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## **EVALUATION OF PSYCHIATRIC SYNDROMES AND PERSONALITY IN CANDIDATES FOR LIVING DONOR KIDNEY TRANSPLANTS**

### **EVALUACIÓN DE LAS CARACTERÍSTICAS DE LA PERSONALIDAD Y LOS SÍNDROMES CLÍNICOS PSIQUIÁTRICOS EN CANDIDATOS A DONANTES VIVOS DE TRASPLANTES RENALES**

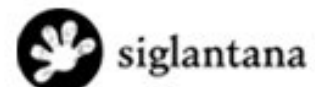
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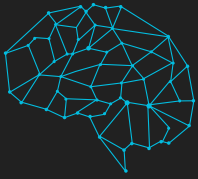
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## ABSTRACT

**Background:** The aim of the study was to assess personality and psychopathology of living kidney donors (LKD).

**Methods:** A cross-sectional design study was carried out at Complejo Hospitalario Universitario de Canarias (CHUC). 68 potential living kidney donors (PLKD) were evaluated using the Millon Clinical Multiaxial Inventory-III (MCMI-III) and psychiatric clinical interview.

**Results:** No candidate presented psychopathological syndrome and all the profiles were valid on the criteria set forth in the MCMI-III. The sample scored high in Narcissistic, Histrionic, Compulsive and Social Desirability scales. Women were significantly higher in Histrionic scale than men.

**Conclusion:** The results suggest that PLKD have a personality profile characterized by high scores on histrionics (higher in women), narcissism, compulsion and social desirability, as well as the absence of clinical psychiatric syndromes.

**Keywords:** kidney transplants, living donors, personality, psychopathology.

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## RESUMEN

**Objetivo:** Evaluar las características de personalidad y psicopatológicas de los donantes renales vivos.

**Método:** Se evaluaron 68 candidatos a donante vivo de riñón mediante el Inventario Clínico Multiaxial de Millon en su tercera edición (MCMI-III), con un diseño transversal.

**Resultados:** Ningún candidato presentó síndrome psicopatológico y todos los perfiles fueron válidos en base a los criterios establecidos en el MCMI-III. La muestra puntuó alto en Narcisismo, Histrionismo, Compulsión y Deseabilidad social. Las mujeres obtuvieron valores significativamente superiores en Histrionismo que los hombres.

**Conclusiones:** Los resultados sugieren que los potenciales donantes renales en vida presentan un perfil de personalidad caracterizado por puntuaciones altas en histrionismo (mayor en mujeres), narcisismo, compulsión y deseabilidad social, así como ausencia de síndromes clínicos psiquiátricos.

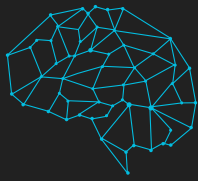
**Palabras clave:** donantes vivos, personalidad, psicopatología, trasplante renal.

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## INTRODUCTION

Kidney transplant is the most efficient treatment for patients with terminal renal failure (Frade et al., 2008; Gatchalian & Leehey, 2000; Port, Wolf, Mauger, Berling, & Jiang, 1993) in relation to the quality of life (Cameron, Whiteside, Katz, & Devins, 2000). This can be carried out with graft from dead or living donor, genetically related or not, with the receiver. The living donor kidney transplantation offers better clinical results than transplants from cadaver (Pascual, Theruvath, Kawai, Tolkoff-Rubin, & Cosimi, 2002; Plaza, 2001), becoming the first choice for these patients (Guirado et al., 2008; Jendrisak et al., 2006).

Spain is the world leader for rate of renal transplantation of cadaver. However, the rate of living kidney donor transplantation, although increasing, is low compared with other European countries (Organización Nacional de Trasplantes, 2012). Due to the scarcity of organs there has been an increase in the number of the studies looking at factors that may tend to the consideration and predisposition to in vivo donation, especially those persons related to the patient. During the year 2013 there were 382 living donor transplants in Spain, 12 of which were carried out in Canary Islands (Organización Nacional de Trasplantes, 2013). The increase in this type of transplant is due to the low risk physical and psychological benefits to the donor (Guirado et al., 2008).



