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Levels of depression and sociodemographic factors in patients with chronic renal failure on hemodialysis treatment in Peru

Niveles de depresión y factores sociodemográficos en pacientes con insuficiencia renal crónica en tratamiento de hemodiálisis en Perú

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Abstract: The objective of this research is to describe the levels of depression in a population of patients with chronic renal failure on hemodialysis treatment, in order to assess whether there are significant differences according to sociodemographic factors and time of hemodialysis. The study is descriptive-comparative, the instrument applied was Beck's depression inventory. The sample consisted of 503 patients from the city of Lima and from the interior of the country. The results show that the predominant level of depression is mild (48.9%), that the greater the age range and the lower the level of education the tendency to present depression is greater; according to sex, the patients with the greatest tendency to depression are men and also widows and divorcees; According to the dialysis time the tendency to increase the depression is as the dialysis time increases. It is concluded that the levels of depression tend to present in a significant way according to sociodemographic factors ($p < 0.00$).

Keywords: depression, chronic renal patients, sociodemographic factors, hemodialysis, mood disorders

Resumen: La presente investigación tiene como objetivo describir los niveles de depresión en una población de pacientes con insuficiencia renal crónica en tratamiento de hemodiálisis, con el fin de evaluar si existen diferencias significativas de acuerdo a factores sociodemográficos y tiempo de hemodiálisis. El estudio es descriptivo-comparativo, el instrumento aplicado fue el inventario de depresión de Beck. La muestra estuvo formada por 503 pacientes de la ciudad de Lima y del interior del país Los resultados muestran que el nivel de depresión predominante es el leve (48.9%), que a mayor rango de edad y menor grado de instrucción la tendencia a presentar depresión es mayor; de acuerdo al sexo los pacientes con mayor tendencia a la depresión son los varones e igualmente los viudos y divorciados; de acuerdo al tiempo de diálisis la tendencia a aumentar la depresión es conforme aumenta el tiempo de diálisis. Se concluye que los niveles de depresión tienden a presentarse de forma significativa de acuerdo a los factores sociodemográficos ($p < 0.00$).

Palabras Clave: depresión, pacientes crónicos renales, factores sociodemográficos, hemodiálisis, trastornos del estado de ánimo

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Introduction

The chronic kidney disease (CKD) is considered a public health problem in the world (Herrera, Palacios, & Hernández, 2014), therefore governments and health entities maintain within their health guidelines, a special look for this disease; promoting programs of care and treatment among which are those of renal replacement for the diagnosis of Chronic Renal Insufficiency (CRI), not being the most economically and socially equitable in most of the called developing countries, among which is Peru (Hurtado & Aréstegui 2007).

Perales-Montilla, Duschek and Reyes-del Paso (2013) mention that stress, anxiety and depression are associated with a higher morbidity and mortality for various diseases, many of which may present negative affectivity, emotional distress and predisposition to experience disgust, anxiety, sadness, hostility-anger, guilt, fear, self dissatisfaction, greater self-criticism, negative self-esteem, of the world and the future, etc. This symptomatology predicts a greater frequency of somatic complaints, development of mental disorders and other physical ailments, being anxiety and depression factors that can intensify and worsen the course and evolution of the disease and interfere with their treatment and perception of symptoms.

Patients suffering from irreversible loss of renal function clinically called, chronic renal failure (CRF) or chronic kidney disease (CKD), present significant alterations at the physical, biological, psychological, family and social levels. Alterations among which the depressive and anxious symptomatology stands out as a reaction to the crisis and confrontation of the disease and treatment processes (Alarcón, 2004; Cerna, Bocanegra, Jiménez, & Díaz, 2014; Medina & Espinach, 2013).

The chronic renal failure appears as the main form of reaction to the problems brought by the kidney disease and its treatments (Ortega & Pérez, 2004); obtaining significantly higher scores than the population in general, as Martinez, Martínez and Andrés (2007) also refer, a disease that affects not only the daily life but the quality of life of the one who suffers (Carré, 2006; Douthat, 2007), evidence a high prevalence in its context according to Pérez -Domínguez et al. (2012).

Depression appears in the different stages of progression of kidney disease, with high prevalence especially in chronic renal patients in hemodialysis treatments; its psychosomatic and emotional symptomatology affects the process and management of kidney disease and treatment, the emotional and interactional consequences in the patient's life have a significant impact on their adherence and quality of life (Pérez-Domínguez et al., 2012).

