



THE RELATIONSHIP BETWEEN FAMILY SUPPORT AND DURATION OF TREATMENT WITH THERAPEUTIC COMPLIANCE IN PULMONARY TUBERCULOSIS PATIENTS

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ABSTRACT

Pulmonary tuberculosis remains a public health issue that requires a high level of medication adherence to achieve successful treatment. Non-adherence can lead to treatment failure, drug resistance, and an increased risk of transmission. This study aims to analyze the relationship between family support and duration of treatment with medication adherence in patients with pulmonary tuberculosis. This study employed a quantitative design with a cross-sectional approach. The population and sample consisted of 47 pulmonary tuberculosis patients selected using total sampling. The instruments used were the Perceived Social Support–Family (PSS-Fa) and the Morisky Medication Adherence Scale (MMAS-8), both of which had been validated for validity and reliability. The PSS-Fa instrument had a correlation coefficient of 0.412 and a Cronbach's alpha of 0.891, while the MMAS-8 instrument demonstrated acceptable reliability with a Cronbach's alpha of 0.740. Data collection was conducted via questionnaires and observations, followed by analysis using the Chi-Square test. The results of the study indicate a significant association between family support ($p = 0.000$) and duration of treatment ($p = 0.028$) with medication adherence in tuberculosis patients. It is concluded that family support and duration of treatment are significantly associated with medication adherence in patients with pulmonary tuberculosis.

Keywords: duration of treatment; family support; treatment compliance; tuberculosis

How to cite (in APA style)

Gurnita, L. A., Budhiana, J., & Rahayu, R. (2026). The Relationship between Family Support and Duration of Treatment with Therapeutic Compliance in Pulmonary Tuberculosis Patients. *Indonesian Journal of Global Health Research*, 8(5), 219–226. <https://doi.org/10.37287/ijghr.v8i5.1830>.

INTRODUCTION

Infectious diseases remain a serious challenge in public health because they contribute to high rates of morbidity and mortality in many countries, particularly in developing nations such as Indonesia. Infectious diseases are caused by biological agents such as bacteria, viruses, and parasites that can be transmitted directly between individuals or through certain vectors. Globally, infectious diseases remain one of the leading causes of death. One infectious disease with a high mortality rate is pulmonary tuberculosis, which remains a global public health concern to this day (Wirahsonoo et al., 2025).

Pulmonary tuberculosis, caused by the bacterium *Mycobacterium tuberculosis*, is one of the leading causes of death from infectious diseases worldwide. The disease is highly contagious through the air, particularly in areas with limited access to healthcare and high HIV prevalence. Individuals living with HIV are known to be approximately 18 times more likely to develop active tuberculosis than the general population (Reyes et al., 2023). According to a World Health Organization report, there are estimated to be approximately 10.7 million cases of tuberculosis worldwide in 2024, a slight decrease from 2023, which saw approximately 10.8 million cases. Of this total, approximately 8.3 million cases have been reported and are undergoing treatment, while approximately 2.4 million cases remain undiagnosed or unreported. The distribution of these cases

includes approximately 5.8 million cases among adult men, 3.7 million among adult women, and 1.2 million cases among children (WHO, 2024).

In Indonesia, pulmonary tuberculosis remains a serious public health issue. Indonesia ranks second in the world after India in terms of the number of tuberculosis cases. According to data from the Ministry of Health of the Republic of Indonesia, the number of tuberculosis cases detected in 2024 reached 856,420, an increase from the 821,200 cases recorded in 2023. The provinces with the highest number of cases include West Java, East Java, and Central Java (Kemenkes RI, 2025). In line with this national trend, the number of suspected tuberculosis cases in Sukabumi Regency has shown a year-over-year increase. In 2023, there were 22,348 suspected tuberculosis cases, rising to 29,754 cases in 2024, and further increasing to 35,845 cases in 2025. Based on data from the Sukabumi Regency Health Office for 2025, tuberculosis cases in Sukabumi Regency are distributed across seven regions, with Region I accounting for 1,892 cases. One of the healthcare facilities contributing to tuberculosis cases in that region is the Bantargadung Community Health Center. The data shows that the number of tuberculosis cases at the Bantargadung Community Health Center has increased over the past three years, from 76 cases in 2023, rising to 135 cases in 2024, and increasing again to 194 cases in 2025 (Sugiyanto & Sigala, 2023).