A thorough medical and psychosocial assessment of potential living kidney donors (PLKD) is required (Maldonado et al., 2012; Mori, Gallagher, & Milne, 2000; James R. Rodrigue & Guenther, 2006), the main objective of which is to ensure that the physical and mental health of the donor is optimal, identify possible contraindications and minimize the long-term risks (Frade et al., 2008; J. R. Rodrigue et al., 2014).

Studies show that living kidney donors (LKD) are motivated by self-interest, as well as the improved health of the recipient (E. Ferguson, Farrell, & Lawrence, 2008; Tong et al., 2012). Donation means an emotional reward for donors (Bolt et al., 2010). Therefore, the motivation for donating is a combination of the desire to help and the motivation of achievement of the donor (Eamonn Ferguson, France, Abraham, Ditto, & Sheeran, 2007). It has even been mentioned that for certain donors, altruism is a rationalization rather than a reason (Frade et al., 2011; Goncalvez et al., 2008).

Some authors have been found that psychological and social adjustment of the LKD prior to transplantation is high (De Pasquale et al., 2013; Özçürümez et al., 2004), they also they have an optimum psychological well-being (Clemens et al., 2006). During the donation process, 39% of the LKD reported having experienced stress (Johnson et al., 1999) and some studies consider that donors are fearful of donation and worried about the impact on their health (Johnson et al., 1999; Ríos-Martínez, Huitrón-Cervantes, Rangel-Rodríguez, & Pedraza-Moctezuma, 2010). There are mixed findings about prevalence of psychological discomfort and depression in donors. While some studies indicate that donors have a lower depression prevalence than general population (Fisher, Kropp, & Fleming, 2005; Frade et al., 2008; Johnson et al., 1999; Minz et al., 2005), others have found that donation increases the levels of psychological distress and family conflicts (Reimer et al., 2006).

The amount of research on these aspects contrasts with the scarcity of literature related to the evaluation of the personality characteristics of LKD. However, a further analysis can help to ensure the optimal psychosocial adjustment after donation, as well as improve the knowledge about personality traits that influence the motivation to donate.

In this context, the aim of this study is to evaluate the characteristics of the personality and the psychopathology of PLKD in Canary Islands.

## MATERIALS AND METHODS

### PARTICIPANTS

In a cross-sectional design study, 68 candidates were evaluated for living kidney donation in Complejo Hospitalario Universitario de Canarias (CHUC). All PLKD of the Canary Islands recruited between March 2010 and April 2014 were included in this study. A subject was excluded by not completing the MCMI-III.

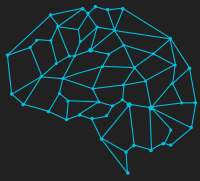
This study was performed according to the Helsinki Declaration of 1975 and approved by the Ethics Committee of CHUC.

### PROCEDURES

During the hospitalization, the protocol for assessment of the PLKD was completed. After that, psychosocial and psychopathological assessment was carried out by Psychiatric consultation liaison team. The variables were classified in demographic variables (gender, age, educational level, marital status, location of residence, type of relationship between donor and recipient), clinical variables (psychopathological syndromes, psychiatric and drug history) and dimensions of personality (Table 1). Millon Clinical Multiaxial Inventory-III was used to assess the dimensions of personality (MCMI-III), the same method used by other authors in previous studies for the evaluation of PLKD (Van-der Hofstad, Rodríguez-Marrín, Martínez-Zaragoza, & Santiago-Guervós, 2013).

