Journal of Research in Social Science And Humanities (2025); 5(4):
DOI: http://dx.doi.org/10.47679/jrssh.v5i4.482
ISSN 2809-3356 (print), ISSN 2807-3916 (online)

RESEARCH ARTICLE

The Relationship Between Hemodialysis Frequency and the Tendency of Depressive Symptoms Among Dialysis Patients

Jessica Maria Karminda Maheswari[1*], Teguh Dwi Nugroho[1], Deif Tunggal[1], Efrisca Meliyuita Br Damanik[1]

Published online: 15 Desember 2025

Abstract

Background: Patients undergoing hemodialysis often experience both physical and psychological impacts. This study aimed to determine the relationship between hemodialysis frequency and the tendency of depressive symptoms. Methods: This was a cross-sectional study conducted at three hospitals in Kupang City: Siloam Hospital Kupang, Prof. W.Z. Yohanes Regional Hospital, and dr. Ben Mboi Central Hospital. Research variables included hemodialysis frequency and the tendency of depressive symptoms. Data were collected using the BDI-II questionnaire through interviews or self-administration. Statistical analysis was performed using Spearman's correlation with a 95% confidence level. Results: Among 163 respondents, 5 (3.1%) had a low frequency, 140 (85.9%) had a moderate frequency, and 18 (11%) had a high frequency. A total of 101 patients (62%) were categorized as normal, 28 (17.5%) had mild depression, 22 (13.5%) moderate depression, and 12 (7.4%) severe depression. Statistical analysis revealed no significant relationship between hemodialysis frequency and depressive symptom tendency ($p = 0.491 > 0.05$). Conclusion: Although many hemodialysis patients experienced depressive symptoms, statistical analysis did not show a significant association between hemodialysis frequency and the tendency of depressive symptoms. Further studies are needed to explore other factors influencing depression in this population.

Keyword: Hemodialysis; Frequency, Depressive; Symtomps

Introduction

Hemodialysis is one of the renal replacement therapies designed to improve patients' quality of life. It is a procedure performed using a machine to clean and filter the blood and to remove excess fluids (Euphora & Samira, 2023). According to the Basic Health Research (Riskesdas) and the Indonesia Health Survey (SKI), the prevalence of hemodialysis in Indonesia has increased (Tim Riskesdas, 2019a; Tim Riskesdas, 2019b; Badan Kebijakan Pembangunan Kesehatan, 2023). The prevalence of chronic kidney disease (CKD) patients aged ≥15 years undergoing hemodialysis was 19.33% in 2018 and 21.1% in 2023 (Pardede et al., 2021; Shanmukham et al., 2022). In 2018, 9.94% of CKD patients aged ≥15 years in East Nusa Tenggara (NTT) underwent hemodialysis. Most patients were aged 35–44 years (18.39%), followed by those aged 25–34 years and 45–54 years (Alkubati et al., 2024)

Patients undergoing hemodialysis frequently experience physical and psychological impacts. Psychological effects include hopelessness, sadness, social withdrawal, decreased motivation for interaction, and reduced self-esteem, which may trigger negative thoughts and social isolation. A sense of dependence on hemodialysis can also hinder acceptance of their condition. Furthermore, patients face social, financial, and mental challenges in adapting to routine hemodialysis treatment, increasing their risk of depression (Joses et al., 2020). Depression is associated with lower quality of life, particularly among patients with moderate to severe depression—contradicting the intended purpose of hemodialysis to improve overall well-being (Vasilopoulou et al., 2016).

Depression is a common and serious psychiatric disorder, yet it remains underdiagnosed among hemodialysis patients (Khan et al., 2019). Depressed individuals may also experience anxiety, worthlessness, and suicidal ideation. A study by Chen et al. (2018) reported that among 26,253 deaths in hemodialysis patients, 133 were categorized as suicide or possible suicide, with 110 officially confirmed. The suicide rate among hemodialysis patients was 76.3 per 100,000 individuals, or 63.1 per 100,000 for confirmed suicides only (Chen et al., 2018). Bhaskaran et al. (2022) found that among 92 hemodialysis patients, 37% were normal, 22% had mild mood disorders, and 41% were at clinical-level depression or higher. Among those with clinical depression, 22 underwent dialysis twice weekly and 16 thrice weekly (Shanmukham et al., 2022). Given the psychological vulnerability of hemodialysis patients and the potential influence of dialysis frequency on depression severity, further research is needed to understand this relationship. Understanding the psychological burden can guide appropriate interventions to improve quality of life and prevent suicide. This study aims to describe hemodialysis frequency, the tendency of depressive symptoms, and the relationship between the two among hemodialysis patients in Kupang City. The findings are expected to provide insights into the importance of addressing psychological health in dialysis care.

