

Short Communication

THE USE OF ASSISTIVE COUNSELLING TOOL "LUNG TB CARE" TO INCREASE PATIENT'S KNOWLEDGE LEVEL (A STUDY IN TUBERCULOSIS PATIENTS AT MALANG'S PRIMARY HEALTH CARE CENTERS)

RATNA KURNIA ILLAHI*, HANANDITIA RACHMA PRAMESTUTIE, MADE SHANDRA DWI DESYANA

***Department of Pharmacy, Faculty of Medicine, Universitas Brawijaya, Jl. Veteran, Malang 65145
Email: ratna.illahi@ub.ac.id**

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ABSTRACT

Objective: Patient's compliance in taking medication has an important role for the success of tuberculosis (TB) therapy because of long period of treatment. One of the reasons of frequent failure in tuberculosis therapy resulted from the lack of patient's knowledge about the disease and treatment of tuberculosis, therefore affecting patient's compliance. This study aimed to increase the knowledge level of tuberculosis patients. by using "Lung TB Care" as an assistive counselling tool in the form of computer applications that include pictures and information about the disease and treatment of tuberculosis.

Methods: This study was a preliminary study with one-group retest design. The number of subjects in this study was 60 patients with the first category pulmonary TB. The Primary Health Care Centres were chosen with purposive sampling method, while the tuberculosis patients were chosen with random sampling according to appropriate inclusion and exclusion criteria.

Results: The study indicated that there were changes in the level of patients' knowledge, before and after counselling with "Lung TB Care". The paired t-test analysis showed a significantly different result between two groups ($p < 0.001$) regarding patient's knowledge about the disease and treatment.

Conclusion: To conclude this study, the use of assistive counselling tools "Lung TB Care" gives positive effect on the patients' knowledge level, suggested that there are changes in the patients' knowledge level after counselling by using assistive counselling tools.

Keywords: Counselling, Counselling tool, Patient's knowledge, Tuberculosis

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Tuberculosis (TB) is a respiratory tract infection caused by *Mycobacterium tuberculosis*. Mortality rate from TB incidents in Indonesia is among the top 3 in the world. At the same time, it has the highest mortality rate among communicable diseases in Indonesia, and number 3 in all diseases group [1]. A data in Malang showed that TB infected 30% of the population in 2012 [2].

Some of the reasons that caused a problem in TB therapy are a long duration of therapy (6 mo), patient's low confidence, and potential adverse effects [3]. TB counselling is a supporting process done by the counsellor to patients in order to increase patient's knowledge about TB [1], including the symptoms and medications. The use of assistive counselling tools can help counselling process. There are two kinds of commonly used assistive counselling tools, one that is used by the counsellor (e. g. drug information leaflet) and counselling tools that are given to the patients (e. g. pillbox) [5].

For many of pulmonary tuberculosis patients in Malang, the lack of information and counselling on anti TB drugs used by patients were the main causes of patients' low level of knowledge [9]. The success of TB treatment can be influenced by patients' level of knowledge.

The assistive counselling tool "Lung TB Care" is a computer application that contains pictures and information about the disease and the treatment of pulmonary tuberculosis. The contents including the definition of TB disease, the cause, symptoms, modes of transmission, the risk of contracting the disease, how to do disease screening, drugs and treatment categories, treatment monitoring, as well as TB disease prevention.

Hence, this study was conducted to determine whether the use of assistive counselling tool "Lung TB Care" could increase patients' level of knowledge regarding TB treatment, and respectively could improve patients' compliance and quality of life.

This study was a preliminary study with one group retest design and has been declared eligible to conduct by the Health Research Ethics

Committee, Faculty of Medicine, Universitas Brawijaya with letter number 386/EC/KEPK-S1-FARM/10/2016. The data were collected from October-November 2016 in three Primary Health Care (PHC) Centres, Malang.