MCMI-III was designed to assess clinical samples in accordance with the DSM-IV-TR criteria. It can be used to identify personality disorders, psychopathological syndromes and cognitive styles (T. Millon, 1998; T. Millon & Davis, 1998), but has also been used in the general population (Caparros & Hoz, 2013; Franklin, Bowker, & Blumenthal, 2009; Larøi, DeFruyt, van Os, Aleman, & Van der Linden, 2005), and also in assessment of strategies for coping with medical illness (Cerezo, Ortiz-Tallo, & Cardenal, 2009; Øland, Jensen, Melsen, & Elklit, 2010; Wegener, Adams, & Rohe, 2012) and stressful situations. MCMI-III factor structure provides a continuum between normality and psychopathology (T. Millon, 1998).

This inventory is composed of 175 dichotomous items, true-false response. It contains 11 moderate personality disorder scales (schizoid, avoidant, depressive, dependent, histrionic, narcissistic, antisocial, aggressive-sadistic, compulsive, passive-aggressive and self-defeating), 3 severe personality disorders scales (schizotypal, borderline and



**TABLE I. Clinical and sociodemographic characteristics.**

	n= 68
<b>Age</b> (year)	46±9.5
<b>Sex</b> (female)	41 (60.3)
<b>Educational level</b>	
Primary	22 (32.4)
Secondary	32 (47.1)
University	14 (20.6)
<b>Marital status</b>	
Married	55 (80.9)
Single	6 (8.8)
Divorced	7 (10.3)
<b>Location of residence</b> (urban)	53 (77.9)
<b>Working status</b>	
Active worker	40 (58.8)
Unemployed	13 (19.1)
Inactive	15 (22.1)
<b>Drug history</b>	5 (7.4)
<b>Psychiatric history</b>	7 (10.3)
<b>Relationship type with recipient</b>	
Genetically related	32 (47.1)
Emotionally related	33 (48.5)
Friendship	2 (2.9)
Altruistic	1 (1.5)

paranoid), 7 clinical syndromes of moderate severity (anxiety disorder, somatoform disorder, bipolar disorder, dysthymic disorder, alcohol dependence, substance dependence and posttraumatic stress disorder) and 3 severe clinical syndromes scales (thought disorder, major depression and delusional disorder). In addition, there are also five scales used to help detect careless, confused or random responses on the test. All MCMI-III scales set 60 as the median. For personality and clinical scales, scores between 75 and 84 indicate the presence of a syndrome, while scores higher than 85 are suggestive of a disorder

In turn, psychosocial and psychopathological variables were assessed by psychiatric clinic interview.

#### STATISTICAL ANALYSIS

Quantitative variables are expressed with means and standard deviations. Qualitative variables are expressed with frequencies and percentages. Comparisons between groups

in quantitative variables were carried out with Mann-Whitney test. Percentages were compared with Chi square or Fisher exact tests as appropriate. All p values lower than 0.05 were considered significant. The statistical analysis was carried out with SPSS v. 17.0 (Chicago, IL).

#### RESULTS

All inventories administered were considered valid on the basis of the results of the scales of validation of the test; this means that quality of the answers enables its interpretation.

Table I shows the categories of the demographic and clinical variables of the study subjects.

None of the candidates had acute psychopathology, personality disorder or substance dependence in the evaluation. Consequently, we did not exclude any candidates for living kidney donation or the study.

Table II shows that PLKD had significant scores in Compulsive, Narcissistic, Histrionic and Social Desirability scales.

The only significant difference between the sexes is in the Histrionic scale, where women (72±11) obtained significantly higher scores (U=212,500, p<.001) compared with men (56±15).

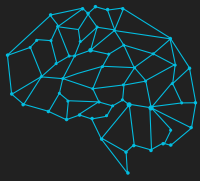
#### DISCUSSION

Unlike the data found in other studies, PLKD had no significant differences by sex (Biller-Andorno, 2002; Breitkopf, 2009; Zimmerman, Donnelly, Miller, Stewart, & Albert, 2000). In our sample, 60.3 % of PKLD were women, similar to the percentage obtained by National Organization of Transplants in Spain (Organización Nacional de Trasplantes, 2013) and other authors (Clemens et al., 2006).