Depression is classified as an affective disorder that is associated with a feeling of loss. According to Rubio, Sánchez, Jiménez, Kanahan and Oria (2012), it is a characteristic associated with various processes and events experienced by patients with diagnoses of renal failure, especially CRF, an alteration that affects their autonomy, changes in habits, interpersonal relationships, couple kind, family role, work and social context; this health situation demands medical clinic care safeguarding life; the intervention in mental and psychological health contributes to help the patient have a proper control of his illness. (García & Calvanese, 2008).

The treatments provided to a patient suffering from CRF are partial substitutes of renal function, including situations of dependence, psychosomatic manifestations, food care, limited fluid intake, strict therapeutic regimen of medication intake, physical care, limitations in their activities, fears among other manifestations. Situations that do not favor the assimilation of an adequate awareness of disease and leads to the appearance of anxious and depressive reactions that affect the evolution of their health status and their quality of life, as mentioned by Orellana and Munguía (2008); Pérez-Domínguez et al. (2102); Perales-Montilla, Duschek and Reyes-del Paso (2013).

In hemodialysis, 71% of patients treated with CRI are from the region of Lima and only 29% from provinces (Arquinigo, 2008). In the last 15 years, EsSalud, parastatal entity of the peruvian health system, has attended the majority percentage of the renal population that increased renal replacement therapy-hemodialysis. Under this situation it has been seen that in the public institutions, Ministry of Health (MINSA) and Social Security (EsSalud), as well as in the private sector, the increase not only affects and demands the support of the clinical and / or medical field,

but also it demands a multidisciplinary approach, where psychological and integral mental health support is important because it promotes significant changes in the lives of patients and their families. In this context, clinical manifestation emerge such as depression and anxiety for the present and future (Carré, 2006; Douthat, 2007), in some cases as a reaction or episode, in others as a disorder affecting not only their daily lives but also their quality of life, which is relevant to study in these populations to be able to attend them in the best and human way possible.

Chronic kidney disease is a disease that requires greater attention of the family and health personnel at all stages of their development. Patients adapt to their replacement or renal function substitution treatments, which implies being subject to clinical changes, psychological and mental alterations. It is necessary to take into account that the clinical diagnoses of kidney patients, in a majority percentage, are related to the prevalence of Diabetes Mellitus, Arterial Hypertension, Lupus, vasculitis and other associated medical clinical diagnoses, which also bring clinical and emotional symptomatology that include depression in significant percentages, to which the effects of CRI and treatments are added.

The advances of the research on the subject are presented in table 1.

