Jurnal
Berita Ilmu Keperawatan

Jurnal Berita Ilmu Keperawatan
Vol. 18 (1), 2025
p-ISSN: 1979-2697
e-ISSN: 2721-1797
https://doi.org/10.23917/bik.v18i1.7698

Knowledge and Family Support on Anxiety of Chronic Kidney Disease Patients During the Covid-19 Pandemic: A Cross-sectional Study

Liza Fitri Lina[1*], Alvistiqomah Rianni Safitri[2], Eva Oktavidiati[3], Dodi Efrisnal[4], Siti Arifah[5]

[1,2,3]*Faculty of Health Sciences, Muhammadiyah University of Bengkulu, 38221, Indonesia*
[4]*Bali Village Health Center, Bengkulu, 38115, Indonesia*
[5]*Faculty of Health Sciences, Muhammadiyah University of Surakarta, 57169, Indonesia*
**Correspondence: lizafitrilina@umb.ac.id*

Abstract: *Hemodialysis is a frequent treatment for patients with chronic kidney disease (CKD), which causes anxiety. The level of anxiety is determined by various factors, including age, knowledge, environment, duration of hemodialysis, and family support. The study aims to investigate the elements that influence patients' anxiety about hemodialysis during the COVID-19 epidemic. This cross-sectional study included 54 patients on hemodialysis at M. Yunus Hospital in Bengkulu. The sample was collected using the purposive sampling technique. Anxiety was measured using a collection of questionnaires, including the Gutman and Likert scales. Data indicated that a majority of patients were females 28 (52.0%), most of them had a diploma education 21 (38.9%), housewives dominated the job 14 (26.0%), more patients were married 26 (48.0%), and the majority of them were Muslim 51 (94.4%). The Pearson chi-square test showed that knowledge and family support influenced patients' anxiety with a p-value of 0.026 and 0.000, respectively. The level of information and family support had an impact on the anxiety of CKD patients undergoing hemodialysis during the Covid-19 epidemic. Research on enhancing knowledge of disease signs, treatment methods, and the value of morning exercise for hemodialysis patients during the COVID-19 pandemic is urgently needed.*

Keywords: *anxiety, Covid-19 pandemic, family support, Hemodialysis, knowledge*

Submitted: 17 December 2024, revised: 9 January 2025, accepted: 10 January 2025, published: 30 January 2025

INTRODUCTION

Chronic kidney disease (CKD) is a chronic, irreversible deterioration in kidney function that prevents the kidneys from removing waste products and maintaining fluid and electrolytes in the body. The condition is not contagious; however, it can cause death due to complications from disease development and a poor prognosis (Cozzolino et al., 2018). Treatment for CKD is expensive and a major issue for the healthcare system. Effective early treatment seeks to slow the progression of renal disease and prolong kidney function. Patients with CKD can be treated in outpatient care. The growing number of patients and the complexity of renal disease necessitate coordination among healthcare systems (Kiousi & Grapsa, 2015).

According to The World Health Organization, the number of patients with CKD has increased by 50% from the previous year, with over 500 million individuals worldwide requiring dialysis treatment (World Health Organization, 2017). CKD is the 12th leading cause of death in the world (Neuen et al., 2017). According to Basic Health Research (Riskesdas), there are 713,783 persons in Indonesia with CKD and up to 2,850 people undergoing haemodialysis (HD), with 5,175 people in Bengkulu Province suffering from CKD (Kementerian Kesehatan Republik Indonesia, 2018). RSUD Dr. M. Yunus Bengkulu's data show 283 patients with CKD and 121 patients conducting

hemodialysis. Hemodialysis is one of the treatments for chronic kidney disease (Kementerian Kesehatan Republik Indonesia, 2018). Most patients with early CKD improve with conservative treatment, but they still need dialysis for a few days, weeks, or even months. About 10%-30% of CKD patients may still require dialysis after being discharged from the hospital. They require adequate motivation and information assistance since these factors influence CKD patients' compliance with hemodialysis therapy regimens (Laksono et al., 2019). Patients using hemodialysis have a lower risk of death and a higher quality of life (Vijayan et al., 2021). These patients have a lower risk of death and better quality of life (Vijayan et al., 2021).