We found that there was a predominance of married donors, with secondary studies, resident in an urban area and with kinship with the receiver, in a similar way to the data referenced in the systematic reviews (Clemens et al., 2006).

In contrast to other studies, women had significantly higher scores in histrionics (Ríos-Martínez et al., 2010). This finding may be due to cultural matters of the Canary Islands, which our study does not allow to elucidate.

Our results, in contrast with other studies, indicate the absence of psychopathology at the time of the evaluation regardless of sex and the type of relationship with the receiver. We consider that this may be due to prior selection



**TABLE II. Results of clinical, personality and validity scales.**

<b>Clinical Scales</b>	
Anxiety	23±27
Somatoform	13±16
Bipolar	40±23
Dysthymia	10±15
Alcohol Dependence	37±21
Drug Dependence	35±24
Posttraumatic Stress Disorder	12±16
Thought Disorder	15±18
Major Depression	11±16
Delusional Disorder	30±31
<b>Personality Scales</b>	
Schizoid	35±19
Avoidant	21±16
Depressive	15±13
Dependent	24±20
Histrionic	66±15
Narcissistic	68±8
Antisocial	37±20
Sadistic	32±21
Compulsive	75±13
Negativistic	26±19
Masochistic	15±17
Schizotypal	16±18
Borderline	15±18
Paranoid	30±25
<b>Validity Scales</b>	
Disclosure	32±17
Desirability	85±9
Debasement	21±20

and appraisal of living donor for kidney transplant program carried out before our psychosocial and clinical interview.

Potential donors showed high average scores on compulsive, narcissistic and histrionic scales, as well in the social desirability factor. This result may be due to several different reasons. An important aspect to consider is that high scores may reflect strength of personality, a particular personality or a clinical disorder (T. Millon, 1998; Ortiz-Tallo, Cardenal,

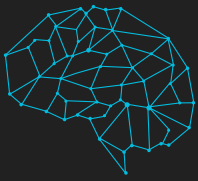
Ferragut, & Cerezo, 2011). With this in mind, moderate scores obtained could be interpreted as healthy levels of self-esteem, sociability, and a sense of moral responsibility, as well as being classified as prototypical components of narcissistic, histrionic and compulsive constructs respectively. In non-clinical samples, high scores on these scales have been identified as indicators of health and increased of ego strength (Caparros & Hoz, 2013; T. Millon, 1998; Ortiz-Tallo et al., 2011).

The same dilemma is consistent with the high scores in social desirability in the sample, comparable to that found in a previous study (Van-der Hofstad et al., 2013). On one hand, scores can also reflect the attitude of the PKLD in a situation of evaluation which will determine, among other factors, the ability to fulfil the requirements for donating a kidney. On the other hand, high scores in compulsion and social desirability can be suggestive of a collaboration style, sometimes minimizing symptoms of emotional distress (T. Millon, 1998). Social desirability has an inverse association with self-reporting of anxiety symptoms, as well as their severity and frequency (Olbrisch, Levenson, Sherwin, & Best, 1994), but does not influence clinical observation (Carnrike, 1997; Kuntz & Bonfiglio, 2011; Putzke et al., 2001). Furthermore, social desirability cannot be a reason to invalidate psychosocial assessment data (Kelly, Bart, & Craven, 1992). Therefore, we hypothesize that social desirability is characteristic dimension within LKD profile (Olbrisch, Benedict, Haller, & Levenson, 2001).

Finally, no control subjects were used because the tests applied here are standardized for a general population across each age group and our patients represent geographical and socioeconomic diversity, and so we determined that no further control measures were necessary.

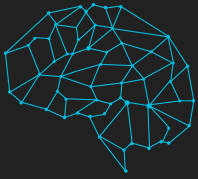
We conclude that PLKD were characterized by the narcissistic and histrionic traits and more markedly by the compulsive and social desirability scales, as well as the absence of psychopathology. These dimensions may correspond with healthy aspects in the context of a healthy personality.

Further contributions in this field could help determine a more accurate characterization of the LKD.