PHC was selected with purposive sampling to include those that provided TB care services. Meanwhile, a sampling of TB patients was conducted by simple random sampling. The number of respondents obtained was 60 patients with pulmonary tuberculosis category 1 in accordance with the inclusion and exclusion criteria set by the researcher. Among other inclusion criteria were adult patients (≥ 18 y) who suffered from pulmonary TB, patients with first category pulmonary TB including newly diagnosed patients with BTA positive, patients with BTA negative and x-ray positive, and those with severe extra-pulmonary tuberculosis; patients who were willing to fill out questionnaires, patients who came PHC to fill in anti TB prescriptions or to consult with a counsellor, and patients who were not illiterate. While the exclusion criteria included patients who were not cooperative and patients who did not use FDC types anti TB drugs.

The instrument used in this study was a questionnaire that was distributed to respondents before and after being given counselling by using assistive counselling tools "Lung TB Care". "Lung TB Care" was a computer application that includes pictures and information about the disease and the treatment of pulmonary tuberculosis. Respondents were asked to fill out a self-conduct questionnaire by checking the selected answer. The instrument consisted of 10 questions including the definition of TB (1 item), signs and symptoms of TB (1 item), transmission of TB (1 item), category of people who are at risk of TB (1 item), diagnosis of TB disease (1 item), anti TB drugs (4 items), and TB prevention (1 item). The questionnaire used in this study had been tested for validity and reliability by giving it to 30 respondents with similar criterias with the subjects. The result from validity test showed probability < 0.05 , and reliability test showed Cronbach's alpha value of 0.81, meant that the questionnaire was valid and reliable.

Every answer obtained from the questions was given score according to "True" and "False" answers in favourable categories or unfavourable categories. Score 1 was given for correct answer or score 0 for incorrect answer. Validity and reliability test for the questionnaire was conducted on 30 respondents outside of the study group. The data obtained was then analysed by using SPSS22.0 (SPSS®, Inc., Chicago, IL).

The patients' knowledge levels were categorised into three different levels, good (71%-100%), sufficient (51%-70%) and low (<50%) [7]. Measurement of patients' knowledge level was done by using the formula:

$$\frac{\text{Number of questions}}{\text{Total number of questions}} \times 100\%$$

Which was then presented in tabular form.

In addition, paired t-test analysis was completed to see the effect of assistive counselling by using counselling tool "Lung TB Care" on the patients' knowledge level with a statistical hypothesis:

Ho: there is no difference in knowledge scores before and after assistive counselling.

H1: there is difference in knowledge scores before and after assistive counselling

Test criteria: reject Ho if the significance value ($p < 0.05$)

Demographics information obtained were including sex, age, level of education, profession, duration of TB treatment; as well as the result from the questionnaire.

Most of the patients were male (n=31; 51.67%), in the age group of 21-30 y (n=19; 31.67%), senior high school graduates (n=23; 38.33%), private sector employees (n=20; 33.33%), and had been using TB therapy for 3-6 mo (n=42; 70%). Further details can be seen in the table below:

Table 1: Demographic data of patients

Characteristic	Frequency	
	N	%
Sex		
Male	31	51.67
Female	29	48.33
Age		
≤20	9	15
21-30	19	31.67
31-40	15	25
41-50	10	16.67
51-60	6	10
61-70	1	1.67
Education		
Primary	4	6.67
Junior High	11	18.33
Senior High	23	38.33
Academy	22	36.67
/University		
Profession		
Public officer	2	3.33
Private officer	20	33.33
Self-employed	14	23.33
Housewives	8	13.33
University student	10	16.67
Student	1	1.67
Jobless	5	8.33
Duration of therapy		
2-4 minggu	4	6.67
1-2 bulan	14	23.33
3-6 bulan	42	70

Table 2: Patients' knowledge level data

Knowledge level	Frequency		Knowledge level score (%)
	N	%	
1. Pretest			
Low	9	15	20-50
Sufficient	29	48.3	60-70
Good	22	36.7	80-90
2. Post-test			
Low	0	0	-
Sufficient	4	6.7	70
Good	56	93.3	80-100

Pretest result showed that most of the patients had sufficient knowledge level category (n=29; 48.3%), while post-test result showed that most of the patients had good knowledge level (n=56; 93.3%).

Table 3: Patients' knowledge level before and after assistive counselling

Data	Significancy (<i>p</i> value)	Notes
The difference in knowledge level before and after assistive counselling	0.000	Statistically significant

Result in table 3 showed that there were statistically significant differences in patients' knowledge level ($p < 0.05$) before and after counselling by using counselling tool "Lung TB Care".