During the outbreak of Covid-19 in Indonesia, the hospital's policy was all patients must be screened for Covid-19 before they were permitted to enter the dialysis room. Patients will be checked for body temperature and asked about possible Covid-19 symptoms such as sore throat and shortness of breath. Patients who have symptoms will be transferred to Covid-19 referral hospitals for further examination. Meanwhile, the referral hospital cannot perform the dialysis process at once. This situation endangers dialysis patients not only at the risk of Covid-19 infection. Coronavirus disease 2019 (Covid-19) has a negative impact on the mental and social health of patients with hemodialysis (HD), who have a high burden of psychological symptoms at the start and unavoidable Covid-19 related treatment (Lee et al., 2020).

Based on the preliminary observation and brief interview of 10 CKD patients, most of them experienced anxiety. This anxiety was not only due to fear of undergoing hemodialysis procedures but patients are also afraid of contracting covid-19 when performing hemodialysis procedures. Some patients also said they were afraid that screening would be carried out before undergoing a hemodialysis procedure and some patients even said they were afraid to go to the hospital during the Covid-19 pandemic because patients realized that their immune systems were not like healthy people but they still had to come to the hospital for dialysis. Anxiety is a treatment diagnosis that appears in the self-concept model (Septiwi & Setiaji, 2020). The COVID-19 pandemic has been linked to extremely high levels of psychological discomfort, which in many cases fulfill the criteria for clinical significance. Mitigating COVID-19's harmful effects on mental health is an international public health concern (Xiong et al., 2020). So patients come with feelings of anxiety and appear very tense and anxious when going through hemodialysis and while in the hospital environment.

METHODS

This was a cross-sectional study conducted in The M. Yunus Hospital Bengkulu in August 2021. A set of questionnaires used to evaluate the level of patient's knowledge and family support had been developed by the researcher and was used Hamilton Anxiety Rating Scale (HARS) to measure the level of anxiety among patients. The knowledge questionnaire contains 15 questions. The highest score is 1 and the lowest is 0. The validity results of 10 respondents obtained all r counts > r table 0.632. The results of the reliability test obtained a Cronbach alpha value of 0.623 > 0.60 so the questionnaire is said to be valid and very reliable. The family support questionnaire contains 10 statement items. The highest score is 3 and the lowest is 1. The results of the validity test on 10 respondents obtained all r counts > r table = 0.632. The results of the reliability test obtained a Cronbach alpha value of 0.922 > 0.60 so the questionnaire is said to be valid and very reliable. The number of samples was calculated using the Isaac Michael formula with 10% precision. The sample was 54 patients collected with purposive sampling. The sample criteria were patients with hemodialysis, who lived in Bengkulu City and agreed to be visited by researchers. The data were analyzed using a Chi-square test to evaluate the effect of knowledge and social support on anxiety. Exclusion criteria: patients who experience decreased consciousness, and patients who have cognitive disorders that could hinder the research process.

RESULTS

Demographic Data

The demographic data analysis was to determine the characteristics of respondents (gender, education, occupation, religion, marital status, knowledge, family support, and anxiety) among CKD patients undergoing hemodialysis during COVID-19. Table 1 shows the complete univariate analysis results

Table 1 Distribution of respondent characteristics according to hemodialysis patients' demographic data

Respondent Characteristics	Frequency (N)	Percentage (%)
Gender		
Man	26	48.1
Woman	28	51.9
Education Background		
Elementary school	6	11.1
Junior High school	8	14.8
Senior High School	17	31.5
Diploma	21	38.9
None	2	3.7
Job		
Private employee	13	24.1
Student	7	13.0
Employees	6	11.1
Housewife	14	25.9
Farmers	5	9.3
Retired	1	1.9
Civil servant	1	1.9
Not working	7	13.0
Religion		
Moslem	51	94.4
Christian	2	3.7
Hindu	1	1.9
Marital status		
Married	26	48.1
Widow / Widower	13	24.1
Unmarried	2	3.7

According to Table 1, as many as 28 respondents are female, 26 respondents are married, 51 respondents are Muslim, and 21 respondents have a diploma.

