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Research Article

Effect of Patient's Personal Character on Prevention of Transmission of Pulmonary TB

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ABSTRACT

Tuberculosis (TB) is an infectious disease that is still a problem for health in the world, caused by Mycobacterium tuberculosis. Muaro Jambi showed second ranks of TB patients number in Jambi Province. Based on the available data, the biggest positive TB patients were in the Muara Kumpeh Health Center working area which was 54 people (2016) and 68 people (2017). The purpose of this study was to determine the relationship and risk of Self Efficacy and Interpersonal Relations to the prevention of pulmonary TB transmission in the Muara Kumpeh Health Center in Muaro Jambi District in 2018. This research is a quantitative research with Cross Sectional Study research design. The sample of this study was 68 people interviewed using questionnaire with the Total Sampling. The research was carried out in the work area of Muara Kumpeh Health Center in April-August 2018. The data was collected then analyzed in univariate and bivariate. A total of 37% of respondents were adults (26-45 years), 53% of male patients and 52% of respondents were treated by their spouses during illness. There was a significant relationship (p-value = 0.011) between self efficacy and TB transmission prevention behavior and low self efficacy at 5.14 times the risk of transmitting pulmonary TB compared to high self efficacy. With high self confidence from respondents can provide good motivation for their recovery. There was no significant relationship (p-value = 0.104) between interpersonal relationships with TB transmission prevention behaviors and interpersonal relationships not risk factors for preventing TB transmission behavior. This could be due to not too much percentage difference between respondents who have low and high interpersonal relationships. Besides that, the knowledge factor of the patient's family can also be confounding on this variable. Low self efficacy has a risk of 5.14 times transmitting TB and this is statistically significant. It is better to do more routine care of the patient's family so that it can improve self efficacy and interpersonal relationships of the patient.

Keywords: *Self Efficacy, Interpersonal Relationship, Prevention of Pulmonary TB Transmission*

ABSTRAK

Tuberkulosis (TB) adalah penyakit menular yang masih menjadi masalah di dunia kesehatan sejauh ini merupakan penyakit menular yang disebabkan oleh Mycobacterium tuberculosis. Wilayah Muaro Jambi menempati urutan kedua terbanyak di TB di Provinsi Jambi. Berdasarkan data yang tersedia, pasien TB positif terbesar adalah di wilayah kerja Pusat Kesehatan Muara Kumpeh yang terdiri dari 54 orang (2016) dan 68 orang (2017). Tujuan dari penelitian ini adalah untuk mengetahui hubungan dan risiko Efektivitas Diri dan Hubungan Interpersonal untuk pencegahan infeksi TB paru di Pusat Kesehatan Muara Kumpeh di Kabupaten Muaro Jambi pada tahun 2018. Penelitian ini adalah penelitian kuantitatif dengan penelitian Cross Sectional Study. Sampel penelitian ini adalah 68 orang yang diwawancarai menggunakan kuesioner dengan Number of Sampling. Penelitian dilakukan di wilayah kerja Pusat Kesehatan Muara Kumpeh pada bulan April-Agustus 2018. Data yang dikumpulkan kemudian dianalisis secara univariat dan bivariat. Sekitar 37% responden adalah orang dewasa (26-45 tahun), 53% pasien pria dan 52% responden dirawat oleh pasangan mereka selama sakit. Ada hubungan yang signifikan (p-value = 0,011) antara efikasi diri dan perilaku pencegahan penularan perilaku

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dan efikasi diri yang rendah pada 5,14 kali risiko transplantasi TB paru dibandingkan dengan efikasi diri yang tinggi. Dengan harga diri yang tinggi dari responden dapat memberikan motivasi yang baik untuk pemulihan mereka. Tidak ada hubungan yang signifikan (p-value = 0,104) antara hubungan interpersonal dengan perilaku pencegahan TB dan hubungan interpersonal alih-alih faktor risiko untuk mencegah penularan perilaku TB. Ini mungkin disebabkan oleh perbedaan persentase yang rendah di antara responden dengan hubungan interpersonal yang rendah dan tinggi. Selain itu, faktor pengetahuan keluarga pasien juga dapat membingungkan tentang variabel ini. Efikasi diri yang rendah memiliki risiko 5,14 kali radiasi TB dan ini signifikan secara statistik. Cara terbaik adalah melakukan perawatan keluarga yang lebih rutin untuk meningkatkan efikasi diri dan hubungan interpersonal pasien.

