At Primary Health Care Facilities In A South African Metropolitan: Research Towards Improved Health Education. *BMC Public Health* 17: 795.
- Liu, Q., Liu, L., Vu, H., Liu, X., Tang, S., Wang, H., 2015 Comparison Between Peer-Led And Teacher-Led Education In Tuberculosis Prevention In Rural Middle Schools In Chongqing, China. *Asia Pacific Journal of Public Health* 27 (2): NP2101–11.
- Ministry of Health Indonesian, 2017. Data and Information; Health Profile Of Indonesia 2016 <http://www.depkes.go.id/resources/download/pusdatin/lainlain/Data%20dan%20Informasi%20Kesehatan%20Profil%20Kesehatan%20Indonesia%202016%20%20smaller%20size%20-%20web.pdf> [Accessed on July 12<sup>th</sup> of 2018]
- Mirowsky, J., Ross, C., 2017. *Education, Social Status and Health*. Routledge. United State of America.
- Notoatmodjo, S., 2012. *Promosi Kesehatan dan Perilaku Kesehatan*. Rineka Cipta. Jakarta.
- Tolossa, D., Medhin, G., Legesse, M., 2014. Community Knowledge, Attitude, and Practices Towards Tuberculosis in Shinile Town, Somali Regional State, Eastern Ethiopia: A Cross-Sectional Study. *BMC Public Health* 14(804): 1–13.
- Uchenna, O., Chukwu, J., Oshi, D., Nwafor, C., Meka, A., 2014. Assessment of tuberculosis-related knowledge, attitudes and practices in Enugu, South East Nigeria. *Journal of Infectious Diseases and Immunity* 6(1): 1–9.

Ukwaja, K., AlobuI, N., Onyenwe, E., 2013. Healthcare-seeking behavior, treatment delays and its determinants among pulmonary tuberculosis patients in rural Nigeria: a cross-sectional study. *BMC Health Serv Res* : 13-25.

World Health Organization (WHO), 2016. Global Tuberculosis Report 2016 WHO Library Cataloguing in Publication Data. Website: <http://www.who.int/mediacentre/factsheets/fs317/en/print.html> [Accessed on July 12<sup>th</sup> of 2018]