Table 1

Depression and hemodialysis

Authors and year	Contributions
Álvarez, Fernández, Vázquez, Mon, Sánchez, & Rebollo (2001).	Anxiety and depression are associated with organic symptoms and repercussions in the treatment of hemodialysis.
Ortega y Pérez (2004).	Depression appears as the main form of reaction to the problems brought by the disease and its treatments, all patients in the sample with or without instruction suffer from depressive symptomatology.
Martínez, Martínez y Andrés. (2007).	They obtain significantly higher scores than the theoretical population, in depression, anxiety and stress.
Carré, (2007).	Depression appears as a reaction, in many cases becoming a disorder, affecting not only your daily life but your quality of life.
Aguilera, P. (2007).	In a Chilean hospital study in 93 patients it was found that 63% of the population had some degree of depression; 15.7% have mild depression, 42.8% moderate and 5.2% severe. The highest prevalence was found in men between 15 and 30 years old and between 47 and 62 years old who have been in treatment for three years, coming from urban areas, without a stable partner, who receive low monthly income, with low schooling, with single-parent families and tried some suicidal behavior after knowing the treatment to follow.
García, Fajardo, Guevara, Gonzales y Hurtado (2008).	Depressive symptoms and their severity are associated with greater interdialytic weight gain and a higher level of serum potassium pre-dialysis in patients with chronic hemodialysis therapy (disease awareness).
García y Calvanese (2008).	Dependence on "machines" and health personnel, restrictions on diet, changes in social and family relationships and work situation, among others, "generate emotional disorders and higher levels of depression and anxiety that are associated with a poor quality of life.
Páez, Jofré, Marcos, Azpiroz, y De Bortoli (2008).	Anxiety and depression is greater in older chronic kidney patients and during the first months of hemodialysis, adding that patients undergoing Hemodialysis (HD) treatment frequently present mixed adaptive emotional disorders conformed by the joint presence of anxiety and depression. The degree of depression is higher in patients without work.
Amador, Pons, Espinosa (s/f).	It was found that 54.29% of patients have depression to some degree (34.29% mild, 14.29% moderate-severe, 5.71% severe).
Esquivel, Prieto, López, Ortega, Martínez, y Velazco (2009).	The quality of life of the patient with terminal chronic renal failure is less than 50% in the physical and mental areas, 53.7% of patients have higher levels of depression (18.2% Mild, 20% Moderate and 14.5% Severe).
Perales-Montilla, García-León y Reyes del Paso, (2012).	Depression is the main predictor of quality of life related to health - HRQoL and is negatively associated with all its dimensions.
Pérez-Domínguez, Rodríguez-Pérez, García-Bello, Buset-Ríos, Rodríguez-Esparragón, Parodis-López, Rodríguez- Pérez (2102).	Depression is an affective disorder that is associated with a feeling of loss ", manifestations that patients with kidney problems present when they notice that they lose autonomy, their family role and work performance. It appears with high prevalence in patients with chronic kidney diseases.
Cerna, Bocanegra, Jiménez y Díaz (2014).	They found 57.78% of patients with depression and 65.19%, with anxiety, the frequency of depression and anxiety in type 2 diabetic patients was high.
Gómez, L., Gracia, N., Manresa, M., Lozano, S., & Chevarría, J. (2015).	There is a high prevalence of anxiety and depression in patients with chronic kidney disease on hemodialysis. Older women show more depression and anxiety.
Villanueva y Casas (2015).	In 39 patients on hemodialysis treatment it was found that greater depression in patients was associated with a lower level of quality of life.
Nieto, M. (2017).	The level of depression was medium in the cognitive areas reflected in the lack of concentration and deterioration of interpersonal relationships, as well as in the physical area with problems of sleep, weight loss and diffuse corporal pain.
Rojas, Y., Ruiz, A., y González, R. (2017).	In a sample of 36 cases they found depressive symptoms (48%). Depression was associated with less adherence specifically in the control of food / fluid intake and medical follow-up.

Taking into account the literature report on the impact and effects of depression in chronic renal patients, where there is evidence of an increase not only in the symptoms but also in the general state of the patient, such as the alteration of cognitive functions, mental, emotional and quality of life, it is considered important to explore levels of depression in populations of patients with CRF with hemodialysis treatments, in order to know their differences according to sociodemographic conditions, which will allow therapeutic decisions and interdisciplinary prevention measures and health promotion of these patients.

Methodology

In the present investigation, we have worked with a non-experimental cross-sectional design.

Participants

The sample consists of 503 patients with a diagnosis of chronic renal failure, in treatment of intermittent dialysis of 10 centers of hemodialysis in the city of Lima, men and women with an age range between 20 to 92 years, with an M: of 52 years and an SD: of 15 and with more than a month of permanence in the hospitals of the study.

Patients with a clinical diagnosis of severe complications, those who had physical and clinical symptoms that prevented the evaluation from being performed, those with a diagnosis of VIY, and those who showed clinical symptoms of mental illness -other than a mood disorder- were excluded.

The sample is characterized by a slight predominance of men in relation to women (H: 56.7%, M: 43.3%), with pre-eminence of married people (54.9%), followed by singles (27.4%), the lowest percentages appeared in divorced (2.8%) and separated people (2.2%). In the educational level there is a predominance of high school education (33.2%), followed by incomplete primary (17.5%) and incomplete university education (11.3%). In relation to the place or region of origin, the highest percentage is from the city of Lima (43.7%), followed by Junín (6.6%) and Ayacucho (6%). The lowest prevalence of patients that have been studied are from the following regions: Tacna (0.6%), Huancavelica (0.8%) and Ucayali (0.8%). In relation to the time of dialysis, the highest percentage of patients take between 2 and 3 years (19.5%).

The population of the study was selected through a non-probabilistic sampling of intentional type, the choice of cases was made based on the willingness to participate in the research and with the possibility of rejecting their participation or discontinuing it (Hernández, Fernández, & Baptista, 2014).

The evaluation of the patients was done with knowledge of them, giving approval for the taking of the test and they were informed in detail about the reasons and objectives of the present investigation; They were also informed that the identity of the participants was strictly confidential.