Kata kunci: *Efikasi diri, Hubungan Interpersonal, Pencegahan Penularan TB Paru*

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INTRODUCTION

Pulmonary TB is a chronic and contagious infection that is closely related to environmental conditions and community behavior. Pulmonary TB is an infectious disease caused by Mycobacterium tuberculosis. This disease is transmitted through the air which is spit, sneezing and coughing. Mycobacterium tuberculosis enters the lung tissue through the airways (droplet infection) to the alveoli, primary infection occurs. Then spread to the local lymph nodes and formed a complex primer. Primary and primary complex infections are called primary TB, most of whom will experience healing on a further journey. Pulmonary TB disease usually attacks the lungs but can also attack other body organs.[1,2] Pulmonary TB is still a public health problem in the world. Pulmonary TB disease attacks many productive age groups. Most come from low socioeconomic groups and low levels of education.[3]

The World Health Organization (WHO) is stated that the situation of the world Tuberculosis (TB) is getting worse, where the number of TB cases has increased and many have not been cured. WHO declare TB as a global emergency, especially due to the epidemic of cases of Multi Drug Resistance (MDR), a suspect with pulmonary tuberculosis can easily transmit it through sputum by spreading the germs into the air[4]. Tuberculosis (TB) is an infectious disease that is still a problem in the world of health to date. Global TB incidence is reported to have decrease at a rate of 2.2% in 2016-2017.[1,2] The WHO report in 2017 concludes that there are estimated 8.6 million TB cases in 2016 of which 1.1 million people (13%) are HIV positive of TB patients and around 75% of these patients are in the African region. In 2012, there were an estimated 450,000 people suffering from MDR TB and 170,000 of them died.[1,5]

Indonesia is the 4th country with the highest number of tuberculosis patients in the world. Treatment of tuberculosis is one way to control infection and reduce transmission of tuberculosis. The National Tuberculosis Program has successfully achieved the target of the Sustainable Development Goals in the form of increasing the discovery of new cases of positive smear as much as 70% and cure rates of 85%, but some hospitals and private practices still have not implemented the Directly Observed Treatment Short course (DOTS) and International Standards for Tuberculosis strategies Care (ISTC). Efforts to expand the application of the DOTS strategy are still a major challenge for Indonesia in controlling tuberculosis.[6,7]

Indonesia have achievements in reducing tuberculosis mortality. In 2007, Indonesia ranked third among countries with the most TB cases. In 2015 it was ranked 5th under India, China, Kenya and South Africa with a decrease in mortality which was 168,000 / year (in 2010) to 64,000/ year (in 2015).[7]

Based on data obtained from the Jambi Provincial Health Office, it can be seen that there has been an increase in tuberculosis cases in Muaro Jambi district in 2015 the number of pulmonary TB patients was 368 people while in 2016 the number of pulmonary TB patients was 377 people, with a prevalence of 0, 10%. From these data there is an increase in tuberculosis case finding each year, the second largest number of pulmonary TB patients is Muaro Jambi Regency while the lowest is Sungai Penuh city. Every year data shows an increase in TB sufferers in Muara Jambi District. Based on the available data, the biggest positive TB patients are in the Muara Kumpeh Health Center working area which is 54 people in 2016 and 68 people in 2017.[8]

Given that pulmonary tuberculosis can have fatal consequences and death, the family or community should know and understand the various problems and impacts of the disease, especially pulmonary TB. With the existence of a Self Efficacy and a good Interpersonal Relationship, it plays an important role in efforts to prevent transmission of pulmonary TB. The purpose of this study was to determine the relationship and risk of Self Efficacy and Interpersonal Relations to the prevention of pulmonary TB transmission in the Muara Kumpeh Health Center in Muaro Jambi District in 2018.

MATERIALS AND METHODS

This research is a quantitative study with a cross sectional study design to see the relationship between dependent and independent variables at one time.[9] The sample of this study amounted to 68 people using the Total Sampling questionnaire. The study was conducted door to door to interview respondents. And was held in April-August 2018.