Table 2 Frequency distribution of respondents based on knowledge of hemodialysis patients

Respondent Knowledge	Frequency (N)	Percentage (%)
Good	44	81.5
Middle	6	11.1
Low	4	7.4

Table 2 shows that out of 54 respondents, the majority of respondents had good knowledge, namely 44 people. Table 3 describes the family support and Table 4 about the anxiety level of the patients.

Table 3 Frequency distribution of respondents based on family support

Family Support	Frequency (N)	Percentage (%)
Good	48	88.9
Not Good	6	11.1

Table 4. Frequency distribution of respondents based on patient anxiety

Anxiety	Frequency (N)	Percentage (%)
Low/mild	27	50.0
Medium / Moderate	16	29.6
High/Severe	6	11.1
Not Anxiety	5	9.3

Bivariate Analysis

Bivariate analysis was carried out to determine whether or not there was an effect of knowledge and family support on the anxiety of CKD patients undergoing hemodialysis during the Covid-19. The Chi-Square Test was used as the statistical test. The Bivariate analysis is presented in Table 5.

Table 5 The Analysis of the effect of knowledge on anxiety of hemodialysis patients at The M. Yunus Hospital of Bengkulu

	Anxiety								
Knowledge	No Anxiety		Mild		Moderate		High		Total
	n	%	N	%	N	%	N	%	
poor	0	0	1	25.0	1	25.0	2	50.0	4
Moderate	0	0	2	33.3	2	33.3	2	3.33	6
High	5	11.4	24	54.5	13	29.5	2	4.5	44
Total	5	9.3	27	50.0	16	29.6	6	11.1	54
P= 0.026									

Table 5 shows that out of 54 respondents, those who had poor knowledge with mild and moderate anxiety were 1 person each respondent who had a poor knowledge with severe anxiety was 2 people. While respondents who had sufficient knowledge of mild, moderate, and severe anxiety were 2 people each (P=0.026).

Table 6 Analysis of the effect of family support on anxiety of haemodialysis patients at Dr. M. Yunus Hospital Bengkulu

	Patient Anxiety								
Family Support	**No Anxiety**		**Mild**		**Moderate**		**High**		**Total**
	n	%	N	%	N	%	N	%	
Good	5	10.4	26	54.2	15	31.2	2	4.2	48
Not Good	0	0	1	16.7	1	16.7	4	66.7	6
Total	5	9.3	27	50.0	16	29.6	6	11.1	54
P= 0.001									

Table 6 shows that out of 54 respondents, 48 respondents received good family support with the majority of them (26 people) experiencing mild anxiety. Meanwhile, respondents who received poor family support were 6 people with the majority of respondents experiencing severe anxiety 4 people p-*value*= 0.0001.

DISCUSSION

Respondent Characteristics Based on gender, the average respondent is female, namely 28 people Based on education, the highest distribution of education is Diploma as many as 21 people. According to their job, the majority of respondents 14 people were housewives. According to marital status, the average respondent 26 people is married. Patient Knowledge, according to the results of univariate analysis, most of those respondents had good knowledge a total of 44 people. People always use knowledge; humans can answer problems and solve problems faced. A person who has average or good enough knowledge and capacity will be able to show a positive attitude (Tahani & Manesh, 2021). Family Support, According to the analysis, the majority of respondents had good family support as many as 48, while respondents who had poor family support were 6 people. According to a previous study, family support is the support that will support the success of a medical action, families need to work with other medical teams (Dale et al., 2020). Family support can facilitate patient recovery (Birtwistle et al., 2021). Furthermore, support from the closest people including family and close friends improves acceptance of the illness and the willingness to live among patients (Tiranda et al., 2019). Treatment options for depression include psychological and social support (Natale et al., 2019).

