Makara J. Health Res., 2014, 18(3): 127-134
doi: 10.7454/msk.v18i3.4471

Psychosocial Needs Analysis of Patients with Pulmonary Tuberculosis

Suryani*, Efri Widianti, Taty Hernawati, Aat Sriati

Faculty of Nursing, Universitas Padjajaran, Sumedang 45363, Indonesia

*e-mail: ynsuryani23@gmail.com

Abstract

Pulmonary tuberculosis is a chronic lung disease which has a physical as well as psychosocial impact on the patients. Until recently, existing government programs still focus on the treatment and contamination prevention of the disease. The current existing program is not directed towards solving the patients' psychosocial problems, although the impact thereof is very influential towards the discipline in undergoing treatment and the prognosis of Tuberculosis (TB) as a disease in patients. This research aims to analyze factors that are most influential in fulfilling the psychosocial needs of TB patients in the city of Cirebon. This research uses a corelational descriptive method. 171 pulmonary TB patients involved in this research were chosen through consecutive sampling from 10 public health centers in the City and Region of Cirebon. The psychosocial needs of pulmonary TB patients are measured by instruments developed by the researchers. Prior to using the instrument, a validity and reliability test has been conducted. The result indicates that there are three dominant factors that are closely related to the patients' satisfaction in meeting their psychosocial needs. These factors are the psychological condition during the last week, duration of treatment and supporting services, whereas demographic factors are not related to their satisfaction in meeting their psychosocial needs. The result of this research can be considered by the government to provide supporting services at Public Health Centers in order to fulfill the psychosocial needs of pulmonary TBC patients and avoid drop out cases.

Abstrak

Analisis Kebutuhan Psikososial Penderita Tuberkulosis Paru. Tuberkulosis paru adalah penyakit paru-paru kronis yang berdampak secara fisik dan psikososial bagi penderitanya. Hingga saat ini program-program pemerintah yang ada masih berfokus pada pengobatan dan pencegahan penularan penyakit. Program yang ada belum mengarah pada pemecahan masalah psikososial penderita, padahal dampak masalah psikososial sangat besar pengaruhnya terhadap kepatuhan berobat dan prognosis penyakit penderita Tuberculosis (TB). Penelitian ini bertujuan menganalisis faktor yang paling mempengaruhi pemenuhan kebutuhan psikososial penderita TB di kota Cirebon. Penelitian ini menggunakan metode deskriptif korelasional. Sejumlah 171 orang penderita TB paru yang terlibat dalam penelitian ini dipilih dengan cara *consecutive sampling* dari sepuluh puskesmas di Kota dan Kabupaten Cirebon. Kebutuhan psikososial penderita TB paru diukur dengan alat ukur yang dikembangkan sendiri oleh peneliti. Sebelum digunakan, instrumen tersebut sudah diuji validitas dan reliabilitasnya. Hasil penelitian menunjukkan bahwa ada tiga faktor dominan yang paling berhubungan dengan tingkat kepuasan pasien terhadap pemenuhan kebutuhan psikososial mereka. Faktor tersebut adalah kondisi psikologis dalam seminggu terakhir, lama pengobatan, dan layanan pendukung. Sementara itu, faktor demografi tidak berhubungan dengan kepuasan mereka terhadap pemenuhan kebutuhan psikososial. Hasil penelitian ini dapat dijadikan pertimbangan bagi pemerintah untuk mengadakan layanan pendukung di puskesmas sehingga kebutuhan psikososial penderita TB paru bisa terpenuhi dan kasus *drop out* bisa dicegah.

Keywords: health services, psychosocial needs analysis, pulmonary tuberculosis

Introduction

Pulmonary tuberculosis (pulmonary TB) is a disease of infection which attacks the lungs and shows specific symptoms of granuloma formation and causes necrosis of the tissue. This is a chronic disease and is contagious to others.[1] Pulmonary TB not only shows a physical impact but also causes a psychosocial impact to the patients.[2] Physical impacts are among others weakness, paleness, chest pain, decrease of body wight, fever and

perspiration.[3] Whereas psychosocially it causes, among others, emotional problems related to the disease like feeling of boredom, no motivation, until serious mental disturbances including heavy depression.[4] Other psychosocial issues are the presence of a stigma within the society, feeling of isolation and inconfidence, as well as economical problems.[2,5] A qualitative research in India shows that pulmonary TB patients experience various psychosocial issues caused by the disease they suffer from such as fear or depression, shock on finding that they suffer from pulmonary TB or disbelieve that they suffer from TB, shame and fear of death.[6] In facing and going through their life as pulmonary TB patients, every individual shows different responses depending on how they cope and the support from their family, surrounding society and the government.

