

Family Support, Self-efficacy, Motivation, and Treatment Adherence in Multidrug-resistant Tuberculosis Patients

Tintin Sukartini, Ika Minarni and Candra Panji Asmoro
Faculty of Nursing Universitas Airlangga, Kampus C Mulyorejo, Surabaya, Indonesia

Keywords: Family Support, Self-efficacy, Motivation, Treatment Adherence.

Abstract: Multidrug resistance (MDR) is caused by treatment in adherence. In adherence is known to increase the risk of MDR tuberculosis (TB) by 2.3 times. In adherence is prompted by a knowledge deficit, low self-efficacy, and poor motivation. Family support could be a solution to adherence problems. This study aimed to analyze the correlation of family support with self-efficacy, motivation, and treatment adherence in MDR TB patients. A cross-sectional study involved 55 respondents who were selected using consecutive sampling. The independent variable was family support. The dependent variables were self-efficacy, motivation, and treatment adherence. Data were retrieved through the completion of a questionnaire then analyzed statistically using the Spearman rank rho and Chi-square with $\alpha \leq 0.05$. Family support did not significantly correlate with self-efficacy with p-value = 0.429 or ($p \geq 0.05$). Family support significantly correlated with motivation p-value = 0.043 $r = 0.275$ ($p \leq 0.05$), and treatment adherence p-value = 0.037 or ($p \leq 0.05$). TB MDR treatment should optimize family involvement to increase motivation and adherence. Further research suggests using counseling to improve family involvement in supporting MDR TB patients.

1 BACKGROUND

Multidrug-resistant tuberculosis (MDR TB) is the tuberculosis (TB) disease that has resistance to isoniazid (INH), rifampicin, and one or more anti-tuberculosis drugs based on standardized laboratory tests and occurs due to treatment failure, stopping treatment, or improper treatment, resulting in the occurrence of primary resistance (WHO, 2015). The results showed that non-adherence of patients during treatment increased the risk of developing MDR TB by 2.3 times compared with patients who were adhered to treatment (Farmani, 2015).

By 2015 it is estimated that 3.9% of new cases and 21% of old cases will have MDR TB, accounting for 580,000 cases. Indonesia ranks 4th in MDR TB cases with an estimated 32,000 cases with 2.8% of new cases and 16% of old cases (WHO, 2016). Based on data from Infodatin Ministry of Health Republic of Indonesia (2016) the number of new cases of Pulmonary TB AFB (acid fast bacilli) + + in East Java, in 2016, Indonesia ranks second, with 21,606 new cases. Data of preliminary study results at the TB MDR clinic, Dr. Soetomo Hospital, Surabaya indicated 64 MDR TB patients, a total of

40 adherent patients and 24 in adherent patients, who refused to undergo intensive phase treatment.

Drug supervisors have a role in preventing the occurrence of non-compliance medication. The family of the patient can take that role. Glick et al. in Maulidia (2014) explains that medication adherence increases when patients receive support from the family. Muhtar (2013) discusses the influence of family empowerment in improving self-efficacy. Patients with supportive families who promote family empowerment interventions, including self-care, had a higher self-efficacy than the control group. Sukartini (2015) showed that social support from family and officers, who had knowledge and perceptions regarding TB, had a positive effect on motivation for the adherence of treatment. Deskhmund et. al (2017) state that one of the factors that can improve treatment compliance is social support.

Positive family support is needed in the treatment of TB disease that requires long-term medication. Support comprises of providing information verbally or non-verbally, and real assistance or action is given via social intimacy or is gained through the presence of the family, who can have an emotional or behavioral benefit to the

recipient (Royce, S. et al., 2014). Problems found at the TB clinic in the government hospital were related to forms of non-adherence to treatment, which tends to occur in patients with low family support. The researcher intends to further examine the relationship between family support and compliance, motivation, and self-efficacy during the treatment of multidrug-resistant tuberculosis (MDR TB).

The purpose of this study is to analyze the correlation of family support with self-efficacy, motivation, and treatment adherence in MDR TB patients.

2 METHODS

2.1 Design

This study used a cross-sectional design.

2.2 Sample

The population in this study are MDR TB patients undergoing treatment at the MDR TB clinic during November 2017. A consecutive sampling technique was used in this study. The sample size was 55 respondents.