Anxiety

The majority of respondents experienced mild anxiety, namely 27 people. While respondents who experienced anxiety. There are differences from the results of previous research (Al Aziz & Sudiro, 2017), out of 54 respondents, the majority of respondents who were not anxious were 38 people, with mild anxiety 10 people, while respondents who experienced moderate anxiety were 5 people, and severe anxiety was 1 person. According to the prior study, anxiety is a signal that recognizes or warns of a serious hazard, allowing a person to take action to combat the threat (Nurlinawati et al., 2019). Mental health and combined mental health and social support account for 14% and 21% of the difference in death anxiety among CKD patients, respectively (Khodarahimi et al., 2021). In this study, most of these respondents experienced mild anxiety because many of them were highly educated so they had a deeper understanding of covid-19. In addition, because Islam is the majority religion, there must be many respondents who study Islam so that respondents only experience mild anxiety. This can also be observed by other observations found by researchers, namely the hemodialysis schedule for ordinary hemodialysis patients and hemodialysis patients with Covid-19 is separated in time, resulting in respondents being less anxious when undergoing hemodialysis in the dialysis unit.

The effect of patient knowledge on Anxiety

In this study, out of 54 respondents, 44 respondents had good knowledge. respondents who had good knowledge and were not anxious were 5 people, who experienced mild anxiety were 24 people. This result is a positive thing that can be influenced by the education of respondents where the majority (Diploma and Senior High School) make it easier to receive information and knowledge about hemodialysis during the Covid-19 pandemic or about Covid-19 itself, so that it has an impact on the lighter anxiety experienced by respondents, while respondents with good knowledge who experienced moderate anxiety were 13 people and 2 people others experienced severe anxiety.

This can be influenced by other observations found by researchers, namely that some respondents lack exposure to knowledge about hemodialysis during the Covid pandemic or about Covid-19 itself

and the presence of hemodialysis patients with Covid-19 who died which can affect the patient's psychological condition so that even though respondents are well informed, they still experience moderate and severe anxiety. In line with research (Al Naamani et al., 2021) which explains Fatigue, anxiety, depression, and sleep quality are significant problems for patients undergoing hemodialysis during the Covid-19 pandemic. Another thing is also in line with research (Feroze et al., 2012) which explains that anxiety and depression still often occur in patients who have routinely carried out hemodialysis with established conditions.

Respondents who had sufficient knowledge were 6 respondents, each of whom 2 people experienced mild, moderate, and severe anxiety. Respondents who had less knowledge were 4 respondents, 1 person experienced mild and moderate anxiety and 2 people experienced severe anxiety. This is consistent with research performed by (Dillard et al., 2017) which found that increased anxiety is connected to lower knowledge. Ignorance of something is regarded as a pressure that can lead to critical thinking and can cause anxiety. Individuals with limited knowledge may experience anxiety as a result of a lack of information. The chi-square person test revealed a significant relationship between knowledge and anxiety in CKD patients receiving hemodialysis at Dr. M. Yunus Bengkulu Hospital during the Covid-19 pandemic (*p-value* = 0.026). This study is in line with the explanation in the study by (Karadag & Samancioglu Baglama, 2019) that patients in the hemodialysis stage are prone to exhaustion and anxiety, and fatigue and anxiety levels decrease dramatically following aromatherapy.

According to the study, there is an influence of knowledge on anxiety in CKD patients undergoing hemodialysis during the Covid-19 at Dr. M. Yunus Hospital because the majority of respondents were educated (Diploma and Senior High School), making it easier to receive information and understand something, as well as having a deeper understanding of covid-19, which has an impact on respondents' lighter anxiety levels.