Instrument

The test used for this investigation was the Beck or BDI depression inventory (Beck, Epstein, Brown, & Steer, 1988) which is composed of 21 items, measuring moderate, medium, high and severe signs of depression, is valid for content, it is possible to evaluate especially the cognitive depressive symptoms of which 10 of its 21 items evaluate cognitive symptoms, while its items evaluate physiological symptoms, 3 mood symptoms and 3 motivational symptoms.

After a revised version carried out in 1979, 4 alternative answers for each item could be systematized, each one with order from minor to major severity, its content stands out for the cognitive component, since the symptoms of depression represent 50% of what is the total score of the questionnaire, and where symptoms of somatic type are observed, as a second sign the vegetative type is observed, in distribution refers that 15 items refer to cognitive psychological symptoms, while 6 symptoms of somatic - vegetative type.

Beck (1976) developed this test based on his cognitive theory and classified it into areas and sub dimensions, structured as detailed in table 2.

Table 2
Areas and sub dimensions of the BDI

Areas	Evaluate	Sub dimensions
Affective	State of mind	1. Sadness 5. Feelings of guilt 10. Predisposition for crying 11. Irritability
Motivational	Personal satisfaction	4. Satisfaction 9. Suicidal ideas 2. Pessimism versus the future
Cognitive	Perception status of the person	3. Feeling of failure 6. Expectation of punishment 7. Self dislike 13.Indecision 14. Deformed self-image 20. Somatic concerns
Behavioral	Alteration of behavior	8. Self-accusations 12 Social withdrawal 15 slowness to work 17 Fatigability
Physical	Physical and physiological state of the person	16 Weight loss 18 Loss of appetite 19 Weight loss 21 Loss of sexual desire

Each item is valued from 0 to 3 points depending on the chosen alternative, after adding a total score is obtained. The score fluctuates from 0 to 63 and that quantifies the presence and severity of depressive symptomatology but not a diagnosis, the scores or cuts accepted to graduate the intensity or presence of depression is as follows: 0-10: Without depression; 11-20: Mild depression; 21-30: Moderate depression; More than 31: Severe depression.

The test has shown reliability values that range between 0.76 and 0.95 in samples of psychopathological patients, between 0.73 and 0.93 in samples of the general population, and between 0.78 and 0.92 in samples of university students (Beck, Epstein, Brown, & Steer 1988).

In validity the test has shown acceptable validity indexes, to the extent that its items correlate moderately or high with other measures of depression in different types of population (psychopathological patients, adults of the general population, adolescents, university students, the elderly, medical patients, etc.).

Additionally, and through a sociodemographic record, clinical history data was obtained, such as: Age, sex, place of birth, marital status, degree of instruction, time of dialysis, date of evaluation, respecting the state of anonymity.

Procedure

Permits were coordinated with the health entities selected for the investigation. It was proposed the dates for the selection of the sample, coordinating with the chief physicians of the services and responsible for the mentioned Dialysis Units, for the access to the psychological clinical records. We proceeded to obtain Informed Consent from selected patients.

The BDI was applied by the psychologists and collaborators of 10 Hemodialysis Services individually and sometimes in small groups of 2 or 3 patients, depending on their physical and emotional state.

The rights, privacy, well-being and dignity of patients have been protected according to the principles established by the APA (2010) and the Code of Ethics of the College of Psychologists of Peru (s / f). Likewise, the research has been approved by the Ethics Committee of the School of Psychology and Research Direction of the César Vallejo University.

Results

In relation to the levels of depression, 48.9% of the participants showed a level of mild depression, 40.2% a moderate level and 3.2%

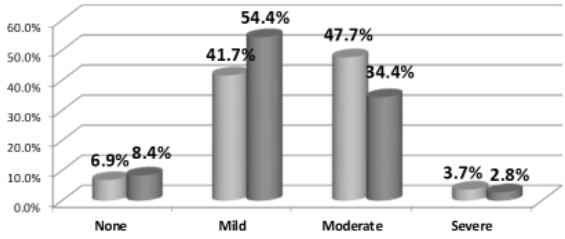

Figure 1
Percentage of patients in each of the depression levels according to sex

have a severe level of depression. Sex-based depression levels are distributed: Women: Mild 41.7%, moderate 47.7% and severe 3.7%; In males, the mild level is 54.4%, moderate 34.4% and severe in 2.8% (see figure 1).