In 2011 there is an estimated 8.7 million new cases of pulmonary TB and 1.4 million patients die thereof. More than 95% of the death toll caused by pulmonary TB occurs in countries with a medium to low income. Throughout the world pulmonary TB is a chronic disease and holds the second position in infection-caused deaths.[8] Based on the 2007 Riskesdas data, the total of TB patients in Indonesia reaches 0.7% of the total population, and in West Java 0.9% of the total population suffers from pulmonary TB with the following rank: City and Region of Cirebon, Region of Garut, Indramayu and Purwakarta.[9]

Pulmonary TB in Indonesia is considered a chronic disease, ranks first in death caused by infection and with a majority of patients within the productive age range. Based on the 2009 WHO report, the number of tuberculosis patients in Indonesia is 528,000 people, ranking third in the total of pulmonary TB patients in the world after India and China.[10] Further, according to the 2010 WHO report, Indonesia's rank becomes fifth in the world with a total of 429,000 patients. The prevalence rate is 285/100,000 population per year. The mortality rate caused by pulmonary TB is estimated at 27/100,000 population per year. Five countries with the highest rate in 2010 are India, China, South Africa, Nigeria and Indonesia.[10]

In order to control the problem of pulmonary TB in Indonesia, the government has implemented various programs focusing on treatment and prevention of pulmonary TB contamination. Currently the government has implemented a program known as the Programmatic Management of Drug Resistance TB (PMDT). In 2011-2014 PMDT aims to gradually conduct diagnosis and treatment of Multidrug Resistance Tuberculosis (TB MDR). It is estimated that there is approximately 80% of TBC drug resistant cases in Indonesia. During 2010-2014 the number of pulmonary TB drug resistant cases to be treated totals 11,000 cases.[8] During this period, PMDT will be developed to include all provinces in Indonesia. However, out of all programs developed and implemented by the government, none aims to overcome the psychosocial problems faced by pulmonary TB patients; meanwhile the psychosocial impact is very significant to the discipline in treatment and the prognosis of pulmonary TB patients.[6] Patients who suffer from depression and despair because of the disease, will not take medication with the risk that they will not recover and will contaminate others around them.[3] It also effects themselves resulting in a bad prognosis of the disease and hence speed up death. Based on the issues mentioned above, we have formulated a problematic question: "How far is the psychosocial needs of pulmonary tuberculosis patients fulfilled in the City of Cirebon? What factors most influence the needs of these psychosocial problems?" To answer these research questions, this research aims to analyze factors which influence the psychosocial needs of pulmonary tuberculosis in the City of Cirebon.

Methods

The type of research implemented is corelational descriptive which aims to find the relations between various related factors with the psychosocial needs of pulmonary TB patients. The population in this research is the entire TB patients within the working area of the City of Cirebon Public Health Centers totalling up to 1,485 cases.[11] Sample taking in this research uses the non-probability technique with a consecutive sampling method meaning that every respondent in this sampling technique who comes to the Public Health Centers (10 Public Health Centers in Cirebon) and meets the criteria of choice sampling is included in this research until the required number of subjects is acquired.[12] The criteria for inclusion in this sampling are: pulmonary tuberculosis patients, including those of adult age, still under treatment at the Public Health Center, and is able to read and write. After 1.5 moths of research a sample of 201 patients was obtained. However, only 171 patients were included in the data analysis, since it was not possible to include the remaining patients due to the fact that their data were incomplete.

Data collection was implemented using a questionnaire adopted from the inventory of psychosocial needs measurement of cancer patients known as Psychosocial Needs Inventory.[13] Measurement includes measuring health status, health services used, problems faced in daily life and psychosocial needs. The instrument developed has been tested by content validity against an expert panel of 3 persons consisting of one internal medicine specialist, one psychologist who is an expert on instrument development and one nurse who had conducted a qualitative research on the life experiences of pulmonary TB patients. A reliability test has been implemeneted on 20 pulmonary TB patients at the Garuda and Kiara Condong public health centers,

Bandung. The result was that all items had a high level of reliability with r=0.76.