Method

A quantitative approach with a cross-sectional design was used to analyze the relationship between hemodialysis frequency and the tendency of depressive symptoms. Ethical approval was obtained from the Health Ethics Committee of Poltekkes Kemenkes Kupang (No. LB.02.03/1/0200/2025). The target population consisted of all hemodialysis patients in Kupang City, while the accessible population included adult patients (aged 18–59 years) receiving hemodialysis at dr. Ben Mboi Central Hospital, Prof. Dr. W. Z. Johannes Regional Hospital, and Siloam Hospital. Purposive sampling was used based on inclusion and exclusion criteria until the minimum required sample size was reached. Using a 95% confidence level and a 5% margin of error, the minimum sample size required from a population of 276 patients was 163, which was achieved.

The sample criteria in this study consisted of inclusion and exclusion criteria. The inclusion criteria comprised patients aged 18–59 years, those undergoing routine hemodialysis, and those with complete medical records. The exclusion criteria included patients aged <18 years or >59 years, patients with a history of mental disorders or a confirmed diagnosis of depression, patients with decreased consciousness, patients with unstable hemodynamics, and individuals who were unwilling to participate as respondents. This study will be conducted directly in Kupang City at three hospitals that provide hemodialysis therapy, namely Prof. Dr. W. Z. Johannes Regional Hospital, Siloam Hospital, and Dr. Ben Mboi Central General Hospital, during July and August 2025. The independent variable in this study is the frequency of hemodialysis, while the dependent variable is the tendency of depressive symptoms. Confounding variables include age, sex, occupation, address, underlying diseases, duration of hemodialysis therapy, and hemodialysis access.

Data collection will be carried out using the BDI-II questionnaire. The BDI-II depression questionnaire is employed to assess the tendency of depressive symptoms and has been tested for validity and reliability. The BDI-II is an assessment tool used to determine the severity of depressive symptoms

[1]Medical Education Study Program, Faculty of Medicine and Veterinary Medicine, Nusa Cendana University, Kupang

*) corresponding author

Jessica Maria Karminda Maheswari

Email: jessica.maheswari4@gmail.com

but is not intended as a diagnostic instrument. Informed consent will be explained by the researcher or read directly by prospective respondents, and the questionnaire may be completed through interviews or self-administration.

To examine the relationship between the independent and dependent variables, the Spearman statistical test will be used with a 95% confidence level. A p-value <0.05 will be interpreted as indicating a statistically significant association between the independent and dependent variables.

Results and Discussion

Hemodialysis Frequency

The univariate analysis results for the hemodialysis frequency variable are presented in the table below.

Table 1. Hemodialysis Frequency

emodialysis Frequency	Frequency (Person)	Percentage (%)
Low	5	3,1
Moderate	140	85,9
High	18	11
Total	163	100

Based on Table 1, it is shown that among the 163 respondents, the majority underwent hemodialysis with a moderate frequency (85.9%), while 3.1% underwent hemodialysis with a low frequency and 11% with a high frequency. Hemodialysis, commonly referred to as dialysis, is a medical procedure performed on patients with chronic kidney failure who experience decreased kidney function or whose kidneys are unable to effectively remove waste products or metabolic residues. The purpose of hemodialysis therapy is to eliminate metabolic waste or toxins from the patient's body. Hemodialysis frequency refers to how often a patient undergoes dialysis treatment each week, which varies depending on the patient's remaining kidney function.

The results of this study indicate that the majority of respondents underwent hemodialysis with a moderate frequency (twice per week), accounting for 85.9%. Previous research conducted by Suciana et al. (2020) in a hospital in Klaten similarly found that most patients received hemodialysis twice a week (Fitri Suciana, Istianna Nur Hidayati, 2020). The national health insurance program (BPJS) covers hemodialysis services for patients with kidney failure up to twice per week, with an annual cost of approximately 92 million rupiah per patient (Euphora & Samira, 2023).