## REFERENCES

1. Biller-Andorno N. Gender imbalance in living organ donation. *Med Health Care Philos*, 2002;5(2):199-203. doi: 10.1023/a:1016053024671
2. Bolt S, Venbrux E, Eisinga R, Kuks JBM, Veening JG, Gerrits PO. Motivation for body donation to science: More than an altruistic act. *Ann Anat*, 2010;192(2):70-4. doi: 10.1016/j.aanat.2010.02.002
3. Breitkopf CR. Attitudes, beliefs and behaviors surrounding organ donation among Hispanic women. *Curr Opin Organ Transplant*, 2009;14(2):191-5. doi: 10.1097/mot.0b013e328329255c
4. Cameron JI, Whiteside C, Katz J, Devins GM. Differences in quality of life across renal replacement therapies: a meta-analytic comparison. *Am J Kidney Dis*, 2000;35(4):629-37.
5. Caparros BC, Hoz EV. (2013). Millon clinical multiaxial inventory III (MCMI-III) and communication styles in a sample of university students. *Span J Psychol*, 16, E85. doi: 10.1017/sjp.2013.85
6. Carrnike CLM. Is social desirability associated with symptom distress in organ transplant candidates? *Psychology, Health & Medicine*, 1997;2(3):243-50. doi: 10.1080/13548509708400582
7. Cerezo MV, Ortiz-Tallo M, Cardenal V. Expresión de emociones y bienestar en un grupo de mujeres con cáncer de mama: una intervención psicológica. *Revista Latinoamericana de Psicología*, 2009;41(1):131-40.
8. Clemens KK, Thiessen-Philbrook H, Parikh CR, Yang RC, Karley ML, Boudville N, Donor Nephrectomy Outcomes Research N. Psychosocial health of living kidney donors: a systematic review. *Am J Transplant*, 2006;6(12):2965-77. doi: 10.1111/j.1600-6143.2006.01567.x
9. De Pasquale C, Veroux M, Corona D, Sinagra N, Giaquinta A, Zerbo D, Pistorio ML. The concept of self and emotional involvement in living kidney donation: a psychometric investigation. *Transplant Proc*, 2013;45(7):2604-6. doi: 10.1016/j.transproceed.2013.08.002
10. Ferguson E, Farrell K, Lawrence C. Blood donation is an act of benevolence rather than altruism. *Health Psychol*, 2008;27(3):327-36. doi: 10.1037/0278-6133.27.3.327
11. Ferguson E, France CR, Abraham C, Ditto B, Sheeran P. Improving blood donor recruitment and retention: integrating theoretical advances from social and behavioral science research agendas. *Transfusion*, 2007;47(11):1999-2010. doi: 10.1111/j.1537-2995.2007.01423.x
12. Fisher PA, Kropp DJ, Fleming EA. Impact on Living Kidney Donors: Quality of Life, Self-Image and Family Dynamics. *Nephrology Nursing Journal*, 2005;32:489-90, 495-500.
13. Frade IC, Fonseca I, Dias L, Henriques AC, Martins LS, Santos J, Lopes A. Impact Assessment in Living Kidney Donation: Psychosocial Aspects in the Donor. *Transplant Proc*, 2008;40(3):677-81. doi: 10.1016/j.transproceed.2008.02.036
14. Frade IC, Lopes A, Teixeira L, Rodrigues J, Almeida M, Dias L, Henriques AC. Perceptions in living kidney donation: what protagonists think and feel. *Transplant Proc*, 2011;43(1):39-42. doi: 10.1016/j.transproceed.2010.12.029
15. Franklin JC, Bowker KB, Blumenthal TD. Anxiety and prepulse inhibition of acoustic startle in a normative sample: The importance of signal-to-noise ratio. *Personality and Individual Differences*, 2009;46(3):369-73. doi: 10.1016/j.paid.2008.11.004
16. Gatchalian RA, Leehey DJ. Mortality among patients on dialyses, patients on dialyses awaiting transplantation and transplant recipients. *N Engl J Med*, 2000;342(2):893-4.