In implementing this research, considerations regarding ethical principles has been observed. Prior to implementing the reseach, researchers first explained about the research to all patients; then asked for patients' agreement to become a respondent in the research. Data analysis began from univariate, bivariate and multivariate. Data on age, sex, education, job, health status, health services used, problems faced in daily life and psychosocial needs used frequency distribution and percentage. Bivariate test was implemented with *Chi Square*. In multivariate analysis all independent variables which have a significant p value of ≤ 0.25 in the bivariate analysis are simultaneously analyzed for its strength in influencing a patient's psychosocial needs through a multivariate analysis. The type of statistic testing implemented is linear regression as the kind of dependent variable in this research are categoric variables and do not possess a confounding factor.[14]

Results and Discussion

Based on the univariate analysis results, as seen in Table 1, nearly all respondents (42.7%) are mature adults with an almost equal number of male as well as female patients. Some of them (50.35) have an elementary education, followed by 29.2% high school education. The majority (80.1%) have an income of less or equal to *Upah Minimum Regional* (UMR)/regional base salary and are therefore still living with their parents (49.7%). The result concurs with a previous research which concluded that the population suffering from pulmonary TB are population within the productive age with low education and socio-economical level.[11,15]

From the duration of time respondents suffered pulmonary TB, the majority (89.5%) suffered pulmonary TB for less than 2 years, and the majority of them (57.3%) are 3 months into initial treatment. This means that nearly all respondents are in the treatment phase that requires support in order not to fall into the group of treatment discontinuation. More than half of the respondents (53.8%) are aware that they suffer pulmonary TB, but nearly half of them (47.2%) do not know or are not aware that they suffer TB. This should bring us on alert and focus on handling them so that they do not become part of the group with discontinued treatment because of their lack of knowledge regarding the disease they are suffering from.

Partial respondents (52.2%) have of late a good health condition. This is supported by the number of respondents (81.1%) who have a good psychological condition within the last week. This may be because they feel that they are already undergoing treatment or maybe because they feel that their physical condition has shown progress. However, nearly half of them (46.8%) have recent bad health condition. This cannot be dismissed as respondents who have bad health conditions risk suffering complications.

Regarding health services, nearly all respondents (80.7%) declare that public health centers are the services they use in treatment with no other form of health services. Besides, a majority of then (62%) state that there are no supporting services that provide them with psychosocial support. This is proven by the 2011 Health Profile of the Region of Cirebon, where in order to solve the problem of pulmonary TB, the Public Health Center of the City of Cirebon only have a program to discover cases of TB and treatment of patients with TB assisted by officials in charge of supervising medicine intake.[11] There is no specific program such as counseling or psycho-education to overcome the psychosocial problems of patients. Another program implemented by the public health center is providing information to patients and their families on how to avoid being contaminated.

Regarding the expectations and satisfaction of respondents concerning the fulfillment of their psychosocial needs during treatment, nearly all respondents (39.8%) have high expectations and a good experience in regard to their convalescense as can be seen in Table 2. There are 5 aspects of psychosocial needs in which case the respondents have a bad experience or feel their needs are not met during treatment at public health centers as can be seen in Table 3. These incude the need for professional health officials, emotional and spiritual needs, informational needs, networking needs and practical needs. Health officials, as providers of health services, should heed these five aspects.

The bad experience regarding the needs for a professional person may be caused by the fact that when undergoing treatment at the public health center, they are not served by a professional staff but by a vocational staff present at the health center. This concurs with the comment of one of the health center's staff that at the health center the physician is often absent and, if he/she is present, they will only be there for a very short time. Patients are daily served by vocational nurses. Furthermore, it can be concluded that the reason the emotional, spiritual and informational needs are not met is because the health center does not have a specific program therefore.

Further, a bivariate analysis is conducted to find any relation between respondents' characteristics and level of satisfaction towards fulfillment of their psychosocial needs. Table 4 below shows the relation between meeting the satisfaction of psychosocial needs and respondent's characteristics.