Table 1: Characteristics of multidrug-resistant patients.

Characteristic	Indicators	f (x)	%
Age	15–25 y.o.	7	13
	26–45 y.o.	21	38
	46–70 y.o.	27	49
	Total	30	100
Education	Primary school	10	18
	Junior high school	8	15
	Senior high school	28	51
	Bachelor	9	16
	Total	55	100
Gender	Male	35	64
	Female	20	36
	Total	55	100
Profession	Housewife	10	20
	Entrepreneur	11	18
	Civil servant	4	8
	Security	30	54
	Total	55	100

The inclusion criteria for the sample in this study are: MDR TB patients accompanied by family, aged

15–70 years, cooperative, able to communicate verbally, and able to read and write.

2.3 Instrument

The instrument used was a questionnaire regarding family support using the Source of Social Support Scale (SSSS), a self-efficacy questionnaire, a motivational questionnaire, and a compliance observation sheet.

2.4 Data Collection

Data were collected using the questionnaire. Test statistics in the study were analyzed using the Spearman rank and Chi-square tests. The Spearman rank test was used to analyze family support data regarding self-efficacy and motivation. The Chi-Square test was used to analyze family support regarding adherence.

2.5 Ethical Clearance

This study obtained ethical clearance from the Research Ethics Committee at Faculty of Medicine, Universitas Airlangga: No. 418/EC/KEPK/FKUA/2016.

3 RESULTS

Table 1 indicates that more than half of the respondents in the study (70%) were between 26 and 45 years old; more than half (51%) of the respondents have a high-school education background; more than half (64%) of respondents are male; and more than half (54%) of respondents have background jobs with other categories such as security guards and drivers.

Table 1 demonstrates that most patients are 46–70 years old, graduates from senior high school, male, and work in security.

3.1 Correlation of Family Support with Self-efficacy in Multidrug-resistant Tuberculosis Patients

Table 2 shows the results of the Spearman rho statistics test, which determined that family support does not significantly correlate with self-efficacy.

Table 2: Correlation of family support with self-efficacy.

Variable	Family support			Total
	Low	Moderate	High	
Self-efficacy				
Low	1	2	0	3
Moderate	20	7	0	27
High	14	10	1	25
Total	35	19	1	55
Spearman rho p-value = 0.429				

Table 3: Correlation of family support with motivation in multidrug-resistant tuberculosis patients.

Variable	Family support			Total
	Low	Moderate	High	
Motivation				
Low	9	0	0	9
Moderate	13	9	0	22
High	13	10	1	24
Total	35	19	1	55
Spearman rho p-value = 0.043 or (p ≤ 0.05)				

Table 4: The correlation of family support with treatment adherence in multidrug-resistant patients.

Variable	Family Support			Total
	Low	Moderate	High	
Adherence	7	9	0	17
Non-adherence	28	10	0	38
Total	35	19	1	55
Chi square p-value = 0.037				

3.2 Correlation of Family Support with the Motivation of Multidrug-resistant Tuberculosis Patients

Table 3 shows the results of the Spearman rho test statistical test regarding the correlation of family support with patient motivation.

3.3 The Correlation of Family Support with Treatment Adherence in Multidrug-resistant Tuberculosis Patients

Table 4 shows the results of the Chi-square test, which indicated a significance of p = 0.037. These results showed a significant correlation between family support and treatment adherence.

4 DISCUSSION

A small percentage of respondents demonstrated moderate self-efficacy but low family support. The results of the statistical tests indicated no significant correlation between family support and self-efficacy in MDR TB patients.

The results of this study are not consistent with work by Hendiani, Sakti and Widayanti (2012), which suggests that family members supporting as drug supervisors do have a correlation with self-efficacy in pulmonary TB patients. The results showed that patients who had positive perceptions of family support in supervising drug had a higher self-efficacy. Self-efficacy is not only formed by family support, but also by knowledge, attitude, high self-esteem, feelings of sufficient ability, confidence to act, and trust their ability to change situations (Notoatmodjo, 2010).

The Spearman rho statistical test results found a significant relationship between family support and motivation in patients with MDR TB. According to John Elder (Notoatmodjo, 2007), motivation is an interaction between behavior and environment, so can increase, decrease, or maintain behavior. This result is consistent with a study by Sutarno and Utama (2012), which indicates that social support from family and health workers, and sufficient knowledge and perceptions about TB, has a positive effect on motivation for treatment. According to Mohammadi (2009) motivation is needed to encourage patients to be actively involved in the control of the disease.