The data used in this study consisted of secondary data and primary data. Secondary data is obtained from the data from PKM Muara Kumpeh medical recording and address data from the village office. While the primary data is data collected by researchers with interview and observation techniques. The research instrument used was a questionnaire with 10 questions for each variable. The questionnaire was first tested for validity and reliability. The data collected was then analyzed in univariate and bivariate ways. Univariate analysis is to an obtained the description of the characteristics of respondents related to age, sex and who treated during illness with chi-square and odd ratio to determine the relationship and the magnitude of the risk of the independent variables on the dependent variable.

RESULTS AND DISCUSSION

This chapter describes the results of research both univariately and bivariately between the relationship of self-efficacy and interpersonal relationships to the prevention of transmission of pulmonary TB. The results of this study are presented in percentage form and are presented in the form of graphs and tables.

Characteristic of Respondents

Based on univariate analysis of the data obtained consisting of Age Groups, Genders and Caring Families can be seen clearly in Figure 1, 2 and 3 below. Age of respondents is grouped according to age classification according to the Ministry of Health of the Republic of Indonesia consisting of children under five, children,

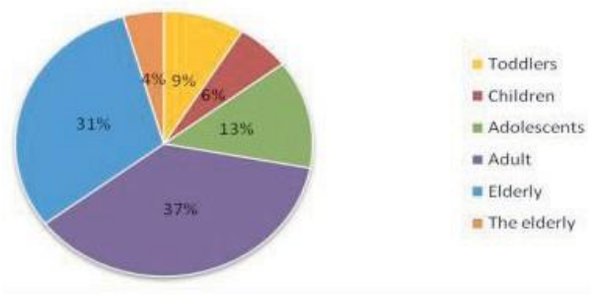

Figure 1. Distribution of Frequency of Respondents by Age of Patients with Pulmonary TB in the Work Area of Muara Kumpeh Health Center in 2018

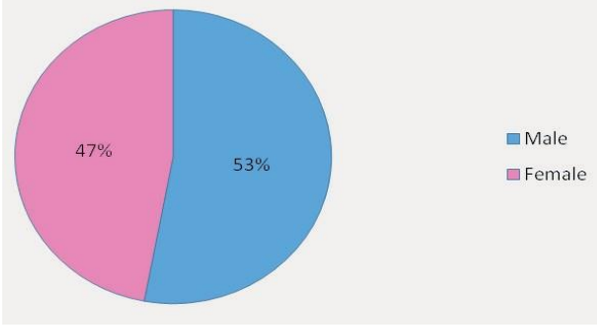

Figure 2. Distribution of Frequency of Respondents based on Gender of Pulmonary TB Patients in the Work Area of Muara Kumpeh Health Center in 2018

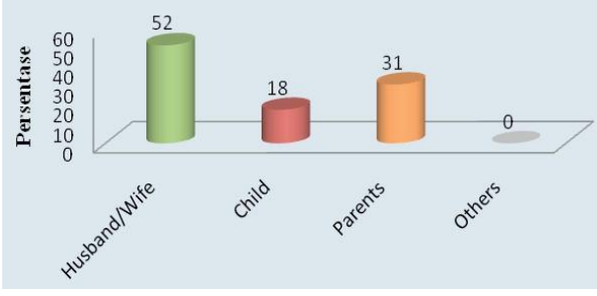

Figure 3. Distribution of Frequency of Respondents by Family Who Care for Pantients with Pulmonary TB in the Work Area of Muara Kumpeh Health Center in 2018

adolescents, adults, elderly and the elderly. In full, the percentage of each age group can be seen in Figure 1.

Based on Figure 1 it can be seen that the most respondents were the Adult group (37%) and the least were the Older group (4%).

Based on Figure 2, it is known that out of 68 respondents, 53% of respondents were male and 47% of respondents were female.

As many as 52% of respondents during illness were treated by their wifes and husbands and no respondents were treated other than the main family as shown in Figure 3 above.