The impact of the family support on patient's anxiety

In this research, 48 of 54 respondents had good familial support. the majority of respondents who had good familial support experienced mild anxiety as many as 26 people and 5 people did not experience anxiety. This is a positive thing towards reducing patient anxiety. There were 15 people who experienced moderate anxiety and two people experienced severe anxiety. Other data obtained were respondents who received poor support as many as 6 people, of these 6 people 1 person each experienced mild and moderate anxiety, while four people experienced severe anxiety. A lack of family support can have an impact on this. This is consistent with previous studies which revealed that people who received good family support have less anxiety than those who received inadequate family support (Cordeiro, 2019). Mental health diseases are among Europe's most serious public health issues. It is a silent problem with a heavy burden of related impairment, encompassing illnesses including depression, anxiety, and schizophrenia, which account for a considerable share of early retirement due to disability in Europe, with high economic and social costs. This is not in line with previous research stated the mean level of perceived social support from the family was 15.23 ± 5.37 (Tezel et al., 2011). There was no statistically significant difference between all variables for the level of perceived social support from the family. Perceived social support from the family is negatively correlated with depression.

The study's findings indicate that almost all respondents had positive familial support. The results showed that family adaptation was positively connected with support within the family as recognized by patients, as well as with emotional support (Sarsak, 2022). Social support from family and friends, spirituality and religion, tele-nursing programs, and participation in network support groups can all help to reduce anxiety (Gerogianni et al., 2019), implying that there is a link between family support and patient anxiety. The presence of Family-based has been discovered to increase the implementation of health chores in the family (Meilianingsih & Sari, 2023). The main factors that arise from within oneself will give rise to motivation in the future life process, such as activities and eating patterns (Utami et al., 2023).

CONCLUSION

Knowledge affects anxiety in CKD patients undergoing hemodialysis during the Covid-19 pandemic and family support affects anxiety in CKD patients undergoing hemodialysis during the Covid-19 pandemic.

ACKNOWLEDGEMENTS

Thanks to our colleagues in the healthcare facilities for their support and all patients for their collaboration.

AUTHOR CONTRIBUTIONS

List of the authors and abrevation: Liza Fitri Lina (LFL), Alvistiqomah Rianni Safitri (ARS), Eva Oktavidiati (EO), Dodi Efrisnal (DE) Siti Arifah (SA).

Concept and design (LFL), data collection (ARS), data analysis and interpretation (LFL, ARS), manuscript draft processing (DE), manuscript critical review (SA, EO), and article finalization (LFL).

DATA AVAILABILITY

All data generated during this study are included in this published article, and available upon request to the corresponding author.

ETHICAL ASPECTS OF RESEARCH

The authors declare that there is no conflict of interest in the publication of this study. All patients were informed of their voluntary participation in the study in the accompanying section of the questionnaire. The health research ethics committee of RSUD Dr. M Yunus Bengkulu has carefully studied the research design submitted and hereby declares that this study is declared ethically feasible with Number 20/KEPK-RSMY/VII/2021.

INFORMED CONSENT

Informed consent was obtained from all the participants involved in the study

REFERENCES

Al Aziz, I. H., & Sudiro (2017). The Relationship Between Family Support and Anxiety Levels in Chronic Kidney Failure Patients Undergoing Hemodialysis at RSUD Dr. Soehadi Prijonegoro Sragen. Global Nursing Journal, 2(1), 1–61. https://doi.org/10.37341/jkg.v2i1.33

Al Naamani, Z., Gormley, K., Noble, H., Santin, O., & Al Maqbali, M. (2021). Fatigue, anxiety, depression, and sleep quality in patients undergoing hemodialysis. *BMC Nephrology*, *22*(1), 157. https://doi.org/10.1186/s12882-021-02349-3 PMID: 33910523