The correlation between family support and motivation in MDR TB patients indicates that families can encourage MDR TB patients to consistently adhere to treatment programs. Family support has a positive effect on respondents' motivation to seek treatment.

Most respondents who demonstrated non-adherence to treatment of MDR TB, had insufficient family support. The results of the Chi-square statistics test indicated that there was a significant correlation between family support and MDR TB patient compliance. The results of the study are consistent with Maulidia (2014), who showed a significant correlation between family support and treatment adherence for tuberculosis patients.

The results of the study are consistent with Hutapea (2009), who studied the effect of family support on treatment adherence. The results indicated that there is an influence of family support on the regularity of taking medication. More than half of respondents take medication once daily. The

statistics of these two studies equally emphasize the impact of family support on patient treatment adherence.

The results are consistent with Wilson et al. (2016) who suggest that video-based education regarding TB for families be successfully implemented in busy and resource-limited outpatient settings, and can provide a potentially efficient and low-cost effective strategy towards optimizing patient understanding, acceptance, and compliance with TB treatment recommendations

This study is consistent with work by Castelnuovo (2013) who conducted a review of compliance in anti-tuberculosis treatment. The risk factors for defaulting treatment were: distance from the hospital, not being on the first course of TB medication, lack of repeated smears, unit transfer after the intensive phase, experiencing side effects, having no family support, poor knowledge about TB treatment, being more than 25 years old, and the use of public transport.

Sagbakken, Frich and Bjune (2008) investigated barrier and enablers in the management of tuberculosis treatment, through a qualitative study. Their result showed that patients with limited access to financial or practical help from relatives or friends experienced barriers to adherence during the early stages of treatment.

Akshata and Chakrabarthy (2016) studied the management of multidrug-resistant tuberculosis (MDR TB). They discovered that monitoring is the key to successful outcomes. Their results indicated that early diagnosis of MDR TB, and adequate clinical monitoring during treatment, is essential. Identifying adverse drug reactions, other comorbidities, and their optimal management are keys to success.

Adherence is a behavior that can be planned for. Treatment adherence is the result of interaction planning for internal and external factors of MDR TB patients. Family support is an external reinforcing factor as well as an enabling source of support when MDR patients become less motivated to seek treatment. Constant family support will form consistent patient compliance behavior.

5 CONCLUSIONS

Family support has no significant correlation with self-efficacy but has a significant correlation with motivation and adherence to the treatment of multidrug-resistant tuberculosis (MDR TB).

