Rev Nefrol Dial Traspl. 2022;42(2):117-23

Reliability and validity of the turkish version of the self-management scale for kidney transplant recipients

Fiabilidad y validez de la versión turca de la escala de autocuidado para receptores de trasplante renal

Çiğdem Erdem[1], Fatma Cebeci[2]

ABSTRACT

Introduction: Self-management is defined as the active participation of individuals in their own treatment processes. Kidney transplant recipients to participate in their care are important in terms of the graft survival and their general health. **Objective:** The aim of this study was, therefore, to establish the Turkish reliability and validity of the Self-Management Scale for Kidney Transplant Recipients. **Methods:** Data were collected using a "Patient Introduction Form" and the *Self-Management Scale for Kidney Transplant Recipients*. Number, percentage, mean, standard deviation, content validity index, factor analysis, test-retest, correlation analysis and Cronbach's alpha were used. **Results:** Scale adaptation method recommended by the World Health Organization was used. The item content validity index was 0.99, the scale content validity index was 0.93, and both were 1.00 in terms of content. Exploratory factor analysis was used, which revealed 3 factors with loadings ranging from 0.42 to 0.79. Reliability coefficient was 0.73. Test-retest reliability was statistically significant (p=<0.05). **Conclusions:** The turkish version of self-management scale for kidney transplant recipients is a valid, reliable, and complementary tool. Healthcare professionals can use it to assess kidney transplant recipients' self-management skills.

KEYWORDS: kidney transplantation; self-management; scale validity and reliability

RESUMEN

Introducción: El *Self-management* se define como la participación activa de los individuos en su tratamiento. La participación de los receptores de trasplante renal en su tratamiento es importante para el éxito de la intervención y la salud general del paciente. **Objetivo:** El objetivo del estudio es establecer la fiabilidad y validez de la *Self-Management Scale* para receptores de trasplante renal en Turquía. **Material y métodos:** Se recogen datos a partir del *Patient Introduction Form* y la *Self-Management Scale* para receptores de trasplante renal. Se realizan cálculos como porcentajes, media, desviación estándar, *content validity index*, análisis factorial, test-retest, análisis correlacional y alfa de Cronbach. **Resultados:** Se utiliza el método de corrección de la escala recomendado por la Organización Mundial de la Salud. El valor del *item content validity index* es 0,99. El valor del *scale content validity index* es 0,93 y ambos resultan 1,00. Se realiza un análisis factorial que resulta en 3 factores de cargas que oscilan entre 0,42 y 0,79. El coeficiente de fiabilidad es de 0,73. La fiabilidad obtenida a partir de test-retest es significativa (p=<0.05). **Conclusiones:** La *Self-Management Scale* para receptores de trasplante renal en Turquía es válida, fiable y una herramienta complementaria. Los profesionales de la salud pueden hacer uso de ella para evaluar las habilidades de autogestión de los receptores de trasplante renal.

PALABRAS CLAVE: trasplante renal; autocuidado; fiabilidad y validez de la escala

1) Res. Assist., Faculty of Health Science, Süleyman Demirel Universitesi, Çünür/Isparta, Turkey
2) Assoc. Prof. Faculty of Nursing, Head of the Surgical Nursing Department, Akdeniz Universitesi, Hemşirelik Fakültesi, Antalya, Türkey

Correspondencia:
Fatma Cebeci
ORCID: 0000-0002-5504-3564
fcebeci@akdeniz.edu.tr

Financiamiento:
Ninguno.

Conflicto de intereses:
Ninguno

Recibido: 08-04-2021
Aceptado: 25-05-2021

INTRODUCTION

The number of people waiting for a kidney transplant worldwide is growing rapidly.[1] Managing long-term complications after kidney transplantation is a challenge for healthcare professionals. The treatment of long-term complications after kidney transplantation such as cardiovascular diseases, iatrogenic diabetes mellitus, malignancy and bone diseases is of key importance. Patients are an integral part of the transplantation process, and therefore, play a key role in maintaining graft function after kidney transplantation.[2] Post-transplant patient care is, however, a multi-directional and complex process which poses numerous challenges.[3] The Building Research Initiative Group: Chronic Illness Management and Adherence in Transplantation (BRIGHT) highlights the need for interventions to improve long-term results after transplant.[4] Post-transplant complications can be curtailed only if patients actively participate in their own care.[3,5]