Tendency of Depressive Symptoms

The results of the interviews and the completion of the BDI-II questionnaire by the respondents regarding the tendency of depressive symptoms can be seen in the following table

Table 2 Tendency of Depressive Symptoms

Tendency of Depressive Symptoms	Frequency (Person)	Percentage (%)
Normal	101	62
Mild depression	28	17,5
Moderate Depression	22	13,5
Severe Depression	12	7,4
Total	163	100

Based on Table 2, most respondents were classified as normal or not experiencing a tendency toward depressive symptoms (62%), followed by those with a tendency toward mild depressive symptoms (17.5%), moderate depressive symptoms (13.5%), and severe depressive symptoms (7.4%). Depressive symptoms among hemodialysis patients were assessed using the BDI-II questionnaire, which consists of 21 items. Overall, the findings of this study indicate that the majority of respondents did not exhibit a tendency toward depressive symptoms (normal), accounting for 62%, while 38% showed varying levels of depressive symptoms. Specifically, 17.5% of patients experienced mild depressive symptoms, 13.5% moderate depressive symptoms, and 7.4% severe depressive symptoms. These findings are consistent with a study conducted by Rahman in 2023, in which 92% of the 25 respondents were categorized as normal or not experiencing depression (Husain, 2021). However, these results differ from another study reporting that most hemodialysis patients experienced mild, moderate, or severe depressive symptoms, with only a small proportion (5.9%) showing no signs of depression (Sompie et al., 2015).

Based on respondents' answers to the depressive symptom items, the majority (61.3%) reported feeling a loss of energy or motivation, and 57.7% experienced changes in sleep patterns. Additionally, 52.6% felt guilty, and 51% reported being easily fatigued. A proportion of respondents (49.1%) reported experiencing a loss or decrease in sexual desire, 39.3% had difficulty making decisions, and 39.3% reported difficulty concentrating. Additionally, 38% stated that they became more easily irritated, 36.1% felt they had failed in the past, and 36.1% reported a loss of interest or an inability to enjoy activities. Moreover, 35% of respondents felt more restless, 34.4% engaged in self-criticism, 33.7% cried more frequently, 32.5% experienced changes in appetite, and 30.1% reported feeling sad.

The results also showed that 27.6% of patients felt uncertain about their future, 23.3% felt unworthy or useless, 22.7% disliked themselves, 22.7% lost interest in social relationships, and 21.5% felt punished. A very small proportion (1.2%) reported having suicidal thoughts. These various symptoms experienced by hemodialysis patients warrant attention and appropriate interventions to prevent the progression of more severe psychological problems, which could further worsen their kidney condition.

Relationship Between Hemodialysis Frequency and Depressive Symptoms

The bivariate analysis in this study was used to examine the relationship between the independent and dependent variables in accordance with the proposed hypothesis. The independent variable in this study is the frequency of hemodialysis, while the dependent variable is the tendency of depressive symptoms. The statistical analysis to test the hypothesis regarding the relationship between frequency and the tendency of depressive symptoms was conducted using the Spearman test. The results of this test are presented in the following table.

Tabel 3 The results of Spearman's Rho Test

			Hemodialysis Frequency	Depression
Spearman's rho	Hemodialysis Frequency	orrelation Coefficient	1.000	.054
		Sig. (2-tailed)	.	.491
		N	163	163
	Depression	Correlation Coefficient	.054	1.000
		Sig. (2-tailed)	.491	.
		N	163	163

The Spearman test results showed a p-value of 0.491 (>0.05), indicating that H_0 is accepted, meaning there is no significant relationship between the frequency of hemodialysis and the tendency of depressive symptoms among hemodialysis patients in Kupang City. The analysis using the Spearman statistical test with SPSS version 25 showed a p-value of 0.491 (>0.05), indicating that there is no significant relationship between hemodialysis frequency and the tendency of depressive symptoms among dialysis patients in Kupang City. The findings of this study, conducted across three hospitals in Kupang City, differ from other research demonstrating a significant association between hemodialysis frequency and the level of depression among dialysis patients (Shanmukham et al., 2022).

Conversely, research conducted by Nakornnoi supports the findings of this study, showing no significant relationship between hemodialysis frequency and the tendency of depressive symptoms among patients (Nakornnoi, 2025). This may be due to the fact that hemodialysis frequency is not the primary factor associated with patients' depressive symptoms. The BDI-II questionnaire includes 21 items—sadness, pessimism, past failure, loss of interest, guilt, sense of punishment, self-dislike, self-criticism, suicidal thoughts or intentions, crying, restlessness, loss of interest, difficulty making decisions, feelings of worthlessness, loss of energy, sleep disturbances, irritability, changes in appetite, concentration difficulties, fatigue, and loss of sexual interest. Each item may be influenced by various factors such as self-concept, gender, age, education level, marital status, occupation, income, mental fatigue, physical symptoms, duration of hemodialysis, and family support, which may have a greater impact on the tendency of depressive symptoms (Alkubati et al., 2024), (Pardede et al., 2021), (Joses et al., 2020), (Octafiani & Armelia, 2021).