17. Goncalvez TT, Sabino EC, Chen S, Salles NA, Chamone DAF, McFarland W, Murphy EL. Knowledge, Attitudes and Motivations Among Blood Donors in São Paulo, Brazil. *AIDS and Behavior*, 2008;12(4):39-47. doi: 10.1007/s10461-008-9391-3.
18. Guirado L, Vela E, Clèries M, Díaz JM, Facundo C, García-Maset R. Why renal transplant from living donors gives better results than cadaver renal transplant? . *Nefrología*, 2008;28(2):159-67.
19. Jendrisak MD, Hong B, Shenoy S, Lowell J, Desai N, Chapman W, Kappel D. Altruistic Living Donors: Evaluation for Nondirected Kidney or Liver Donation. *Am J Transplant*, 2006;6(1):115-20. doi: 10.1111/j.1600-6143.2005.01148.x
20. Johnson EM, Anderson JK, Jacobs C, Suh G, Humar A, Suhr BD, Matas AJ. Long-term follow-up of living kidney donors: quality of life after donation. *Transplantation*, 1999;67(5):717-721. doi: 10.1097/00007890-199903150-00013
21. Kelly P, Bart C, Craven J. (1992). Lung Trasplantation. In J. Craven & G. M. Rodin (Eds.), *Psychiatric aspects of organ transplantation* (pp. 205-223). New York: Oxford University Press.
22. Kuntz KK, Bonfiglio DBV. Psychological Distress in Patients Presenting for Initial Renal Transplant Evaluation. *Journal of Clinical Psychology in Medical Settings*, 2011;18(3):307-11. doi: 10.1007/s10880-011-9249-0
23. Larøi F, DeFruyt F, van Os J, Aleman A, Van der Linden M. Associations between hallucinations and personality structure in a non-clinical sample: Comparison between young and elderly samples. *Personality and Individual Differences*, 2005;39(1):189-200. doi: http://dx.doi.org/10.1016/j.paid.2005.01.001
24. Maldonado JR, Dubois HC, David EE, Sher Y, Lolak S, Dyal J, Witten D. The Stanford Integrated Psychosocial Assessment for Transplantation (SIPAT): a new tool for the psychosocial evaluation of pre-transplant candidates. *Psychosomatics*, 2012;53(2):123-32. doi: 10.1016/j.psym.2011.12.012
25. Millon T. (1998). *Inventario Multiaxial Clínico de Millon (MCMI-III)*. Madrid: TEA Ediciones.
26. Millon T, Davis RD. (1998). *Trastornos de la personalidad. Más allá del DSM-IV*. Barcelona: Masson.
27. Minz M, Udgiri N, Sharma A, Heer MK, Kashyap R, Nehra R, Sakhuja V. Prospective psychosocial evaluation of related kidney donors: Indian perspective. *Transplant Proc*, 2005;37(5):2001-3. doi: 10.1016/j.transproceed.2005.03.110
28. Mori DL, Gallagher P, Milne J. The Structured Interview for Renal Transplantation—SIRT. *Psychosomatics*, 2000;41(5):393-406. doi: 10.1176/appi.psy.41.5.393
29. Øland J, Jensen J, Melsen B, Elklit A. Are Personality Patterns and Clinical Syndromes Associated With Patients' Motives and Perceived Outcome of Orthognathic Surgery? *J Oral Maxillofac Surg*, 2010;68(12):3007-14. doi: 10.1016/j.joms.2010.07.077
30. Olbrisch ME, Benedict SM, Haller DL, Levenson JL. Psychosocial assessment of living organ donors: clinical and ethical considerations. *Prog Transplant*, 2001;11(1):40-49. doi: 10.7182/prtr.11.1.e27186258226k604
31. Olbrisch ME, Levenson JL, Sherwin ED, Best AM. (1994). Validation of psychosocial assessments of cardiac transplant candidates. *The Journal of Heart and Lung Transplantation*, 13, S70.
32. Organización Nacional de Transplantes. (2012). *Memoria Transplante Renal 2012*.