Table 1. Distribution of Repondent's Frequency According to Demographic Characteristics in the Area of Cirebon (n=171)

Variable	Total	Percentage (%)
Age		
Young adults	45	26.3
Mature adults	73	42.7
Seniors	53	31
Sex		
Female	90	52.6
Male	81	47.4
Level of Education		
University	4	2.3
High School	50	29.2
Junior High School	27	15.8
Elementary school	86	50.3
No education/Non-graduate of Ele-mentary School	4	2.3
Duration of illnes		
<2 years	153	89.5
>2 years	18	10.5
Marital Status		
Unmarried	122	71.3
Married	33	19.3
Widow/Widower	16	9.4
Family members in one house		
Existent	166	97.1
Non-existent	5	2.9
Close friends		
Existent	165	96.5
Non-existent	6	3.5
House status		
Self-owned house	75	43.9
Parents' house	85	49.7
Rented house	11	6.4
Income		
Less than/Equal to UMR	137	80.1
More than UMR	34	19.9
Name of disease		
Aware	92	53.8
Unaware	79	46.2
Other illnesses		
Existent	39	22.8
Non-existent	132	77.2
Treatment Phase		
First 3 months	98	57.3
Second 3 months	46	26.9
Third 3 months	27	15.8
Last psychological condition		
Good	137	81.1
Bad	34	19.9
Latest general health condition		
Good	91	53.2
Bad	80	46.8
Other heatlth services		
Existent	33	19.3
Non-existent	138	80.7
Supporting service		
Existent	65	38
Non-existent	106	62
Complementary therapy		
Existent	143	83.6
Non-existent	28	16.4

Tabel 2. Distribution of Respondents According to Experience and Hope towards Achieving Fulfillment of Psychosocial Needs of Pulmonary Tuberculosis Patients in the Area of Cirebon during September -October 2013 (n=171)

Variable	Total	Percentage (%)
Expectation		
High	88	51.5
Low	83	48.5
Experience		
Good	103	60.2
Bad	68	39.8
Expectation and experience		
High expectation, good experience	68	39.8
High expectation, bad experience	38	22.2
Low expectation, good experience	45	26.3
Low expectation, bad experience	20	11.7

Table 3. Distribution of Psychosocial Needs of Pulmonary Tuberculosis Patients in the Area of Cirebon who have High Expectations and Bad Experience during September-October 2013 (n=28)

Needs	Total	Percentage (%)
Needs for Health Professional	15	39.5
Emotional and spiritual needs	22	57.9
Informational needs	22	57.9
Networking support needs	20	52.3
Practical needs	17	44.7

Table 4 indicates that there is no relation between age and level of satisfaction in meeting psychosocial needs (p value*:* 0.483, α: 0.05). This is also the case with sex (p value: 0.428; α: 0.05) and marital status with a p value of 0.587; α: 0.05. Statistical tests also indicate that there is no relation between existent/non-existent family members living in the same house with the level of satisfaction towards meeting patients' psychosocial needs (p value: 0.692; α: 0.05); hence also with home status (p value: 0.275; α: 0.05). Statistic tests also indicate that there is no relation between income level with level of satisfaction in meeting the psychosocial needs of pulmonary TB patients (p value: 0.500, α: 0.05).

Duration of illness has yielded different results. Research results indicate that there is a corelation between duration of illness with satisfaction in fulfilling psychosocial needs (p value: 0.001; α: 0.05). Respondents who have suffered pulmonary TB for more than two years have a lower level of satisfaction on fulfilling psychosocial needs compared to respondents who have been ill for less than two years. This is probably because those who have suffered longer from pulmonary TB have undergone more negative experiences related to this disease. This supports the result of a previous research by Padayatchi et al. (2010) when patients still suffer from depression 2 years after being diagnosed with pulmonary TB.[20]

Based on the above table it is also obvious that repondents who have knowledge of their disease have a 0.528 times chance of satisfaction towards meeting their psychosocial needs compared to respondents who are not aware of their illness (CI 95%; OR: 0.249-1.149). One's understanding about something is one factor which may change their attitude.[16] A wrong perception about something may affect the recovery process of a patient, hence, an appropriate health education is required.[17]

Besides knowledge and understanding of the disease itself, the patient's general health and psychological condition is closely related to the level of satisfaction of psychosocial needs fulfillment felt by respondents in this research. This is concurrent with Lyon's stress theory (2012) where a person who is in a bad emotional condition will give a negative response to conditions outside himself.[18] Whereas, on the other hand, a negative perspective towards conditions outside oneself may cause stress.[19] When a TB patient perceives that he is incurable, they will feel frustrated towards the disease they are suffering from and this may cause them to refuse treatment. This negative perception can be caused by their lack of knowledge about the disease.[16] Therefore, it is important that nurses provide patients with psycho-education.