Pulmonary tuberculosis not only affects a patient's physical health but also impacts their psychological and social well-being (Loh et al., 2023). Physically, patients may experience symptoms such as a cough lasting more than two weeks, a cough with phlegm or blood, shortness of breath, weakness, loss of appetite and weight, night sweats, and prolonged fever. Additionally, societal stigma toward tuberculosis patients can create psychological stress that affects self-image, mental health, coping abilities, and the patient's quality of life (Febi et al., 2021). Tuberculosis treatment involves the administration of anti-tuberculosis drugs (ATD), which consist of various combinations of antibiotics such as rifampicin, isoniazid, pyrazinamide, and ethambutol. This treatment is carried out using the DOTS (Directly Observed Treatment Short-course) strategy, an approach that emphasizes direct supervision during the treatment process (Fernandes et al., 2024). The duration of tuberculosis treatment is relatively long, approximately 6–8 months, consisting of an intensive phase and a continuation phase, to ensure treatment success and prevent further transmission.

The success of tuberculosis treatment is heavily influenced by the patient's compliance to the treatment regimen. Non-compliance to treatment can lead to treatment failure, disease recurrence, and an increased risk of drug resistance or multidrug-resistant tuberculosis (MDR-TB) (Kaaffah et al., 2023; Wulandari et al., 2021). In this context, family support plays a crucial role in helping patients adhere to their treatment regimen throughout the course of therapy. The duration of treatment can affect adherence levels, making consistent support essential. Family members can serve as medication monitors by providing emotional and informational support, as well as reminding patients to take their medication regularly until the treatment is completed (Putri et al., 2025).

Given the high burden of tuberculosis cases and the complexity of factors influencing treatment success—particularly patient compliance to long-term therapy—an empirical study is needed to identify the key determinants that play a role in improving treatment compliance. Family support as an external factor and treatment duration as a clinical factor are believed to have a significant contribution to shaping treatment compliance behavior in patients with pulmonary tuberculosis. However, evidence in the local context remains limited. Therefore, this study aims to analyze the relationship between family support and treatment duration with treatment compliance in patients with pulmonary tuberculosis.

METHOD

This study is a quantitative study using a correlational method aimed at determining the relationship between family support, duration of treatment, and medication adherence among patients with pulmonary tuberculosis. This study employed a cross-sectional design. The study sample consisted of 47 respondents selected using total sampling. The instrument used was a questionnaire. Family support was measured using the Perceived Social Support–Family (PSS-Fa) scale developed by Procidano and Heller, referencing Ida (2024) study, which had previously tested the instrument's validity and reliability, yielding a correlation coefficient of 0.412 and a Cronbach's alpha of 0.891. Medication adherence was measured using the Morisky Medication Adherence Scale (MMAS-8) developed by Morisky and based on Fernandes (2024) study, which had undergone validity and reliability testing. This instrument has good content validity with an S-CVI/Ave value of 0.950 and acceptable reliability with a Cronbach's alpha value of 0.740. Data on treatment duration were obtained from medical records at the community health center, documented and confirmed through observation based on patients' medication records. Bivariate analysis using the Chi-Square test was conducted to determine the relationship between family support, duration of treatment, and medication adherence. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS). This study received ethical approval from the STIKES Sukabumi Ethics Committee under approval number: 001338/KEP STIKES SUKABUMI/2026.

RESULT

Table 1.
Respondent characteristics (n= 47)

Characteristics	f	%
Gender		
Male	25	53.2
Female	22	46.8
Age (Years)		
12-16	4	8.5
17-25	14	29.8
26-35	8	17.0
36-41	6	12.8
46-55	8	17.0
> 65	7	14.9
Education		
Elementary School	16	34.0
Junior High School	20	42.6
High School	11	23.4
Working Status		
Working	22	46.8
Not Working	25	53.2
Time of Suffering (Months)		
< 6	2	4.3
≥ 6	45	95.7
Source of Information		
Healthcare Workers	38	80.9
Parents	9	19.1

Table 1, it is evident that the majority of respondents were male, totaling 25 people (53.2%); 14 people (29.8%) were aged 17–25; 20 people (42.6%) had a junior high school education; unemployed (25 people, 53.2%), and received information about tuberculosis from health workers (38 people, 80.9%).