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Psicosom. psiquiatr. 2017;(1)2:7-13.

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33. Organización Nacional de Trasplantes. (2013). Memoria Trasplante renal 2013.
34. Ortiz-Tallo M, Cardenal V, Ferragut M, Cerezo MV. Personalidad y síndromes clínicos: un estudio con el MCMI-III basado en una muestra española = Personality and clinical syndromes : a study with the MCMI-III in a Spanish sample. *Revista de Psicopatología y Psicología Clínica*, 2011;16(1):49. doi: 10.5944/rppc.vol.16.num.1.2011.10350
35. Özçürümez G, Tanriverdi N, Çolak T, Emiroğlu R, Zileli L, Haberal M. The psychosocial impact of renal transplantation on living related donors and recipients: preliminary report. *Transplant Proc*, 2004;36(1):114-6. doi: 10.1016/j.transproceed.2003.11.004
36. Pascual M, Theruvath T, Kawai T, Tolkoff-Rubin N, Cosimi AB. Strategies to improving long-term outcomes after renal transplantation. *N Engl J Med*, 2002;346(8):580-90.
37. Plaza JJ. Trasplante renal de donante vivo. *Nefrología*, 2001;21(4):97-100.
38. Port FK, Wolf RA, Mauger EA, Berling DP, Jiang K. Comparison of survival probabilities for dialysis patients vs cadaveric renal transplant recipients. *JAMA*, 1993;270(11):1339-43.
39. Putzke JD, Boll TJ, Williams MA, Benza RC, Kirklín JK, McGiffin DC. Self-Report Measures among Transplant Candidates: The Impact of Evaluative Situations. *Assessment*, 2001;8(1):19-35. doi: 10.1177/107319110100800103
40. Reimer J, Rensing A, Haasen C, Philipp T, Pietruck F, Franke GH. The impact of living-related kidney transplantation on the donor's life. *Transplantation*, 2006;81(9):1268-73. doi: 10.1097/01.tp.0000210009.96816.db
41. Ríos-Martínez BP, Huitrón-Cervantes G, Rangel-Rodríguez GA, Pedraza-Mocetzuma LG. Personalidad en donadores renales. *Rev Med Inst Mex Seguro Soc*, 2010;48(5):497-502.
42. Rodrigue JR, Guenther RT. Psychosocial evaluation of live donors. *Curr Opin Organ Transplant*, 2006;11(3):234-240. doi: 10.1097/01.mot.0000227838.83710.ac
43. Rodrigue JR, Paek M, Whiting J, Vella J, Garrison K, Pavlakis M, Mandelbrot, DA. Trajectories of perceived benefits in living kidney donors: association with donor characteristics and recipient outcomes. *Transplantation*, 2014;97(7):762-8. doi: 10.1097/01.tp.0000437560.23588.ef
44. Tong A, Chapman JR, Wong G, Kanellis J, McCarthy G, Craig JC. The motivations and experiences of living kidney donors: a thematic synthesis. *Am J Kidney Dis*, 2012;60(1):15-26. doi: 10.1053/j.ajkd.2011.11.043
45. Van-der Hofstad CJ., Rodríguez-Marín J, Martínez-Zaragoza F, Santiago-Guervós C. Individual differences in personality profiles among potential living kidney transplant donors. *Colombia Médica*, 2013;44(4), 213-17.
46. Wegener ST, Adams LL, Rohe D. Promoting optimal functioning in spinal cord injury: the role of rehabilitation psychology *Handbook of Clinical Neurology* 2012;109:pp.297-314. Elsevier BV.
47. Zimmerman D, Donnelly S, Miller J, Stewart D, Albert SE. Gender disparity in living renal transplant donation. *Am J Kidney Dis*, 2000;36(3):534-40. doi: 10.1053/ajkd.2000.9794