Table 4. Respondent's Distribution according to Level of Satisfaction in meeting the Psychosocial Needs of Pulmonary TB Patients and Factors influencing it in the Area of Cirebon during September and October 2013 (n=171)

Independent Variable	Level of satisfaction				Total		OR (95% CI)	ρ Value
	Unsatisfied		Satisfied					
	n	%	n	%	n	%		
Age								
Young adults	10	22.2	35	77.8	45	100	-	0.483
Mature adults	19	26	54	74	73	100		
Seniors	9	17	44	83	53	100		
Sex								
Female	21	23.3	69	76.7	90	100	1.146	0.428
Male	17	21	64	79	81	100	(0.555-2.364)	
Level of Education								
University	1	25	3	75	4	100		
High School	16	32	34	68	50	100		
Junior High School	6	22.2	21	77.8	27	100	-	0.336
Elementary school	14	16.3	72	83.7	86	100		
No education/Non-graduate of Elementary School	1	25	3	75	4	100		
Duration of illnes								
<2 years	28	18.3	125	81.7	153	100	0.179	0.001
>2 years	10	55.6	8	44.4	18	100	(0.065-0.495)	
Marital Status								
Unmarried	6	18.2	27	81.8	33	100		
Married	27	22.1	95	77.9	122	100		0.587
Widow/Widower	5	31.3	11	68.8	16	100		
Family members in one house								
Existent	37	22.3	129	77.7	166	100	0.872	0.692
Non-existent	1	20	4	80	5	100	(0.095-8.038)	
Close friends								
Existent	37	22.4	128	77.6	165	100	0.692	0.600
Non-existent	1	16.7	5	83.3	6	100	(0.078-6.108)	
House status								
Self-owned house	21	28	54	72	75	100	-	0.275
Parents' house	15	17.6	70	82.4	85	100		
Rented house	2	18.2	9	71.8	11	100		
Income								
Less than/Equal to UMR	30	21.9	107	78.1	137	100	0.911	
More than UMR	8	23.5	26	76.5	34	100	(0.374-2.219)	0.500
Name of disease								
Knowledgeable	25	27.2	67	72.8	92	100	0.528	0.067
Unknowledgeable	13	16.5	66	83.5	79	100	(0.249-1.149)	
Other illnesses								
Existent	9	23.1	30	76.9	39	100	0.939	0.520
Non-existent	29	22	103	78	132	100	(0.401-2.199)	
Treatment Phase								
First 3 months	25	25.5	73	74.5	98	100		
Second 3 months	5	10.9	41	89.1	46	100	-	0.086
Third 3 months	8	29.6	19	70.4	27	100		
Last psychological condition								
Good	20	14.6	117	85.4	137	100	0.152	0.000
Bad	18	52.9	16	47.1	34	100	(0.067-0.346)	
Latest general health condition								
Good	11	12.1	80	87.9	91	100	0.270	0.001
Bad	27	33.8	53	66.2	80	100	(0.123-0.590)	
Other heatlth services								
Existent	10	30.3	23	69.7	33	100	0.585	0.156
Non-existent	28	20.3	110	79.7	138	100	(0.250-1.370)	
Supporting service								
Existent	19	35.8	34	64.2	53	100	0.343	0.004
Non-existent	19	16.1	99	83.9	118	100	(0.163-0.724)	
Complementary therapy								
Existent	11	39.3	17	60.7	28	100	0.360	0.020
Non-existent	27	18.9	116	81.1	143	100	(0.151–0.855)	

*Signifikan pada α= 0,05

Based on the selection of multivariate model variables, in the final model three variables are selected which are most closely related to the satisfaction level of fulfilling the psychosocial needs of pulmonary TB patients; these are the psychological condition during the last week, duration of treatment and use of supporting health services as can be seen in Table 5 below.

The psychological condition of pulmonary TB patients is very closely related to their level of satisfaction in meeting their psychosocial needs because a person's evaluation of whether psychosocial needs are fulfilled or not is manifested by their psychological condition which indicates a decreasing level. This is concurrent with Lazarus' theory (2000) regarding evaluation of stressor someone undergoes.[19] If the evaluation regarding stressor is negative, then the person will indicate a negative response as stress or a decreasing psychological condition. This research shows that psychological disturbances in pulmonary TB patients indicate that there is a problem with the patient. Therefore, they should receive attention from various parties, especially nurses as primary caregivers to the patients. Nurses must ensure that all the patients' needs are met, including their psychosocial needs. This is an application of the advocative role and functon of nurses towards patients.