Table 2, it was found that some patients with pulmonary tuberculosis received family support—37 patients (78.7%)—adhered to their prescribed treatment—37 patients (78.7%)—and had been undergoing treatment for more than two months or had reached the advanced stage—33 patients (70.2%).

Table 2.
Frequency distribution of the research variables (n= 47)

Variables	F	%
Family Support		
Supporting	37	78.7
Not Supporting	10	21.3
Therapeutic Compliance		
Compliance	37	78.7
Non-Compliance	10	21.3
Duration of Treatment		
Intensive Stage (< 2 bulan)	14	29.8
Advance Stage ($\geq$ 2 bulan)	33	70.2

Table 3.
Factors Associated with Therapeutic compliance in Patients with Pulmonary Tuberculosis

Factors Associated with Therapeutic Compliance in Patients with Pulmonary Tuberculosis							
Variables	Therapeutic Compliance				Total		p-value
	Compliance		Non-Compliance				
	f	%	f	%	f	%	
Family Support							
Supporting	36	97.3	1	2.7	37	100	0.000
Not Supporting	1	10	9	90	10	100	
Duration of Treatment							
Intensive Stage	8	57.1	6	42.9	14	100	0.028
Advance Stage	29	87.9	4	12.1	33	100	

Table 3, there is a significant association between family support and duration of treatment and therapeutic compliance among patients with pulmonary tuberculosis ($p = 0.000$). Patients who received family support demonstrated a very high compliance rate compared to patients who did not receive family support. Additionally, treatment duration was also significantly associated with compliance ($p = 0.028$), with patients in the advance phase (≥ 2 months) having a higher compliance rate compared to those in the intensive phase. Overall, these findings indicate that family support and treatment continuity play a crucial role in improving patient compliance to the tuberculosis treatment regimen.

DISCUSSION

The results of this study indicate that the distribution of respondents by gender is relatively balanced between men and women. The majority of respondents are in the working-age group and have a secondary education level. Most respondents have been suffering from the disease for a long time (>6 months), but the majority are still in the early stages of treatment. The primary source of information used by respondents regarding their health condition comes from healthcare workers. Health knowledge and behavior can be influenced by various factors, including past experiences, the duration of the illness, and support from the surrounding community. Demographic factors, particularly age and gender, also play a role in determining the risk of tuberculosis, where individuals with compromised immune systems are at high risk of contracting the disease from family members who have not yet undergone treatment (Azilah et al., 2025).

The results of this study indicate that family support for patients with pulmonary tuberculosis still needs to be improved. Although the majority of respondents fell into the category of supportive families, there were still respondents who had not received adequate support. Family support is a form of acceptance—both in attitude and action—provided to family members, encompassing informational, evaluative, instrumental, and emotional support. This support reflects interpersonal relationships characterized by attention, concern, and family involvement in helping family members facing health issues (Akhriansyah et al., 2023). This is consistent with the findings of a study conducted by Letmau (2022) This indicates that the greater the family support received by

patients, the higher their level of compliance to treatment. Therefore, optimizing the role of families through health education and family empowerment is crucial for enhancing support for patients with pulmonary tuberculosis, thereby contributing to improved therapeutic compliance and treatment success.

The study results show that the majority of respondents were in the continuation phase of treatment. A total of 33 respondents (70.2%) had been undergoing treatment for ≥ 2 months, while 14 respondents (29.8%) were still in the intensive phase (< 2 months). This indicates that the majority of patients had completed the initial phase of treatment and moved on to the next phase as prescribed. Treatment for pulmonary tuberculosis lasts 6–8 months, encompassing both the intensive and continuation phases. This prolonged treatment duration can lead to fatigue, potentially reducing patient compliance to medication (Feng et al., 2023). Therefore, a comprehensive strategy is needed, encompassing health education, treatment monitoring, and strengthening family support to improve treatment outcomes.