Bivariate Analysis

This analysis is aims to prove the existence of a meaningful relationship between the independent variables and the dependent variable, the analysis using Chi-Square Test and the significance level of p <0.05. If the calculation results show the value of p <alpha (0.05), then statistically the two

Table 1. Analysis of Relations Self Efficacy on Prevention of TB Transmission

No.	Self Efficacy	Prevention				Total		*p-value*	*OR (LL-UL)*
		Poor		Good					
		n	%	n	%	n	%		
1.	Low	40	88.9	5	11.1	45	100		**5.14**
2.	High	14	60.9	9	39.1	23	100	**0.011**	**(1.47-17.97)**
Total		**54**	**79.4**	**14**	**20.6**	**68**	**100**		

Source: Primary Data, 2018

Table 2. Analysis of Interpersonal Relationship to Prevention of TB Transmission

No.	Interpersonal Relationship	Prevention				Total		*p-value*	*OR (LL-UL)*
		Poor		Good					
		n	%	n	%	n	%		
1.	Low	31	88.6	4	11.4	35	100		**3.37**
2.	High	23	69.7	10	30.3	33	100	**0.104**	**(0.94-12.11)**
Total		**54**	**79.4**	**14**	**20.6**	**68**	**100**		

Source: Primary Data, 2018

variables studied have a meaningful relationship. In addition, an odd ratio (OR) analysis was also conducted to see how much risk the variable was examined.

The level of self-efficacy and interpersonal relationships is divided into two categories, namely low and high, while the prevention of TB transmission are also two categories namely poor and good. The relationship and the amount of risk between the independent and dependent variables can be seen in the Table 1.

Based on Table 1, 88.9% of respondents had a low Self Efficacy which prevented the poor and there were also 11.1% of respondents who, despite their high Self Efficacy, still did poor prevention of transmission. From the results of chi-square analysis seen in the p-value, it was found that there was a significant relationship between self efficacy and TB prevention behavior. Whereas from OR analysis, it was found that self efficacy was a risk factor for the prevention of TB transmission behavior of 5.14.

Based on Table 2 as many as 88.6% of respondents have low interpersonal relationships that do poor prevention and there are also 11.4%

of respondents have taken good preventive despite low interpersonal relationships. From the results of chi-square analysis, it can be seen that there is no significant relationship between interpersonal relationships with TB transmission prevention behavior. From OR analysis it was found that interpersonal relations were not risk factors for preventing TB transmission behavior.

Characteristics of Respondents

From the results of the analysis of Figure 1 it can be seen that the most sufferers are the adult age group (26-45 years). This is likely to be attributed to occupational factors that are at risk for developing pulmonary TB. There are 9% of children under five who experience TB. Based on the results of in-depth interviews that researchers obtained that most likely this was caused by the transmission of the behavior of mothers who did not know the causes and dangers of TB because on average they were confused and did not realize where their children could get TB.

Based on sex, also most men. According to researchers this is almost the same as age, which is likely to come from occupational risks. The average male TB patient works as a worker/ employee who does not pay much attention to hygiene around. They also include laymen on pulmonary TB disease.

The average patient is treated by their husband/ wife. This should be good for the patient's motivation to recover because the caring family cares about the patient's health. This relates to interpersonal relationships. From the respondents' answers, most received positive support coming from their families for their recovery.

Bivariate Analysis

Based on the results in 68 respondents are showed that 45 respondents who had low self-efficacy. This was because the patient was still unfamiliar with TB disease so they did not have the confidence to recover even though they came for treatment. Then other results were found that 23 respondents had high self-efficacy. High self-efficacy group in this study consisted ofpatients to the adhering treatment program for six to nine months, maintaining environmental hygiene, obeying the supervisor taking medication by taking medication on time, being able to adjust to the side effects of TB drugs, taking the correct dose and correct medication time, perform sputum examination to find out the progression of the disease, take adequate rest, and check into health services if there are complaints that aggravate the disease.

Bivariate analysis shows that there is a relationship between Self Efficacy and prevention of pulmonary TB transmission and patients who have low Self Efficacy are at risk of transmitting pulmonary TB 5 times compared to patients with high self efficacy. According to researchers, this is only natural because most sufferers are indifferent to TB so they don't even know the causes and dangers. This of course affects the Self Efficacy to recover. This patient's ignorance can be seen from most respondents who do not know the cause of TB. They also did not separate equipment used by sufferers in the house. So that what is used by the patient such as towels, toiletries, food and other possibilities is also likely to be used by other family members who live at home. In addition, patients also do not understand that TB can be transmitted through the air. This increases transmission in the patient's home.