Birtwistle, S. B., Jones, I., Murphy, R., Gee, I., & Watson, P. M. (2021). Family support for physical activity post-myocardial infarction: A qualitative study exploring the perceptions of cardiac rehabilitation practitioners. *Nursing & Health Sciences*, *23*(1), 227–236. https://doi.org/10.1111/nhs.12806https://doi.org/10.1111/nhs.12806

Cordeiro, R. (2019). Mental health nursing in Europe: a global challenge, in the Czech Republic too. *Central European Journal of Nursing and Midwifery*, *10*(4), 1117. https://doi.org/10.15452/CEJNM.2019.10.0022

Cozzolino, M., Mangano, M., Stucchi, A., Ciceri, P., Conte, F., & Galassi, A. (2018). Cardiovascular disease in dialysis patients. *Nephrology, Dialysis, Transplantation : Official Publication of the European Dialysis and Transplant Association - European Renal Association*, *33*(suppl_3), iii28–iii34. https://doi.org/10.1093/ndt/gfy174 PMID: 30281132

Dale, C. M., Carbone, S., Amin, R., Amaria, K., Varadi, R., Goldstein, R. S., & Rose, L. (2020). A transition program to adult health services for teenagers receiving long-term home mechanical

ventilation: A longitudinal qualitative study. *Pediatric Pulmonology*, *55*(3), 771–779. https://doi.org/10.1002/ppul.24657

Dillard, A. J., Scherer, L. D., Ubel, P. A., Alexander, S., & Fagerlin, A. (2017). Anxiety symptoms prior to a prostate cancer diagnosis: Associations with knowledge and openness to treatment. *British Journal of Health Psychology*, *22*(1), 151–168. https://doi.org/10.1111/bjhp.12222

Feroze, U., Martin, D., Kalantar-Zadeh, K., Kim, J. C., Reina-Patton, A., & Kopple, J. D. (2012). Anxiety and depression in maintenance dialysis patients: preliminary data of a cross-sectional study and brief literature review. *Journal of Renal Nutrition : The Official Journal of the Council on Renal Nutrition of the National Kidney Foundation*, *22*(1), 207–210. https://doi.org/10.1053/j.jrn.2011.10.009

Laksono, Cahyu Septiwi, D. P. A. (2019). *Factors Affecting Adherence of Chronic Kidney Failure Patients in Undergoing Hemodialysis Therapy Program at RS PKU Muhammadiyah Gombong*. *Proceedings of the University Research Colloquium*, 581–590.

Gerogianni, G., Babatsikou, F., Polikandrioti, M., & Grapsa, E. (2019). Management of anxiety and depression in hemodialysis patients: the role of non-pharmacological methods. *International Urology and Nephrology*, *51*(1), 113–118. https://doi.org/10.1007/s11255-018-2022-7

Karadag, E., & Samancioglu Baglama, S. (2019). The Effect of Aromatherapy on Fatigue and Anxiety in Patients Undergoing Hemodialysis Treatment: A Randomized Controlled Study. *Holistic Nursing Practice*, *33*(4), 222–229. https://doi.org/10.1097/HNP.0000000000000334

Kemenkes (2018). Riset Kesehatan Dasar 2018. In *Kementerian Kesehatan Republik Indonesia*. https://layanandata.kemkes.go.id

Khodarahimi, S., Veiskarami, H. A., Mazraeh, N., Sheikhi, S., & Rahimian Bougar, M. (2021). Mental Health, Social Support, and Death Anxiety in Patients With Chronic Kidney Failure. *The Journal of Nervous and Mental Disease*, *209*(11), 809–813. https://doi.org/10.1097/NMD.0000000000001386

Kiousi, E., & Grapsa, E. (2015). The role of an outpatient renal clinic in renal disease management. *Journal of Translational Internal Medicine*, *3*(1), 3–7. https://doi.org/10.4103/2224-4018.154287