REFERENCES

- Akshata, J. S., Chakrabarthy, A. (2016). Management of multidrug resistant tuberculosis (MDR-TB) - Monitoring is the key to successful outcome. *Egyptian Journal of Chest Diseases and Tuberculosis*. Volume 65, Issue 2, 1 April 2016, Pages 447-450
- Aisyah (2013). *Hubungan persepsi, pengetahuan TB paru dan PMO dengan kepatuhan berobat pasien TB paru di puskesmas kecamatan Jatinegara Jakarta Timur*. Tesis, FKM-UI
- Bildenhann, A. (2015). *Assesment of Knowledge and Attitudes on Latent Tuberculosis Treatment Acceptance in a South West*. Dayton, Ohio:Wright State Univerity.
- Castelnuovo B (2013). *A review of compliance to anti tuberculosis treatment and risk factors for defaulting treatment in Sub Saharan Africa*. *African Health Sciences* 2010; 10(4): 320 - 324
- Darmadi (2010). *Analisis kualitatif perilaku kepatuhan menelan obat pasien tuberculosis Paru di 4 Puskesmas Wilayah Kabupaten Ketapang tahun 2000* ([http://www.lontar.ui.ac.id//opac/themes/libri2/detail.jsp?id=70978 &lokasi=lokal](http://www.lontar.ui.ac.id//opac/themes/libri2/detail.jsp?id=70978&lokasi=lokal)) akses 30 Juli 2017
- Departemen Kesehatan Republik Indonesia. (2008). *Pedoman Nasional Penanggulangan TBC*. Jakarta: Bhakti Husada.
- Dhewi, G. I., Armiyati, Y., & Supriyono, M. (2011). *Hubungan Antara Pengetahuan, Sikap Pasien dan Dukungan Keluarga dengan Kepatuhan Minum Obat Pada Pasien TB Paru di BKPM Pati*. Semarang: Program Studi S1 Ilmu Keperawatan Stikes Telogorejo.
- Deskhmund, RD, Caroline, MD. & Nutherford, LS. (2017). *Social support a key factor for adherence to multidrug-resistant Tuberculosis treatment*. <http://dx.doi.org/10.1016/j.itjb.2017.05.03>
- Farmani, P. (2015). *Prediktor Ketidakepatuhan Minum Obat Tuberculosis (TB) pada Pasien dengan Pengobatan Kategori I di Puskesmas Kota Denpasar pada Tahun 2011-2012*. Denpasar: FK Unud
- Hendiani, N., Sakti, H. & Widayanti, C. G. (2012). The relationship between perceived family support as drug consumption controller/ pengawas minum obat (PMO)'s and self-efficacy of tuberculosis patients in BPKM Semarang region. *Jurnal Psikologi*, Vol. 1 (1) 94-105
- Hidayati, L. (2012). *Pengaruh hypertension self-management program terhadap perubahan self-efficacy, self-care behaviour dan tekanan darah penderita hipertensi di puskesmas Mojo*. Tesis. Universitas Airlangga.
- Hutapea. (2009). *Pengaruh dukungan keluarga terhadap kepatuhan minum OAT*. *Jurnal Respiriologi Indonesia*. 29 (2).
- Kementerian Kesehatan RI. (2016). *Petunjuk Teknis Manajemen Dan Tatalaksana TB Anak*. Jakarta: Kementerian Kesehatan RI.

- Kholifah, S.N. (2014). Self-management intervention sebagai upaya peningkatan kepatuhan pada penderita DM. *Jurnal Ners*, Vol. 9 (1) 143-150.
- Maulidia, DF. (2014). *Hubungan Antara Dukungan Keluarga dan Kepatuhan Minum Obat Pada Pasien Tuberkulosis di Ciputat (Skripsi)*. Jakarta: UIN
- Mohammadi, E., Abedi, H.A., Gofranipour, E., Jalali, F & Kazemnejad, A. (2009). Evaluation of 'partnership care model' in the control of hypertension. *International Journal of Nursing Practice*, 12, 153-159.
- Muhtar (2013). Pengaruh pemberdayaan keluarga dalam meningkatkan self-efficacy dan self-care activity keluarga dan penderita tuberkulosis paru di kota Bima, Nusa Tenggara Barat. *Tesis*, FKp-UNAIR.
- Notoatmodjo, S. (2010). *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta.
- Nursalam. (2013). *Metodologi penelitian: Pendekatan praktis (edisi 3)*. Jakarta: Salemba Medika
- Rekam Medik RSUD Dr. Soetomo. (2017).
Data kejadian TB MDR bulan Juli-September 2016.
Surabaya: RSDS
- Royce, S. Carls, F. Bare, T. & Gates, G. (2014) *Identification of Multidrug Resistance in Previously Treated Tuberculosis Patients: a Mixed Methods Study in Cambodia*. NIH Public Access: Inj. Tuberculosis Lung Disease. November; 18(11): 1299–1306.doi:10.5588/ijtld.14.0116
- Sukartini, T. (2015). Pengembangan model peningkatan kepatuhan. Jakarta: *Disertasi*. Universitas Indonesia.
- Sutarno, S., & Utama, G.A., (2012). Faktor-faktor yang mempengaruhi motivasi berobat penderita tuberkulosis paru di Pekalongan tahun 2012. *Jurnal Ilmiah Widya*, Vol. 1 (1) 2012
- Sagbakken, M., Frich, J.C., and Bjune, G (2008). Barrier and enablers in the management of tuberculosis treatment in Addis Ababa, Ethiopia: a qualitative study. *BMC Public Health*. (<https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-8-11>)
- WHO. (2016). *World statistics of Tuberculoze Prevalence*. New York: World Health Organization
- Wilson, J.W., Ramos, J.G., Castillo, F., Catellanos, E.F., Escalante, P. (2016). Tuberculosis patient and family education through videography in El Salvador. *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*. Volume 4, 1 August 2016, Pages 14-20