The findings of this study are also consistent with research by Sulistini et al., which found no relationship between hemodialysis frequency and fatigue—one of the symptoms of depression (Sulistini et al., 2012). The present study shows that only a small proportion of patients (30.1%) did not feel more fatigued than usual, whereas the majority reported experiencing fatigue. A total of 30.7% reported feeling more easily fatigued than usual, 20.2% felt easily fatigued when performing tasks they normally do, and 19% felt too fatigued to carry out most daily activities.

Patient stress levels during hemodialysis have been shown to be associated with their quality of life (Putra et al., 2023). Another study indicated that patients undergoing lower and higher frequencies of hemodialysis did not differ significantly in terms of quality of life (Suparti & Solikhah, 2021). Family support has also been shown to be strongly associated with the psychological condition of hemodialysis patients (Chayati & Ningsih, 2023). A literature review further identified several factors influencing depression among chronic kidney disease patients undergoing hemodialysis, including gender, age, education, marital status, occupation, and income (Nurfajri &

Widayati, 2022). Patimah et al. (2024) reported that hemoglobin levels, duration of hemodialysis, and blood pressure were associated with fatigue among hemodialysis patients (Patimah et al., 2024).

Another factor influencing depression is self-concept. An individual may exhibit either a positive or negative self-concept. Research by Pardede (2021) found an association between self-concept and depressive symptoms among hemodialysis patients (Pardede et al., 2021). This factor may also help explain the absence of a relationship between hemodialysis frequency and the tendency of depressive symptoms in the present study. Although this study did not statistically demonstrate a significant association between hemodialysis frequency and the tendency of depressive symptoms, the findings highlight important clinical considerations regarding the depressive symptoms experienced by some patients. A comprehensive approach is needed in the management of hemodialysis patients, including the provision of social and psychological support from the early stages of therapy, to help reduce the risk of depression.

The limitations of this study include the fact that data collection was conducted solely through medical records and interviews or questionnaire administration, which may not fully capture the patients' psychological conditions in depth. In addition, the relatively short duration of the study did not allow for the observation of psychological changes across different hemodialysis sessions. The analysis using the Spearman statistical test with SPSS version 25 showed a p-value of 0.491 (>0.05), indicating that there is no significant relationship between hemodialysis frequency and the tendency of depressive symptoms among dialysis patients in Kupang City. The findings of this study, conducted across three hospitals in Kupang City, differ from other research demonstrating a significant association between hemodialysis frequency and the level of depression among dialysis patients (Shanmukham et al., 2022).

Conversely, research conducted by Nakornnoi supports the findings of this study, showing no significant relationship between hemodialysis frequency and the tendency of depressive symptoms among patients (Nakornnoi, 2025). This may be due to the fact that hemodialysis frequency is not the primary factor associated with patients' depressive symptoms. The BDI-II questionnaire includes 21 items—sadness, pessimism, past failure, loss of interest, guilt, sense of punishment, self-dislike, self-criticism, suicidal thoughts or intentions, crying, restlessness, loss of interest, difficulty making decisions, feelings of worthlessness, loss of energy, sleep disturbances, irritability, changes in appetite, concentration difficulties, fatigue, and loss of sexual interest. Each item may be influenced by various factors such as self-concept, gender, age, education level, marital status, occupation, income, mental fatigue, physical symptoms, duration of hemodialysis, and family support, which may have a greater impact on the tendency of depressive symptoms (Alkubati et al., 2024; Pardede et al., 2021; Joses et al., 2020; Octafiani & Armelia, 2021).

The findings of this study are also consistent with research by Sulistini et al., which found no relationship between hemodialysis frequency and fatigue—one of the symptoms of depression (Sulistini et al., 2012). The present study shows that only a small proportion of patients (30.1%) did not feel more fatigued than usual, whereas the majority reported experiencing fatigue. A total of 30.7% reported feeling more easily fatigued than usual, 20.2% felt easily fatigued when performing tasks they normally do, and 19% felt too fatigued to carry out most daily activities.