The results in this study are in line with the research conducted by Hendiani, which shows that the average TB patient has a high self-efficacy of 56.8%. This is because respondents want to recover from TB disease so that they comply with all health worker advice, various efforts are made to recover, such as taking vitamins, avoiding cigarette smoke and maintaining a clean house.[10] Respondents have low confidence in the prevention of transmission of tuberculosis due to previous failure treatment.[11]

Self-efficacy also influences the choices they make, helps determine how much effort a person spends in a behavior, how long they will survive in the face of obstacles and how strong they are in dealing with adverse situations. Self-efficacy plays an important role in predicting behavior and results. Self-efficacy has been linked to various clinical problems.[3,12]

According to Bandura[13] the process of self-efficacy is one of cognitive or knowledge. In this

case the action taken by someone who comes from his mind. Then the thought gives direction for the actions taken. If the higher knowledge, level of education, and work that is owned will contribute to the formation of high self-efficacy and high self-efficacy can not be separated from the presence of influencing factors such as previous individual experiences, experiences of others who are the same, social persuasion and physiological and emotional state.[11]

According to the study Tambunan[14] individuals who have good self-efficacy have a 5.850 times chance of showing a better quality of life compared to individuals who have poor self-efficacy. Health workers should emphasize again the importance of awareness of knowing pulmonary tuberculosis ranging from causes, the process of transmission and prevention. Therefore, the role of health workers contributes to the self efficacy of TB patients.[15]

An interpersonal relationship analysis on preventing transmission of pulmonary TB shows no relationship and is not a risk factor. Unrelated to these two variables is likely due to the respondent's good answers from 10 questions related to interpersonal relationships. The average respondent has received positive support from both family and health workers.

From the results of the analysis, it was found that 7.4% said that families and officers rarely reminded them to take precautions. According to researchers there are still respondents who have a family role and the role of health workers who are not good is due to various things such as the busyness of family members so that they do not have effective time between family members. Besides that, there is an assumption that the problem can still be handled independently by respondent, so that the family's attention with the respondent decreases as well as the role of the officer. There is still other opinion of respondent that the officer is not really in providing understanding or complete information on prevention of transmission of pulmonary TB.

In the treatment of tuberculosis, the role of the family is very important. The role of families in the treatment of tuberculosis is supervision of swallowing drugs. The family must encourage the recovery of the patient well. Families as Supervisor for Drugs are views and assessments of TB patients for interaction with family in the form of information, attention, encouragement and assistance from drugs supervisor so that the quality of relationships can affect the recovery of TB patients.[10,16]

This research differs from Yurida's[17] research which is stated that the main social support comes from family support, because family support plays an important role in the lives of tuberculosis patients struggling to recover, think ahead, and make their lives more meaningful due to lack of social support from their families and the environment surrounding causes psychological disorders in tuberculosis sufferers include: depression, adjustment disorders, anxiety, loss of life goals, weakening productivity, phobias and others[18]. Given that pulmonary tuberculosis can have fatal consequences and death, the family or community should know and understand various problems and impacts of the disease, especially pulmonary tuberculosis.[19,20]

It is expected that the role of the family in preventing transmission of pulmonary TB will be higher, so that respondents take precautions on themselves and their environment. In addition, the role of officers in the Muara Kumpeh Health Centre area involves posyandu cadres and certain organizations in counseling, especially in preventing transmission of pulmonary TB.

CONCLUSIONS

There is a relationship between Self Efficacy on prevention of pulmonary TB transmission and patients who have low Self Efficacy are at risk of transmitting pulmonary TB 5 times compared to patients with high self efficacy. There is no relationship between interpersonal relationships with the prevention of pulmonary TB transmission and interpersonal relationships are not a risk factor for preventing transmission of pulmonary TB in the work area of the Muara Kumpeh health center.

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CONFLICT OF INTEREST

There was no conflict of interest for this research.