Table 4: Paired t-test result

Results	Mean	Standard deviation
Pretest	6.87	1.42
Post test	9.02	0.93

The data in table 4 showed that there was an increased in mean result before and after assistive counselling with counselling tool "Lung TB Care".

Table 5: Paired sample test result

Data	Differences in result	Significance (p value)
Pre-test-post-test	-2.15	0.000

The difference between pre-test and post-test average result was -2.15 with a significance level ($p=0.000$), suggested that there was an increase in patients' knowledge after assistive counselling by using counselling tools "Lung TB Care".

Patients' knowledge level was tested by using a questionnaire that aimed to determine the effect of assistive counselling by using counselling tool "Lung TB Care" in increasing patient's knowledge. Demographics data showed that most of the patients were men ($n=31$; 51.67%) and in the age group of 21-30 y ($n=19$; 31.67%). These results were in accordance with the data from Ministry of Health in 2007, showed that 75% of patients with pulmonary TB are in the productive age group [2].

Most of the patients were high school graduates ($n=23$; 38.33%). The previous study showed that people with higher education level would have better knowledge level and also easier to absorb information given by counsellor [6]. The result also showed that most of patients worked in private sectors ($n=20$; 33.33%). There was no information on the correlation between workplace and the transmission of TB disease. In fact, most of the patients live in the same or adjacent neighbourhood, which can be one of the factors related with TB transmission.

Patients with longer duration of TB therapy between 3-6 mo were found more frequently ($n=42$; 70%) compared to other groups, because the patients from this group were usually more diligent in complying the therapy and filling in their drug prescriptions [10].

This study used assistive counselling tool "Lung TB Care" and a questionnaire as an instrument to determine the patients' knowledge level before and after counselling with assistive counselling tool. All the patients who were given counselling by using assistive counselling tool showed an increase in knowledge level. A significant increase in knowledge level could happen because the study was done cross-sectional, and most of the patients are in productive age group with the higher level of education. In addition, most of the patients are those with longer treatment who had more information about TB disease and therapy resulted from frequent visits to Primary Health Care Centres.

Some of the questions in the questionnaire (number 2, 4, 5, 6, 7, 8, 9, 10) did not have a full mark (100%) even after counselling. This could occurred because there was limited time allocated to answer the questions, and or limited time of counselling. Multiple display images and information cannot be given perfectly to the patients if there was not enough time allocated for counselling. Counselling was also done by medical staffs who is not a pharmacist because there was a lack of a number of pharmacists in PHC and high workload for pharmacists, resulted in the low quality of information given to the patients. Additional numbers of the pharmacist are needed in PHC to ensure an optimisation in the quality of the treatment given.

The effect of assistive counselling by using counselling tool "Lung TB Care" can also be determined by using a paired t-test. Based on the results obtained, there were statistically significant differences* ($*p<0.001$) in knowledge scores before and after assistive counselling. The result of the difference in the average value of pre-test-post-test showed a value of -2.15, stating that the use of assistive counselling tool "Lung TB Care" has a positive effect on the level of knowledge of the patients with first category pulmonary TB.

Counselling can be done more effectively by using assistive tools. These tools can be used to help counsellors in the counselling process. There are also assistive tools that can be given to patients to help increase

patient's compliance such as a pillbox. Assistive counselling tools can be in the form of audiovisual, pictures, posters, or others. A previous study mentioned that contraception assistive counselling tool was shown to give positive effect to the knowledge level of the acceptor of combined oral contraceptives (COC) [6]. This previous study is in accordance with the results obtained from assistive counselling by using "Lung TB Care". Moreover, the computer application that contains pictures/image and information to be presented during the counselling showed to have a positive influence on patient's knowledge.

Good level of knowledge will affect patients' behaviour regarding the treatment of pulmonary TB. Increasing the patients' knowledge regarding proper TB treatment resulted in better patients' compliance towards the therapy to cure the disease [8]. In this study, there was a significant increase in patients' knowledge after using assistive counselling tool, which hopefully be able to improve patients' compliance and patients' quality of life.