The results of this study indicate that the majority of respondents (78.7%) demonstrated compliance to tuberculosis treatment, while the remaining 21.3% were non-adherent. This suggests that the majority of patients have followed the treatment regimen as prescribed. Patient compliance is a crucial factor for treatment success and is influenced by both internal and external factors (Adhanty et al., 2023). However, patient fatigue often leads to noncompliance with medication and routine follow-up visits, resulting in suboptimal treatment outcomes over the 6-month period. This situation has the potential to prolong the treatment period, increase the risk of complications, recurrence, treatment failure, drug resistance, and transmission in the community (Ajidaradewi et al., 2024; Yani et al., 2022). Warjiman et al. (2022) revealed that family support is positively correlated with therapeutic compliance among tuberculosis patients. Therefore, improving patient compliance requires a comprehensive approach that includes ongoing health education, treatment monitoring, and strengthening family support and the healthcare system to enhance the success of tuberculosis treatment.

There is a significant association between family support and therapeutic compliance among tuberculosis patients. Most respondents who received family support had a high level of compliance to treatment, at 97.3%, while the majority of respondents who did not receive family support were in the non-adherent category, at 90.0%. These findings indicate that family support plays an important role in improving patient compliance during tuberculosis treatment. This study is also consistent with research conducted by Salim et al. (2021) which shows a significant association between family support and therapeutic compliance among tuberculosis patients. However, another study conducted by Suharno (2020) indicates that family support does not always directly guarantee patient compliance to treatment. Therapeutic compliance is influenced by various other factors, such as the patient's level of knowledge, access to healthcare facilities, and the relationship between healthcare providers and patients. Nevertheless, the findings of this study indicate that the majority of respondents fall into the category of treatment-adherent patients. Therefore, efforts to enhance family support for patients with pulmonary tuberculosis should be optimized to make a greater contribution to improving therapeutic compliance.

The results of this study indicate a significant association between treatment duration and therapeutic compliance among patients. Respondents who had entered the continuation phase (≥ 2 months) demonstrated a higher compliance rate of 87.9%, compared to the intensive phase, which was only 57.1%. These findings suggest that the longer patients undergo treatment, the greater their commitment to following the therapy. Consistency during treatment is a critical factor in preventing treatment failure and drug resistance, including Multi-Drug Resistant Tuberculosis (MDR-TB). These results are consistent with previous studies by Ulfa (2023) which states that the duration of treatment is related to the length of therapy in TB patients, which is influenced by factors such as

nutritional status, smoking habits, and socioeconomic conditions. In addition, patients with a history of relapse or treatment interruption are at higher risk of developing drug resistance, thus requiring longer treatment. However, these results differ from those of a study by Wahyuni et al (2020) which states that the primary factor influencing the duration of treatment is a history of treatment discontinuation. These differing results indicate that clinical factors and patient behavior may contribute to variations in treatment duration and compliance rates. Thus, consistency during long-term treatment is a critical factor in minimizing the risk of treatment failure, preventing drug resistance, and supporting overall treatment success.

These findings confirm that family support is a key determinant in improving therapeutic compliance; therefore, family-based nursing interventions need to be systematically integrated into tuberculosis control programs. Furthermore, low compliance during the intensive phase highlights the need to strengthen education, monitoring, and support from the start of therapy to prevent treatment discontinuation and drug resistance. Overall, optimizing family support and treatment continuity are essential strategies for improving the success of tuberculosis therapy and reducing the disease burden in the community.

CONCLUSION

Based on the research results, it can be seen that family support and length of treatment are partially related to treatment compliance in pulmonary tuberculosis sufferers. These findings confirm that adequate family support and consistency during the treatment period can increase patient motivation, help them follow the treatment regimen regularly, and complete treatment as recommended by health professionals.