Patient stress levels during hemodialysis have been shown to be associated with their quality of life (Putra et al., 2023). Another study indicated that patients undergoing lower and higher frequencies of hemodialysis did not differ significantly in terms of quality of life (Suparti & Solikhah, 2021).

Family support has also been shown to be strongly associated with the psychological condition of hemodialysis patients (Chayati & Ningsih, 2023). A literature review further identified several factors influencing depression among chronic kidney disease patients undergoing hemodialysis, including gender, age, education, marital status, occupation, and income (Nurfajri & Widayati, 2022). Patimah et al. (2024) reported that hemoglobin levels, duration of hemodialysis, and blood pressure were associated with fatigue among hemodialysis patients (Patimah et al., 2024).

Another factor influencing depression is self-concept. An individual may exhibit either a positive or negative self-concept. Research by Pardede (2021) found an association between self-concept and depressive symptoms among hemodialysis patients (Pardede et al., 2021). This factor may also help explain the absence of a relationship between hemodialysis frequency and the tendency of depressive symptoms in the present study.

Although this study did not statistically demonstrate a significant association between hemodialysis frequency and the tendency of depressive symptoms, the findings highlight important clinical considerations regarding the depressive symptoms experienced by some patients. A comprehensive approach is needed in the management of hemodialysis patients, including the provision of social and psychological support from the early stages of therapy, to help reduce the risk of depression. The limitations of this study include the fact that data collection was conducted solely through medical records and interviews or questionnaire administration, which may not fully capture the patients' psychological conditions in depth. In addition, the relatively short duration of the study did not allow for the observation of psychological changes across different hemodialysis sessions.

Conclusion

The results of the study showed that 5 respondents (3.1%) underwent hemodialysis at a low frequency, 140 respondents (85.9%) at a moderate frequency, and 18 respondents (11%) at a high frequency. Regarding depressive symptoms, 101 respondents (62%) were categorized as normal, 28 respondents (17.5%) had mild depression, 22 respondents (13.5%) had moderate depression, and 12 respondents (7.4%) had severe depression. Statistical analysis indicated that there was no significant relationship between hemodialysis frequency and the tendency of depressive symptoms among dialysis patients in Kupang City.

For future researchers, it is recommended to investigate the relationship or influence of multiple factors simultaneously, such as age, comorbid conditions, gender, socioeconomic status, place of residence, and duration of hemodialysis. For healthcare institutions, it is important to provide patient education on stress management and offer psychological services tailored to the specific problems experienced by patients.

References

Alkubati, S. A., Al-Sayaghi, K. M., Salameh, B., Halboup, A. M., Ahmed, W. A. M., Alkuwaisi, M. J., & Zoromba, M. A. (2024). Prevalence of Depression and Its Associated Factors Among Hemodialysis Patients in Hodeida City, Yemen. *Journal of Multidisciplinary Healthcare*, *17*(February), 689–699. https://doi.org/10.2147/JMDH.S452935

Badan Kebijakan Pembangunan Kesehatan. (2023). *Survei Kesehatan Indonesia (SKI) dalam Angka*.

Chayati, N., & Ningsih, M. A. (2023). Dukungan Keluarga Terhadap Kualitas Hidup Pasien Hemodialisa di RS PKU Muhammadiyah Yogyakarta. *Pena Nursing*, *2*(1), 83–92. https://doi.org/10.31941/pn.v2i1.3616

Chen, I. M., Lin, P. H., Wu, V. C., Wu, C. S., Shan, J. C., Chang, S. Sen, & Liao, S. C. (2018). Suicide deaths among patients with end-stage renal disease receiving dialysis: A population-based retrospective cohort study of 64,000 patients in Taiwan. *Journal of Affective Disorders*, *227*(17), 7–10. https://doi.org/10.1016/j.jad.2017.10.020

Euphora, N. L., & Samira, J. (2023). Hubungan Lama Menjalani Hemodialisis dengan Status Gizi Pada Pasien Gagal Ginjal Kronik. *Indonesian Journal of Applied Science and Technology*, *4*(1), 96–107.

Fitri Suciana, Istianna Nur Hidayati, K. (2020). Korelasi Lama Dan Frekuensi Hemodialisa Dengan. *MOTORIK Journal Kesehatan*, *15*(1), 13–20.

Husain, f purnamasari. (2021). Aisyiyah surakarta journal of nursing. *Aisyiyah Surakarta Journal of Nursing*, *2*, 1–6.