Since the first time it was defined, the concept of self-management has changed depending on the field of application.[6-8] Self-management is defined as the ability of patients to actively participate in their own care.[9] Self-management allows patients to assume responsibility for complying with treatment, preventing impairment, protecting organ function and self-monitoring.[10-11] Patients with a high level of self-management are expected to have higher graft survival rates and better health. Providing training and consultancy on self-management can also increase long-term graft survival and reduce post-transplant treatment costs.[12] Patients with effective self-management are more likely to make use of suggestions to maintain good health after transplant. Self-management should be determined and assessed to improve the long-term outcomes after kidney transplantation. The Self-Management Scale for Kidney Transplant Recipients (KTR-SMS) developed by Kosaka *et al*.[13] is a valid and reliable measure of self-management. Providing training and consultancy in accordance with specified requirements can improve self-management. The scale can also be used to determine the contribution of training to self-management.

OBJECTIVES

The aim of this study was to establish the validity and reliability of the turkish version of the *Self-Management Scale for Kidney Transplant Recipients* (Turkish KTR-SMS).

MATERIALS AND METHODS

Research Design

Before starting the research to determine the validity and reliability of KTR-SMS in Turkish, permission was obtained from Kosaka who owner scale through e-mail.

Data Collection

The study was conducted between July 2015 and March 2016 in the transplantation unit of a university hospital. Data were collected using the KTR-SMS.

Participants

The study sample consisted of 262 patients aged 18 years or older. The inclusion criteria were: 1) having no cognitive impairment, 2) having been hospitalized at least a month after transplant,[13] and 3) being literate in Turkish.

Instrument

The 24-item KTR-SMS consists of four subscales: 1) self-monitoring, 2) self-care behaviors in daily living, 3) early detecting and coping with abnormalities after kidney transplantation, and 4) stress management. The items are scored on a 4-point Likert type scale (1=not applied, 2=barely applied, 3=mostly applied and 4=completely applied). The scale has no cut-off point and no reverse-scored items. Our measurement results were like the mean item scores of the KTR-SMS, and therefore, we used the same mean item scores: 1=poor, 2=average, 3=good and 4= excellent. The higher the score, the higher the self-management. [13]

A pilot study was conducted with 15 kidney transplant recipients to test item clarity and comprehension. In the pilot test, the clarity was confirmed, and therefore, no modification was made to the items. The participants in the pilot study were not included in the main study.

Statistical analysis

Face-to-face interviews were conducted with participants. Data were analyzed using the Statistical Package for Social Sciences (SPSS, IBM), version 23.0. Before analysis, a missing data analysis was conducted. Translation/back-translation was carried out as recommended by the World Health Organization (WHO) for scale adaptation. The KTR-SMS was translated by a native speaker who was a health professional, and an assistant professor

 ISSN 0326-3428

and two lecturers who had a command of both languages, cultures, and terminologies. Afterwards, the KTR-SMS was back-translated into English by a native speaker who was a certified translator and interpreter but had no knowledge of the scale and its English translation. Content, construct and language validity, and test-retest and internal consistency reliability were assessed [factor analysis and Confirmatory Factor Analysis (CFA)]. CFA was conducted using SAS 9.4 (Institute, Cary, NC, USA).

Ethics

The study was approved by the Non-invasive Clinical Studies Ethics Committee of the University (70904504/54). Written informed consent was obtained from participants. The study was performed following to the principles defined by the Declaration of Helsinki.

RESULTS

Descriptive statistics

Of participants, 76.3% received a living donor transplant, mostly from first-degree relatives (66.5%). The mean age

of participants was 41.18 ± 12.57 years, 34% were women, 70.6% were married, 70.3% had a primary school degree or less, 68.3% were unemployed and 53% had neutral income (income=expenses). **(Table 1)**

Table 1. Some descriptive characteristics of the patients

Descriptive characteristics	*n*	%
Age (Mean ± SD)	(41.18 ± 12.57)	min:18.00 max:82.00
Sex		
Male	173	66.0
Female	89	34.0
Educational Background		
Primary School and Below	184	70.3
High School	46	17.5
Bachelor's level and above	32	12.2
Marital status		
Married	185	70.6
Single	77	29.4
Employment Status		
Unemployed	179	68.3
Employed	83	31.7
Income Status		
Low income than expense	90	34.4
Equal income and expense	139	53.0
More income than expense	33	12.6
Types of Donors		
Living donor	200	76.3
Cadaver donor	62	23.7
Living Donor Intimacy		
First degree relatives	133	66.5
Other relatives	53	26.5
Unrelated	14	7.0

Scale Validity, content validity

Fourteen kidney transplant experts were consulted for content validity. The item content validity index (I-CVI) was 0.99 and the scale content validity index (S-CVI) was 0.93 while the content indices of both the item and scale were 1.00.