REFERENCES

1. Kemenkes. Tuberkulosis (TB). 2017 [Internet]. 2018;1(april):2018. Available from: www.kemenkes.go.id
2. PDPI. Pedoman Penatalaksanaan TB (Konsensus TB). In: Perhimpunan Dokter Paru Indonesia [Internet]. 2011. p. 1–55. Available from: http://klikpdpi.com/konsensus/Xsip/tb.pdf
3. Herawati E. Hubungan Antara Pengetahuan dengan Efikasi Diri Penderita Tuberkulosis Paru di Balai Kesehatan Paru Masyarakat Surakarta. 2015;
4. WHO. Mdr-Tb. Burden, Glob Treat Enroll O N Mdr-tb Outcomes, Treat. 2016;2015–6.
5. WHO. WHO | TB/HIV facts 2015. Who. 2010;4.
6. Kementrian Kesehatan Republik Indonesia. Profil Kesehatan Indonesia 2015 [Internet]. Vol. 70, Kesehatan. 2016. 1780-1790 p. Available from: www.kemkes.go.id.
7. Menteri Kesehatan RI. TOSS TB: Temukan TB Obati Sampai Sembuh [Internet]. Www.Depkes.Go.Id. 2016. p. 1–2. Available from: http://www.depkes.go.id/pdf.php?id=16040400008
8. Dinas Kesehatan Provinsi Jambi. Profil Kesehatan Privinsi Jambi. 2017.
9. Notoatmodjo S. Metodologi Penelitian Kesehatan. Jakarta:PT Rineka Cipta. 2012;
10. Hendiani N, Sakti H, Widayanti CG. Hubungan Antara Persepsi Dukungan Keluarga Sebagai Pengawas Minum Obat Dan Efikasi Diri Penderita Tuberkolosis Di Bkpm Semarang. J Psikol Undip. 2014;13(1):82–91.
11. Arias MS. Determinants of self efficacy to seek care for tuberculosis and complete tuberculosis treatment among HIV-positive individuals attending HIV/AIDS clinics in Honduras. Diss Abstr Int Sect B Sci Eng [Internet]. 2010;71(6–B):3624. Available from: http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=psyc7&NEWS=N&AN=2010-99240-239
12. Mason P, Singh P, Ho J, Anh N, Fox G, Marks G. Coping Self-efficacy for TB treatment in Ca Mau. In: 5th Conference of the Union Asia Pacific Region. 2015.
13. Bandura A. Bandura Self-efficacy defined [Internet]. Encyclopedia of Human Behavior. 1994. p. 71–81. Available from: http://www.uky.edu/~eushe2/Bandura/BanEncy.html
14. Pratomo IP, Burhan E, Tambunan V. Malnutrisi dan Tuberkulosis. J Indon Med Assoc. 2012;62((6) Juni 2012):230–6.
15. Naghib salam, jila Abed S, Ezzati zhaleh, Zayeri farid. Self-efficacy and compliance with treatment regimen in tuberculosis patient in Kurdistan [Farsi]. J Nurs Midwifery [Internet]. 2012;22(77):1p. Available from: http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2012122488&site=ehost-live
16. Silvani H, Sureskiarti E, Kunci K, Aktif Keluarga P, Paru KT, Program Sarjana Ilmu Keperawatan STIKES MuhammadiyahSamarinda M, et al. Hubungan Peran Aktif Keluarga Sebagai Pengawas Minum Obat (Pmo) Dengan Angka Kekambuhan Tb Paru Di Ruang Seruni Rsud Abdul Wahab Sjahranie Samarinda. J Ilmu Kesehat. 2016;44(2):66–74.
17. Olviani Y. Hubungan Dukungan Pasangan Penderita Tb Dengan Kepatuhan Minum Obat Pada Penderita Tb Paru Di Wilayah Kerja Puskesmas Pekauman Banjarmasin Tahun 2016. 2016;
18. Leung CC, Lange C, Zhang Y. Tuberculosis: Current state of knowledge: An epilogue. Vol. 18, Respirology. 2013. p. 1047–55.
19. Verdier JE, de Vlas SJ, Kidgell-Koppelaar ID, Richardus JH. Risk factors for tuberculosis in contact investigations in Rotterdam, the Netherlands. Infect Dis Rep. 2012;4(2):101–5.
20. Shanmugam TS, Subramaniam P, Parthiban N, Sivapalan N. Are we preventing tuberculosis transmission? Respirology. 2015;20:76.