REFERENCES

- Adhanty, S., & Syarif, S. (2023). Kepatuhan pengobatan pada pasien tuberkulosis dan faktor-faktor yang mempengaruhinya: Tinjauan sistematis. *Jurnal Epidemiologi Kesehatan Indonesia*, <https://doi.org/10.7454/epidkes.v7i1.6571>
- Ajidaradewi, Suarnianti, & Wijayaningsih, K. S. (2024). Determinan Perilaku Pencarian Pengobatan pada Penderita TB Paru di Puskesmas Mamajang Kota Makassar. *JIMPK : Jurnal Ilmiah Mahasiswa & Penelitian Keperawatan*, 4(4), 31–37. <https://doi.org/10.35892/jimpk.v4i4.1530>
- Akhriansyah, M., Langelo, W., Aji, R., Anugrah, A. K., Syarif, I., Dasa, M., Wiratikusuma, Y., Nulhakim, L., Budiawan, H., & Samiun, Z. (2023). Keperawatan keluarga. Poltekkes Bengkulu. [http://repository.poltekkesbengkulu.ac.id/3044/1/KEPERAWATAN](http://repository.poltekkesbengkulu.ac.id/3044/1/KEPERAWATAN%20KELUARGAa.pdf)
- Azilah, F. N., Nizar, M., & Gizi, S. (2025). Faktor-Faktor yang Berhubungan dengan Kejadian Tuberkulosis pada Anak di Rumah Sakit Umum Daerah Bangkinang Kabupaten Kampar. *SCIENCE: Indonesian Journal of Science*, 1(5), 1116–1122. <https://doi.org/10.31004/science.v1i5.198>
- Dewi, P. R., Setyowati, W. E., Sulistyaningsih, D. R., & Wahyuningsih, I. S. (2026). Determinants of Factors Influencing Medication Compliance among Tuberculosis Patients: A Literature Review. *Indonesian Journal of Global Health Research*, 8(2), 517–527. <https://doi.org/10.37287/ijghr.v8i2.747>
- Fatmawati, A. Dela, Noor, M. A., & Sulistyaningsih, D. R. (2025). Hubungan Dukungan Keluarga Dengan Kualitas Hidup Pasien Tuberkulosis Paru di Puskesmas Bangetayu Semarang. *Nursing Applied*, 3(2), 72–78. <https://doi.org/10.57213/naj.v3i2.574>
- Febi, A. R., Manu, M. K., Mohapatra, A. K., Praharaj, S. K., & Guddattu, V. (2021). Psychological stress and health-related quality of life among tuberculosis patients: a prospective cohort study. *ERJ Open Research*, 7(3), 251–2021. <https://doi.org/10.1183/23120541.00251-2021>