Construct validity

A CFA was performed to examine the compliance statistics and index to assess the hypothesis on factor analysis. The minimum compliance function was x^2df=1.98, x^2/df<2, the root mean square error of approximation (RMSEA) was 0.06, the standardized root mean square residual (S-RMR) was 0.07 and both values were <0.08. The goodness-of-fit index (GFI), the corrected GFI and the comparative GFI were 0.88, 0.85 and 0.76 respectively, and they were all <0.90. The Kaiser-Meyer-Olkin (KMO) was 0.78, for which the Bartlett's test of sphericity was significant (χ^2=595.815; p=0.000).

The original KTR-SMS consists of four subscales while the Turkish KTR-SMS consists of three subscales **(Table 2)**. Items 4, 5, 9, 13, 17 and 19 had an item-total correlation of less than 0.25. When they were removed, the scale had a Cronbach's alpha of 0.67 for all items. Two statistical evaluations were performed based on the Cronbach's alpha and item-total correlation. Items 4, 5, 13, 17 and 19 were removed during evaluation, and factor analysis was repeated. Items 8 and 9 had a factor loading less than 0.40, and therefore, were removed from the scale. The item-total correlation of items 8 and 9 was 0.26 and 0.23, respectively. Items 1 (0.79) and 10 (0.42) had the highest and lowest factor loadings, respectively. The three factors accounted for 46.73% of the total variance. **(Table 3)**

Table 2. Factor analysis results of the self-management scale for kidney transplant recipients (n=262)

Original Dimensions	Original Items	Adapted Dimensions (Turkish)	Adapted Items
Factor 1 (Self-Monitoring)	1, 2, 3, 4, 5, 6	Factor 1 (Early Detecting and Coping with Abnormalities)	6, 10, 12, 14, 15, 16
Factor 2 (Self-Care Behaviors in Daily Living)	7, 8, 9, 10, 11, 12, 13	Factor 2 (Self-Care Behaviors and Coping with Stress in Daily Living)	7, 11, 18, 20
Factor 3 (Early Detecting and Coping with Abnormalities After Transplantation)	14, 15, 16, 17	Factor 3 (Self-Monitoring)	1, 2, 3,
Factor 4 (Coping with Stress)	18, 19, 20		

Test-retest reliability

52 participants were retested for time-invariance 2 to 4 weeks after the initial testing. The factors of the Turkish KTR-SMS and test-retest correlations ranged from 0.55 to 0.28.

Internal consistency and item analysis

The subscales and item-total correlation were used for item analysis. The total scale had a Cronbach's alpha of 0.73 **(Table 3)** when the items with an item-total correlation <0.26 were removed.

Mutual correlation analysis revealed that the subscales "early detecting and coping with abnormalities," "self-care behaviors in daily living and coping with stress" and "self-monitoring" had an internal consistency (r) of 0.86, 0.71 and 0.56, respectively.

DISCUSSION

This study determined the validity and reliability of the Turkish version of the KTR-SMS developed by Kosaka *et al.*[13] Khezerloo, Mahmoudi and Vafadar adapted the KTR-SMS to Persian.[14] Our study assessed the KTR-SMS from a psycholinguistic perspective and provided linguistic equivalence criterion. An I-CVI of 0.99 and an item-content index of 1.00 are very acceptable values.[15] The experts agreed on the item statements. The Persian sample had difficulty comprehending items 12 and 18 of the original KTR-SMS, due to cultural differences.[14]

According to the CFA, the fit indices of the Turkish KTR-SMS were not correlated with those of the original KTR-SMS,[16] which, therefore, entailed modifications. The first 20 items of the original KTR-SMS had a 4-factor structure[13] whereas our exploratory factor analysis yielded a 3-factor structure, which is, in a sense, similar to the result reported by Khezerloo and colleagues.[14] This result may be due to the difference between the two populations and sample sizes. The additional four items in the original KTR-SMS were not included in our analysis.