Confounding factors in this research were the age of the patient that may affect the result of the patients' knowledge level. This can happen because older patients may have more difficulty to recall information, therefore no significantly increase in patients' level of knowledge even after assistive counselling. Systematic bias can be avoided by specifying the inclusion and exclusion criteria for the samples to be used for research.

The advantage of assistive counselling by using counselling tool "Lung TB Care" is to make it easier for counsellor and patients to remember all the information given because the explanation is accompanied with attractive pictures, compared with regular counselling without tools. In addition, the use of assistive counselling tools can also improve patients' knowledge about the disease and its treatment significantly, and making it more likely for the patients to adhere to the treatment. Ultimately, the objective is to reduce the risk of treatment failure in patients with tuberculosis and to improve the quality of life of patients.

Some downsides of using assistive counselling tool "Lung TB Care" are the use of application requires a computer or laptop in the clinic to be used during the counselling process, and it also required competent health personnel who can use the counselling tool.

Previous research on the effect of counselling on the level of knowledge in the treatment of tuberculosis patients in the TB Clinic Malang, mentioned that counselling was less effective to increase patients' level of knowledge [9]. While in this study, it was shown that the use of assistive counselling tool could significantly increase patients' level of knowledge. Thus, it can be concluded that assistive counselling by using assistive counselling tools "Lung TB Care" could increase the effectiveness of counselling compared to counselling without using counselling tool.

The limitations on this research included limited time for counselling that resulted in less information in counselling tools delivered by the counsellor, and some difficulty to do a retention post-test because of the time limit of the study.

Based on the research that has been done on the effect of the use of assistive counselling tool "Lung TB Care" on the patients' level of knowledge, it can be concluded that the use of assistive counselling tool

"Lung TB Care" had a positive effect on the TB patients' level of knowledge.

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AUTHORS CONTRIBUTIONS

All the author have contributed equally

CONFLICT OF INTERESTS

Declared none

REFERENCES

1. Kusuma C. Diagnostik tuberkulosis baru. Sari Pediatri 2008;8:4.
2. Departemen Kesehatan RI. Pedoman konseling pelayanan kefarmasian di sarana kesehatan. Jakarta: Direktorat Bina Farmasi Komunitas dan Klinik Direktorat Jenderal Bina Kefarmasian dan Alat Kesehatan; 2007.
3. Knechel NA. Tuberculosis: pathophysiology, clinical features, and diagnosis. Critical Care Nurse 2009;29:34-43.
4. Ratnasari NY. Hubungan dukungan sosial dengan kualitas hidup pada penderita tuberkulosis paru (TB Paru) di balai pengobatan penyakit paru (BP4) yogyakarta unit minggiran. J Tuberkulosis Indonesia 2008;8:8.
5. Agung AAG, Anak Agung SS, Dewa NW. Rendahnya proporsi kontak yang melakukan deteksi dini tuberkulosis paru di puskesmas i Denpasar selatan tahun 2012. Public Health Preventive Med Arch 2013;1:57.
6. Hanum L. Pengaruh Alat Bantu Konseling "Sukses Ber-KB" terhadap Pengetahuan Akseptor Kontrasepsi Oral di Apotek Kota Malang. Unpublished; 2015.
7. Puspita E, Erwin C, Indra Y. Gambaran status gizi pada pasien tuberkulosis paru (TB Paru) yang menjalani rawat jalan di RSUD arifin achmad pekanbaru. JOM FK 2016;3:5.
8. Saptawati L, Mardiasuti, Anis K, Cleopas MR. Evaluasi metode *FAST Plaque TB* untuk mendeteksi *Mycobacterium tuberculosis* pada sputum di beberapa unit pelayanan kesehatan di Jakarta-Indonesia. J Tuberkulosis Indonesia 2008;8:4.
9. Wahyuningsih VD. Pengaruh Konseling Terhadap Tingkat Pengetahuan Pasien Dalam Pengobatan Tuberkulosis Di Puskesmas Kota Malang. Unpublished; 2015.
10. Zumla AI, Raviglione M, Hafner R, Von Reyn CF. Tuberculosis. N Engl J Med 2013;368:745-55.