Besides psychological conditions, the duration of treatment is a factor that also influences the respondents' level of satisfaction towards meeting their psychosocial needs. Long-term treatment or therapy causes frustration for patients. This fact is concurrent with a previous research conducted in India which concluded that pulmonary TB patients suffer from psychological disturbances such as depression, anxiety, resentment and prejudice due to the length of period they suffer from the disease or the long-term treatment they have to go through.[20] The result of this research is also supported by another research in Peru that shows that pulmonary TB patients who go through long periods of treatment suffer depression (52.5%) and anxiety (8.7%) due to their illness.[21]

The feeling of disatisfaction towards their psychosocial needs which are closely related to utilizing supporting health services, shows that the unavailability of supporting health services at Public Health Centers result in the patients not receiving the required services for the various psychosocial problems they face while suffering from pulmonary TB. Policy makers should seriously consider the issue of providing supporting services for patients.

This research provides several assumptions. First, that the 1.4% increase in meeting the psychosocial needs of pulmonary TB patients means reducing the duration of illness up to 0.272 years or 3.6 months after psychological condition variables within the last week and utilization of supporting services are controlled. Satisfaction of services indicate that respondents have received good services from public health centers where they go for treatment. Good services, of course, ensures that TB patients are able to undergo treatment according to the rules, which in the end can enhance their recovery process. The second assumption is that if the respondent's psychological condition within the last week is not too good, their satisfaction towards fulfillment of psychosocial needs decrease. A person's psychological condition influences his/her perception towards a situation.[18,19] In a psychological condition which tends to decline or is not good, one tends to have a negative view on certain situations, in this case the health service they receive.

The third assumption is that enhancing the fulfillment of psychosocial needs of pulmonary TB patients up to 1.4% will decrease the use of supporting services to overcome the problem up to 0.27%. This means that if TB patients can fulfill their psychosocial needs, their needs for supporting services will decrease. However, in reality the public health centers where this research was conducted does not provide supporting services although the needs for these services in TB patients are quite high. Therefore, a program which can provide a solution is required. In other countries, such as reported by Acha et al. from Peru, it is discovered that psychosocial group therapy is effective in solving patients with problems of multidrug resistence (MDR).[22]

Tabel 5. Model Summary

Model	Coefficients			T	p	Collinearity Statistics	
	Unstandardized Coefficients		Standardized Coefficients				
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.465	0.125	-0.201	11.731	0.000		
Duration of illness	-0.272	0.098		-2.775	0.006	0.930	1.075
Latest psychological condition	-0.290	0.078	-0.278	-3.709	0.000	0.864	1.158
Supporting services	-0.127	0.065	-0.142	-1.954	0.052	0.925	1.081

Std. Error of the Estimate = 0.379; Durbin-Watson = 1.435

a. Predictors: (constant), pelayanan pendukung, lama sakit, kondisi psikologis terakhir

b. Dependent Variable: tingkat kepuasan

Conclussions

This research is a corelational research to analyze factors that influence the problem of meeting the psychosocial needs of pulmonary TB patients in the Area of Cirebon. 171 respondents have participated in this research. From this research it can be concluded that there are three factors which most significantly influence patients' satisfaction regarding fulfillment of their psychosocial needs. These influences are, among others, the patient's psychological condition within the last week, duration of treatment and supporting services; these are the factors mostly related to the satisfaction level of meeting the psychosocial needs of pulmonary TB patients. Public health center staff are suggested to pay attention to the psychosocial aspects of pulmonary TB patients when they come for treatment to public health centers. It is also suggested that the government provide supporting services or counselling for pulmonary TB patients.