The original KTR-SMS had a factor load limit

 ISSN 0326-3428

Table 3. Factor structure of the self-management scale for kidney transplant recipients (n=262)

Items		F1	F2	F3
Factor 1 (Early Detecting and Coping with Abnormalities)				
(6)	I contact doctor when observed data deviates from desired (blood pressure, urine volume etc.)	0.44		
(10)	I avoid high-calorie meals	0.42		
(12)	I avoid abdominal compression	0.66		
(14)	I monitor the signs of declining kidney function	0.75		
(15)	I touch graft and check for pain and/or hardness	0.73		
(16)	I check for adverse effects of immunosuppressive drugs	0.51		
Factor 2 (Self-Care Behaviors and Coping with Stress in Daily Living)				
(7)	I eat well-balanced meals		0.73	
(11)	I eat fresh foods		0.67	
(18)	I receive sufficient support from my partner, friends, and relatives		0.52	
(20)	I get sufficient sleep and rest		0.48	
Factor 3 (Self-Monitoring)				
(1)	I document blood pressure data everyday			0.79
(2)	I document body temperature data everyday			0.69
(3)	I document body weight data everyday			0.57
	Cronbach Alpha	0.67	0.60	0.51
	Eigenvalue	2.364	2.121	1.591
	Percentage of Explained Variance	18.18	16.31	12.23
	Cumulative variance	18.18	34.50	46.73
	Self-Management Scale for Kidney Transplant Recipients Cronbach Alpha			
	Total Scale 0.73			
	Factor 1 0.67			
	Factor 2 0.60			
	Factor 3 0.51			

of 0.40, and items that loaded on more than one factor and items below this load value were removed from the scale.[13] In the Turkish KTR-SMS, items 8 and 9 had factor loadings less than 0.40 while items 4, 5, 8, 9, 13, 17 and 19 had correlations below the recommended limits in the literature.[17] Therefore, they were removed from the scale. The fact that patients pay special attention to activities that affect self-management might have resulted in the piling up of the frequencies and the reduction in the item total score correlation in the Turkish KTR-SMS.

In the original KTR-SMS, the items "Daily documentation of blood pressure" and "I perform gargling and hand washing" had the highest (0.85) and lowest (0.39) factor loadings, respectively.[13] In the Persian KTR-SMS, the item "Daily documentation of body temperature data" had the highest (0.88) factor loading while the items "I consult specialist when feeling depressed" and "I have sufficient sleep and rest" both had the lowest (0.42) factor loading.[14] In the Turkish KTR-SMS, the items "Daily documentation of blood pressure" and "I avoid high-calorie meals" had the highest (0.79) and lowest (0.42) factor loadings, respectively **(Table 3)**. Given the values recommended in the literature, we can state that the moderate factor loadings and the three factors explaining 46.73% of the total variance **(Table 3)** in the Turkish KTR-SMS are acceptable.[18] The factors in the Persian KTR-SMS explained 70.75% of the total variance.[14]

The items "Daily documentation of body condition data (strength, force swelling etc.)"

"Daily documentation of the frequency of urination," "I contact doctor when data deviates from desired (blood pressure, urine etc.)" and "Daily documentation of body weight data" removed due to factor loadings may give us some clues concerning patients' self-management behavior. Pourmand and colleagues reported that 40.2% of patients developed hypertension after kidney transplantation and that almost half of the patients who had already had hypertension continued to have it after transplantation. Blood pressure control is necessary for graft protection. Therefore, kidney transplant recipients should undertake the responsibility for maintaining their blood pressure. [19] Saint-Remy and colleagues found that a well-balanced sodium/potassium ratio can help balance blood pressure. People with excessive salt intake may have high blood pressure.[20] Soypacaci *et al.* reported that patients who reduced the amount of salt in their diets after kidney transplantation were more able to control their blood pressure.[21] The Asian population, on which the original KTR-SMS was developed, consumes excess salt, always has salt on the table and uses soy sauce, which an important source for salt.[22] The item "I consult specialist when feeling depressed" were removed due to factor loading. Kidney transplant recipients are less likely to report depressive symptoms than patients who have received other renal replacement therapies. [23] Besides, Turkish people are more likely to seek help from their families and friends than from a psychologist or psychiatrist, which is believed to have an effect on the factor loading of the item "I receive sufficient support from my spouse, friends and relatives."