Lee, J., Steel, J., Roumelioti, M.-E., Erickson, S., Myaskovsky, L., Yabes, J. G., Rollman, B. L., Weisbord, S., Unruh, M., & Jhamb, M. (2020). Psychosocial Impact of COVID-19 Pandemic on Patients with End-Stage Kidney Disease on Hemodialysis. *Kidney360*, *1*(12), 1390–1397. https://doi.org/10.34067/KID.0004662020

Natale, P., Palmer, S. C., Ruospo, M., Saglimbene, V. M., Rabindranath, K. S., & Strippoli, G. F. (2019). Psychosocial interventions for preventing and treating depression in dialysis patients. *The Cochrane Database of Systematic Reviews*, *12*(12), CD004542. https://doi.org/10.1002/14651858.CD004542.pub3

Neuen, B. L., Chadban, S. J., Demaio, A. R., Johnson, D. W., & Perkovic, V. (2017). Chronic kidney disease and the global NCDs agenda. In *BMJ global health* (Vol. 2, Issue 2, p. e000380). https://doi.org/10.1136/bmjgh-2017-000380

Nurlinawati, N., Rudini, D., & Yuliana, Y. (2019). The Relationship Between Anxiety Levels and Hemodynamics in Chronic Kidney Failure Patients Undergoing Hemodialysis. Journal of Community Service Work, 3(2), 100–111. https://doi.org/10.22437/jkam.v3i2.8464

Sarsak, H. I. (2022). Psychological Impact of the COVID-19 Pandemic on Medical and Rehabilitation Sciences University Students in Saudi Arabia. Work (Reading, Mass.), 71(3), 473–480. https://doi.org/10.3233/WOR-210243

Septiwi, C., & Setiaji, W. R. (2020). Application of the Roy Adaptation Model in Nursing Care for Patients with Chronic Kidney Disease. Scientific Journal of Nursing Health, 16(2), 101. https://doi.org/10.26753/jikk.v16i2.482

Utami, Meira Erawati, N. S. D. (2023). Internal Protective Factors Affecting the Resilience of Hemodialysis Patients: A Coverage Review. Nursing Science News, 16. https://doi.org/10.23917

Tahani, B., & Manesh, S. S. (2021). Knowledge, attitude, and practice of dentists toward providing care to geriatric patients. BMC Geriatrics, 21(1), 399. https://doi.org/10.1186/s12877-021-02343-

2

Tezel, A., Karabulutlu, E., & Sahin, O. (2011). Depression and perceived social support from family in Turkish patients with chronic renal failure treated by hemodialysis. Journal of Research in Medical Sciences : The Official Journal of Isfahan University of Medical Sciences, 16(5), 666–673. https://pubmed.ncbi.nlm.nih.gov/22091290/

Vijayan, A., Abdel-Rahman, E. M., Liu, K. D., Goldstein, S. L., Agarwal, A., Okusa, M. D., & Cerda, J. (2021). Recovery after Critical Illness and Acute Kidney Injury. Clinical Journal of the American Society of Nephrology : CJASN, 16(10), 1601–1609. https://doi.org/10.2215/CJN.19601220

World Health Organization. (2017). World Health Statistics 2017 Report; Monitoring Health for The SDGs. WHO. https://www.who.int/publications/i/item/9789241565486

Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M. W., Gill, H., Phan, L., Chen-Li, D., Iacobucci, M., Ho, R., Majeed, A., & McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. Journal of Affective Disorders, 277, 55–64. https://doi.org/10.1016/j.jad.2020.08.001

Tiranda, Pulsuk Siripul, Bumpenchit Sangchat, Cahyu Septiwi (2019). Perspectives of Adult Survivors of Colorectal Cancer Undergoing Colostomy Surgery on Their Needs: A Synthesis of Qualitative Research Studies. Nurs Midw, 4, 10. https://doi.org/10.15452/CEJNM.2019.10.0027.