- Feng, Y., Xu, Y., Yang, Y., Yi, G., Su, H., Chen, H., Guo, R., Jia, J., & Wang, P. (2023). Effects of smoking on the severity and transmission of pulmonary tuberculosis: A hospital-based case control study. *Frontiers in Public Health*, 11(5). <https://doi.org/10.3389/fpubh.2023.1017967>
- Fernandes, A., Laohaprapanon, S., Nam, T. T., Sequeira, E. M. D. C., & Le, C. N. (2024). Compliance to Pulmonary Tuberculosis Medication and Associated Factors Among Adults: A Cross-Sectional Study in the Metinaro and Becora Sub-Districts, Dili, Timor-Leste. *International Journal of Environmental Research and Public Health*, 21(12), 1–14. <https://doi.org/10.3390/ijerph21121662>
- Ida, & Shidqi, R. (2024). Hubungan dukungan keluarga dengan kualitas hidup pasien TB paru di wilayah kerja Puskesmas Selabatu Kota Sukabumi. *Journal Health Society*, 13(1)
- Kaaffah, S., Kusuma, I. Y., Renaldi, F. S., Pratiwi, A. D. E., Bahar, M. A., & Lestari, Y. E. (2023). Knowledge, Attitudes, and Perceptions of Tuberculosis in Indonesia: A Multi-Center Cross-Sectional Study. *Infection and Drug Resistance*, 16, 1787–1800. <https://doi.org/10.2147/IDR.S404171>
- Kemenkes. (2025). Buku Panduan Tenaga Medis dan Tenaga Kesehatan Tuberkulosis. Kementerian Kesehatan Republik Indonesia. <https://id.scribd.com/document/975464800/Buku-Panduan-Tenaga-Medis-Dan-Kesehatan-Tuberkulosis>
- Loh, S. Y., Zakaria, R., & Mohamad, N. (2023). Knowledge, Attitude, and Stigma on Tuberculosis and the Associated Factors for Attitude Among Tuberculosis Contacts in Malaysia. *Medeniyet Medical Journal*, 38(1), 45–53. <https://doi.org/10.4274/MMJ.galenos.2023.14478>
- Nasedum, I. R., Simon, M., & Fitriani, F. (2021). Hubungan Dukungan Keluarga terhadap Kepatuhan Pengobatan Pasien Tuberkulosis Paru. *Window of Health: Jurnal Kesehatan*, 4(4), 358–363. <https://doi.org/10.33096/woh.v4i04.206>
- Putri, O. M. G., Oktarlina, R. Z., Suri, N., & Sukohar, A. (2025). Kajian Literatur : Faktor-Faktor Yang Memengaruhi Keberhasilan Terapi Pasien Tuberkulosis Paru. *Jurnal Kesehatan Tambusai*, 6(1), 1448–1456. <https://doi.org/10.31004/jkt.v6i1.42725>
- Reyes, C. A., Rosillo, N., & L, P. (2023). Journal of Clinical Tuberculosis and Other Mycobacterial Diseases Epidemiology and factors associated with Extra-pulmonary tuberculosis in a Low-prevalence area. 32(May), 10–14. <https://doi.org/10.1016/j.jctube.2023.100377>
- Sadipun, D., & Letmau, W. (2022). Hubungan dukungan keluarga dengan kepatuhan pasien tuberkulosis paru. *Jurnal Ilmiah Wahana Pendidikan*, 8(14), 517-527. <https://doi.org/10.5281/zenodo.7052407>
- Salim, A. A. N. F., Latief, S., Syahrudin, F. I., Wiriansya, E.P., & Meliyana, A. (2023). Hubungan antara luas lesi foto thorax tuberkulosis paru dengan hasil pemeriksaan sputum BTA. *Fakumi Medical Journal: Jurnal Mahasiswa Kedokteran*, 3(5).
- Setiabudi, R. J., & Wahyunitisari, M. R. (2022). Tuberkulosis di Era Pandemi Covid-19. Penerbit Karunia.
- Sugiyanto, S., & Sigala, A. (2023). Analysis of the Role of Family Support in Treatment Compliance of Pulmonary Tuberculosis Clients. *Tropical Health and Medical Research*, 5(2), 113–119. <https://doi.org/10.35916/thmr.v5i2.89>
- Suharno, Retnaningsih, D., & Kustriyani, M. (2020). Dukungan keluarga dengan kepatuhan minum obat pada penderita TBC di masa pandemik COVID-19. *Jurnal Keperawatan dan Kesehatan Masyarakat Cendekia Utama*, 9(2), 152-162.
- Ulfa, R. N., Efendy, M., Halim, S., & Lipinwati, L. (2023). Faktor-Faktor Risiko Kejadian Tuberkulosis Paru Kambuh Di Puskesmas Kota Jambi Tahun 2020-2022. *Scientific of Environmental Health and Diseases*, 3(2). <https://doi.org/10.22437/esehad.v4i1.29333>
- Wahyuni, T., & Cahyati, W. H. (2020). Multidrug Resistant Tuberculosis (MDR-TB). *HIGEIA (Journal of Public Health Research and Development)*, 4(Special 3), 636–648. <https://doi.org/10.10.15294/higeia.v4iSpecial%203.35413>
- Warjiman, W., Berniati, B., & Er Unja, E. (2022). Hubungan Dukungan Keluarga Terhadap Kepatuhan Minum Obat Pasien Tuberkulosis Paru Di Puskesmas Sungai Bilu. *Jurnal Keperawatan Suaka Insan (Jksi)*, 7(2), 163–168. <https://doi.org/10.51143/jksi.v7i2.366>

- WHO. (2024). Global tuberculosis report 2024. World Health Organization. <https://www.who.int/teams/global-programme-on-tuberculosis-and-lung-health/tb-reports/global-tuberculosis-report-2024>
- Wirahsonoo, G., Ahmad, G., & Amir, M. D. (2025). The relationship between family support and quality of life for patients with tuberculosis. *Jurnal Health Society*, 14(1), 37–44. <https://doi.org/10.62094/jhs.v14i1.196>
- Wulandari, R., Kusumawati, A., & Prabamurti, P. N. (2021). Dukungan Sosial Keluarga pada Pasien TB MDR di Kota Semarang. *Media Kesehatan Masyarakat Indonesia*, 20(1), 41–49. <https://doi.org/10.14710/mkmi.20.1.41-49>
- Yani, D. I., Juniarti, N., & Lukman, M. (2022). Factors Related to Complying with Anti-TB Medications Among Drug-Resistant Tuberculosis Patients in Indonesia. *Patient Preference and Compliance*, 16, 3319–3327. <https://doi.org/10.2147/PPA.S388989>