The Cronbach's alpha of the original KTR-SMS subscales ranged from 0.61 to 0.87 [13] while that of the Persian KTR-SMS subscales ranged from 0.60 to 0.87.[14] In our study, the Cronbach's alpha of the Turkish KTR-SMS subscales ranged from 0.51 to 0.67, indicating that the scale is reliable **(Table 3)**. The subscale "self-monitoring" had the lowest reliability values in the Turkish KTR-SMS while it was the subscale "stress management" in the original KTR-SMS[13] and the subscale "drug management" in the Persian KTR-SMS.[14]

Since the number of items in the Turkish KTR-SMS differed from that in the original scale, mean item scores were used in the former to determine self-management. The total score is the sum of the individual items divided by the number of items scored on a scale of 0 to 4 (1=poor, 2=average, 3=good and 4=excellent). Our participants had an average level of self-management (2.6), which was similar to that reported by Kosaka *et al.*,[13] Khezerloo *et al.*[14]

The study had four limitations: (1) it was conducted in only one institution, (2) the KTR-SMS is a newly developed scale, (3) certain items were removed from the Turkish KTR-SMS, which might have affected the results, and (4) the fit indices were not as good as those of the original KTR-SMS.

CONCLUSIONS

The KTR-SMS is a valid and reliable measure of Self-Management in kidney transplant recipients in Turkey. We believe that it will help not only healthcare professionals and patients but also researchers. It is recommended that larger samples be recruited to evaluate the effectiveness of the KTR-SMS and that more qualitative studies be conducted to measure its test-retest reliability. Patients who receive regular information and support from healthcare professionals are more likely to experience increased graft survival rates. Providing training to patients on their current health state, medications, diet, and exercise can encourage them to take an active role in their post-transplant care. There is, however, very little known about post-transplant patients' knowledge and experiences. The Turkish KTR-SMS can, therefore, be a useful tool to gain insight into kidney transplant recipients' self-management skills and to take necessary measures to improve them.

Ethics: The Akdeniz University Noninvasive Clinical Studies Ethics Committee was received permission (70904504/54).

Acknowledgements: We are grateful to all participants for their time and valuable contributions to this study. This paper was based on the master's degree thesis of the first author under the supervision of the second author. We are grateful to all the participants who participated in our research. The authors would like to thank Mehmet Ziya Fırat (Prof. Dr) who provided statistical expertise.

BIBLIOGRAPHY

1) Turquía. Ministry of Health. Organ transplant waiting list and transplantations statistics in the Turkey 2018 [Internet]. Disponible en: <https://organkds.saglik.gov.tr/> (consulta: 18/02/2021).