Joses, K. M., Eka, N. Y., & Nirapambudi, D. (2020). Hubungan Lama Menjalani Hemodialisis Dengan Tingkat Depresi Pada Pasien Hemodialisis di RSUD Abdul Wahab Sjahranie Samarinda. *Jurnal Sains Dan Kesehatan*, *2*(4), 367–372.

Khan, A., Khan, A. H., Adnan, A. S., Sulaiman, S. A. S., & Mushtaq, S. (2019). Prevalence and predictors of depression among hemodialysis patients: A prospective follow-up study. *BMC Public Health*, *19*(1), 1–13. https://doi.org/10.1186/s12889-019-6796-z

Nakornnoi, N. (2025). Prevalence and Factors Associated with Depression among End Stage Kidney Disease Patients in Somdetphraphutthaloetla Hospital. *Journal of the Psychiantric Association of Thailand*, *70*(1), 72–78.

Nurfajri, Q. A. fitra, & Widayati, M. N. (2022). Literature Review Kejadian Depresi Pasien Gagal Ginjal Kronis yang Menjalani Terapi Hemodialisis Qurrata A'yunnin Fitra Nurfajri*, Murtaqib, Nur Widayati. *JKEP (Jurnal Keperawatan)*, *7*(2), 178–190.

Octafiani, M., & Armelia, L. (2021). Angka Kejadian Depresi pada Pasien yang Menjalani Hemodialisis Menggunakan Metode Pengukuran Geriatric Depression Scale. *Majalah Kesehatan Pharmamedika*, *12*(1), 18–24. https://doi.org/10.33476/mkp.v12i1.1602

Pardede, J. A., Safitra, N., & Simanjuntak, E. Y. (2021). Konsep Diri Berhubungan Dengan Kejadian Depresi Pada Pasien Yang Menjalani Hemodialisa. *Jurnal Persatuan Perawat Nasional Indonesia (JPPNI)*, *5*(3), 92. https://doi.org/10.32419/jppni.v5i3.240

Patimah, S., Kusumajaya, H., & M. Faizal, K. (2024). Faktor - Faktor Yang Berhubungan Dengan Fatigue Pada Pasien Gagal Ginjal Kronis Yang Menjalani Hemodialisis Di Rumah Sakit Umum Daerah Depati Bahrin Sungailiat Tahun 2024. *Jurnal Kesehatan Tambusai*, *5*(4), 11003–11012. https://doi.org/10.31004/jkt.v5i4.31920

Shanmukham, B., Varman, M., Subbarayan, S., Sakthivadivel, V., Kaliappan,

A., Gaur, A., & Jyothi, L. (2022). Depression in Patients on Hemodialysis: A Dilapidated Facet. *Cureus*, *14*(9). https://doi.org/10.7759/cureus.29077

Sompie, E. M., D Kaunang, T. M., & Munayang, H. (2015). Hubungan Antara Lama Menjalani Hemodialisis Dengan Depresi Pada Pasien Dengan Penyakit Ginjal. *Jurnal E-Clinic (ECl)*, *3*(1), 3–7.

Sulistini, R., Yetti, K., & Hariyati, R. T. S. (2012). Faktor Faktor yang Mempengaruhi Fatigue Pada Pasien yang Menjalani Hemodialisis. *Jurnal Keperawatan Indonesia*, *15*(2), 75–82. https://doi.org/10.7454/jki.v15i2.30

Suparti, S., & Solikhah, U. (2021). Perbedaan Kualitas Hidup Pasien Gagal Ginjal Kronik Ditinjau dari Tingkat Pendidikan, Frekuensi dan Lama Hemodialisis Di RSUD Goeteng Taroenadibrata Purbalingga. *Medisains*, *14*(2), 50–58. http://jurnalnasional.ump.ac.id/index.php/medisains/article/view/105

5

Tim Riskesdas. (2019a). *Laporan Nasional Riskesdas 2018*.

Tim Riskesdas. (2019b). *Laporan Provinsi Nusa Tenggara Timur Riskesdas 2018*.

Vasilopoulou, C., Bourtsi, E., Giaple, S., Koutelekos, I., Theofilou, P., & Polikandrioti, M. (2016). The Impact of Anxiety and Depression on the Quality of Life of Hemodialysis Patients. *Global Journal of Health Science*, *8*(1), 45–55. https://doi.org/10.5539/gjhs.v8n1p45