References

1. Rajeswari R, Muniyandi M, Balasubramanian R, Narayanan PR. Perceptions of tuberculosis patients about their physical, mental and social well-being: a field report from south India. *Soc Sci Med*. 2005;60:1845-1853.
2. Williams V, Kaur H. The Psychosocial Problems Of Pulmonary Tuberculosis Patients Undergoing DOTS Therapy (Direct Observed Treatment Short Course Therapy) in Selected Areas of Jalandhar District, Punjab. *JPharmacy Biol Sci (IOSRJPBS)*. 2012;1(1):44-49.
3. Schweon SJ. Tuberculosis Update. *JRadiol Nurs*. 2009;28 (1):12-19.
4. Jong K. *Psychosocial and mental heanth interventions in areas of massive violence.* 2nd ed. Medecins san frontier. Amsterdam: Rozenberg Publishing Services; 2011.
5. Aye´ R, Wyss K, Abdualimova H, Saidaliev S. Factors determining household expenditure for tuberculosisand coping strategies in Tajikistan. *Trop Med Int Health*. 2011;16(3):307-313.
6. Venkatraju1 B, Prasad S. Psychosocial trauma of diagnosis: A qualitative study on rural TB patients' experiences in Nalgonda District, Andhira Pradesh. *Indian J Tuberculosis*. 2013;60:162-167.
7. Rashmi, Prasad S, Chand S. Identify the impact of Tuberculosis on health status and coping strategies adapted by Tuberculosis patients. *Int J Nurs Educ*. 2014;6(1):223-225.
8. WHO. *World Tuberculosis Day* (internet) 2013 [cited 2013 March 20]. Available from: www.who.int/campaigns/TB-day/2013/event/en/index.html.
9. Badan Penelitian dan Pengembangan Kesehatan. *Laporan Hasil Riset Kesehatan Dasar (RISKESDAS) Provinsi Jawa Barat 2007*. Jakarta; 2008. [In Indonesia]
10. WHO. *Multidrug and extensively drug-resistant TB (M/XDR-TB)*: *2010 global report on surveillance and response*. WHO: Geneva; 2010.
11. Dinkes Kabupaten Cirebon. *Profil Kesehatan Kabupaten Cirebon*. (internet) [Diakses 20 September 2011]. Tersedia di: http://dinkes.cirebonkab.go.id/wpcontent/uploads/2013/02/PROFIL%20KESEHATAN%20KAB.%20CIREBON%202011.pdf. [In Indonesia]
12. Sastroasmoro S, Ismael S. *Dasar dasar metodologi penelitian klinis*. Edisi ke-2. Jakarta: Sagung Seto; 2006. [In Indonesia]
13. Thomas, C. *Final Report To The National Health Service Executive*. North West; 2001.
14. Dahlan SM. *Statistik untuk kedokteran dan kesehatan. Deskriptif, bivariat, dan multivariat dilengkapi aplikasi dengan menggunakan SPSS* (D.J. Ishardini, Ed). Edisi ke-5. Jakarta: Salemba Medika; 2011. [In Indonesia]
15. Banu S, Rahman MT, Uddin MKM, Khatun R, Ahmed T, et al. Epidemiology of Tuberculosis in an Urban Slum of Dhaka City, Bangladesh. *PLoSONE*. 2013;8(10): e77721. doi:10.1371/journal.pone.0077721.
16. Notoatmodjo S. *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta; 2010. [In Indonesia]
17. Wieland ML, Weis JA, Yawn BP, Sullivan SN, Millington KL, Smith CM, Bertram, S, Nigon JA, Sia IG. Perceptions of Tuberculosis among Immigrants and Refugees at an Adult Education Center: A Community-Based Participatory Research Approach. *J Immigration and Minority Health*. 2012;14(1):14-22.
18. Lyon B. *Stress, Coping and Health: A conceptual overview*. In: Rice, VH (2012). Handbook of Stress, Coping and Health: Implications for Nursing Research, Theory, and Practice.2 Ed. Thousand Oaks, CA: Sage: 2012.
19. Lazarus RS. *Evolution of a model of stress, coping, and discrete emotions*. In Rice VH (Ed.), *Handbook of stress, coping, and health: Implications for nursing research, theory, and practice*. Thousand Oaks, CA: Sage; 2000.
20. Padayatchi A, Daftary T, Moodley R, Madansein A, Ramjee. Case series of the long-term psychosocial impact ofdrug- resistant tuberculosis in HIV-negative medical doctors. *Int J Tuberculosis Lung Dis*. 2010;14(8):960-966.
21. Vega PA, Sweetland A, Acha J, Castillo H, Guerra D, Smith M, Fawzi C, Shin S. Psychiatric issues in the management of patients with multidrug-resistant tuberculosis. *Int J Tuberculosis Lung Dis*. 2004;8(6):749-759.
22. Acha J, Sweetland A, Guerra D, Chalco K, Castillo H, Palacios E. Psychosocial Support Groups for Patients with Multidrug-Resistant Tuberculosis: Five Years of Experience. *Glob Public Health*. 2007;2(4):404.