2) Urstad KH. Patient Education for Renal Transplant Recipients [Tesis doctoral]. Oslo: Faculty of Medicine, University of Oslo, 2013. Disponible en: <https://core.ac.uk/download/pdf/30829991.pdf> (consulta: 18/02/2021).
3) Ding D. Post-kidney transplant rejection and infection complications. *Nephrol Nurs J*. 2010;37(4):419-26.
4) Berben L, Denhaerynck K, Dobbels F, Engberg S, Vanhaecke J, Crespo-Leiro MG, *et al*.; BRIGHT study consortium. Building research initiative group: chronic illness management and adherence in transplantation (BRIGHT) study: study protocol. *J Adv Nurs*. 2015;71(3):642-54. doi: 10.1111/jan.12519.
5) Lin SY, Fetzer SJ, Lee PC, Chen CH. Predicting adherence to health care recommendations using health promotion behaviours in kidney transplant recipients within 1-5 years post-transplant. *J Clin Nurs*. 2011;20(23-24):3313-21. doi: 10.1111/j.1365-2702.2011.03757.x.
6) Bodenheimer T, Lorig K, Holman H, Grumbach K. Patient self-management of chronic disease in primary care. *JAMA*. 2002;288(19):2469-75. doi: 10.1001/jama.288.19.2469.
7) Lorig KR, Holman H. Self-management education: history, definition, outcomes, and mechanisms. *Ann Behav Med*. 2003;26(1):1-7. doi: 10.1207/S15324796ABM2601_01.
8) Grady PA, Gough LL. Self-management: a comprehensive approach to management of chronic conditions. *Am J Public Health*. 2014;104(8):e25-31. doi: 10.2105/AJPH.2014.302041.
9) Moore SM, Schiffman R, Waldrop-Valverde D, Redeker NS, McCloskey DJ, Kim MT, *et al*. Recommendations of common data elements to advance the science of self-management of chronic conditions. *J Nurs Scholarsh*. 2016;48(5):437-47. doi: 10.1111/jnu.12233.
10) Haspeslagh A, De Bondt K, Kuypers D, Naesens M, Breunig C, Dobbels F. Completeness and satisfaction with the education and information received by patients immediately after kidney transplant: a mixed-models study. *Prog Transplant*. 2013;23(1):12-22. doi: 10.7182/pit2013249.
11) Schmid-Mohler G, Schäfer-Keller P, Frei A, Fehr T, Spirig R. A mixed-method study to explore patients' perspective of self-management tasks in the early phase after kidney transplant. *Prog Transplant*. 2014;24(1):8-18. doi: 10.7182/pit2014728.
12) Kobus G, Małyszko J, Małyszko JS, Puza E, Bachórzewska-Gajewska H, Myśliwiec M. Compliance with lifestyle recommendations in kidney allograft recipients. *Transplant Proc*. 2011;43(8):2930-4. doi: 10.1016/j.transproceed.2011.08.031.
13) Kosaka S, Tanaka M, Sakai T, Tomikawa S, Yoshida K, Chikaraishi T, *et al*. Development of self-management scale for kidney transplant recipients, including management of post-transplantation chronic kidney disease. *ISRN Transplantation*. 2013;2013:1-7. doi: 10.5402/2013/619754.
14) Khezerloo S, Mahmoudi H, Vafadar Z. Evaluating the psychometric properties of the persian self-management scale for kidney transplant recipients. *Urol J*. 2019;16(2):186-192. doi: 10.22037/uj.v0i0.4339.
15) Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health*. 2006;29(5):489-97. doi: 10.1002/nur.20147.
16) Atkinson TM, Rosenfeld BD, Sit L, Mendoza TR, Fruscione M, Lavene D, *et al*. Using confirmatory factor analysis to evaluate construct validity of the Brief Pain Inventory (BPI). *J Pain Symptom Manage*. 2011;41(3):558-65. doi: 10.1016/j.jpainsymman.2010.05.008.
17) Çapik C. Use of confirmatory factor analysis in validity and reliability studies. *Anadolu Hemsirelik Saglik Bilimleri Derg*. 2014;17(3):196--205.
18) Büyüköztürk Ş. *Data Analysis Guidebook for Social Sciences: Statistics, Research Design, SPSS-Applications and Interpretation*. 18th ed. Ankara: Pegem Akademi, 2013.
19) Çokluk Ö, Şekercioğlu G, Büyüköztürk Ş. *Multivariate Statistic for Social Sciences: SPSS and LISREL Applications*. 2th ed. Ankara: Pegem Akademi, 2012.
20) Pourmand G, Dehghani S, Rahmati MR, Mehrsai A, Gooran S, Alizadeh F, *et al*. Does hypertension remain after kidney transplantation? *Acta Med Iran*. 2015;53(5):297-300.
21) Saint-Remy A, Somja M, Gellner K, Weekers L, Bonvoisin C, Krzesinski JM. Urinary and dietary sodium, and potassium associated with blood pressure control in treated hypertensive kidney transplant recipients: an observational study. *BMC Nephrol*. 2012;13:121. doi: 10.1186/1471-2369-13-121.
22) Soypacaci Z, Sengul S, Yıldız EA, Keven K, Kutlay S, Erturk S, *et al*. Effect of daily sodium intake on post-transplant hypertension in kidney allograft recipients. *Transplant Proc*. 2013;45(3):940-3. doi: 10.1016/j.transproceed.2013.02.050.
23) Brown IJ, Tzoulaki I, Candeias V, Elliott P. Salt intakes around the world: implications for public health. *Int J Epidemiol*. 2009;38(3):791-813. doi: 10.1093/ije/dyp139.
24) Veater NL, East L. Exploring depression amongst kidney transplant recipients: a literature review. *J Ren Care*. 2016;42(3):172-84. doi: 10.1111/jorc.12162.