Taking into consideration the level of education, the renal patients at less educational level present a major tendency to the depression that those of other educational levels (see figure 2).

In relation to marital status, there is a higher percentage of widowed patients with moderate depression, following divorced and married (see figure 3).

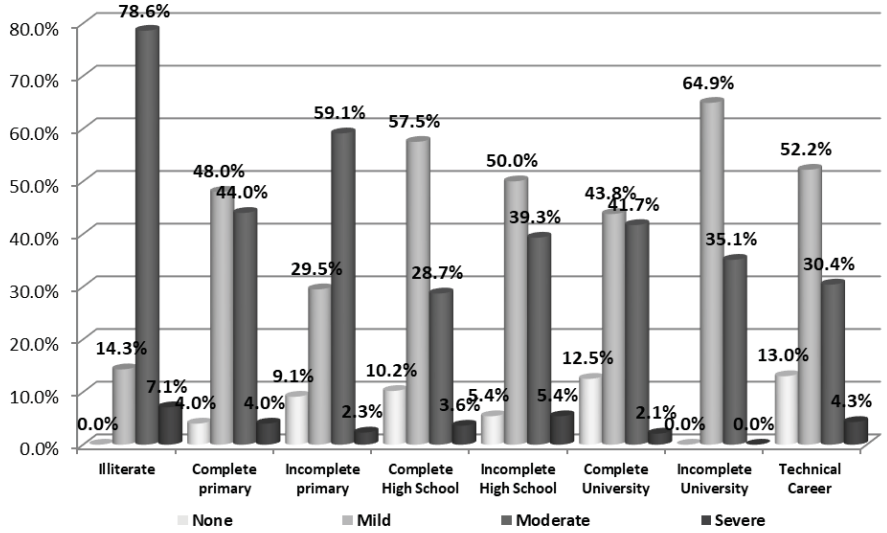

Figure 2
Percentage of patients in each level of depression according to the level of education

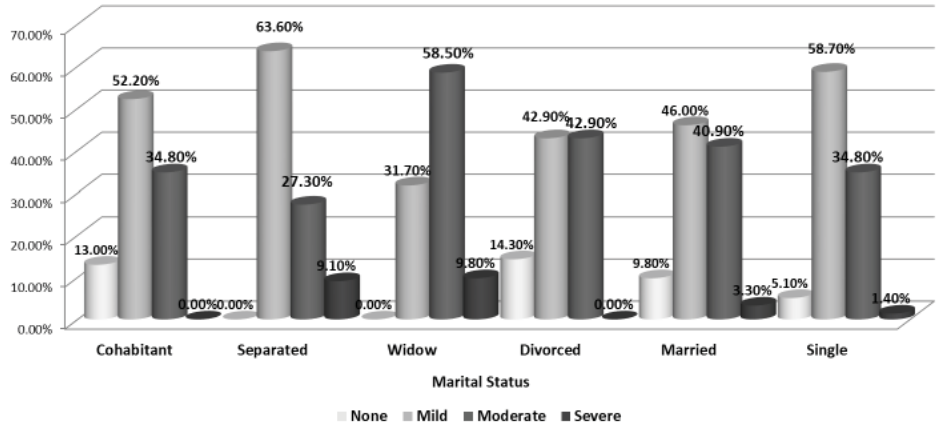

Figure 3
Percentage of patients in each level of depression according to marital status

Regarding age, there is an increase in the incidence of depression at the Moderate level as it ages; meanwhile, the levels of Mild depression are higher at younger ages and then increase exponentially after 90 years, for this population (see figure 4).

According to provenance, the regions that present the highest levels of depression are Amazonas, Huancavelica, Ica Callao, Apurimac, La Libertad, San Martin, Loreto and Ayacucho. Figure 5 shows that several regions have levels of more than 40% of mild depression and some also moderate.

The levels of depression according to the time of dialysis would present an elevation in the moderate level, there are variations that should be deepened especially in the mild level, which rises considerably between 12 and 15 years and after 20 years of dialysis treatment (see figure 6).

The levels of depression differ significantly taking into account the different ranges and the time of dialysis ($p = 0.00$, X: 2.3 years), except in the range of 16 to 19 years of dialysis.

Depression levels differ significantly, taking into account sex (p: 0.00); the marital status (p: 0.00) and the level of instruction of the patients studied (p: 0.00).

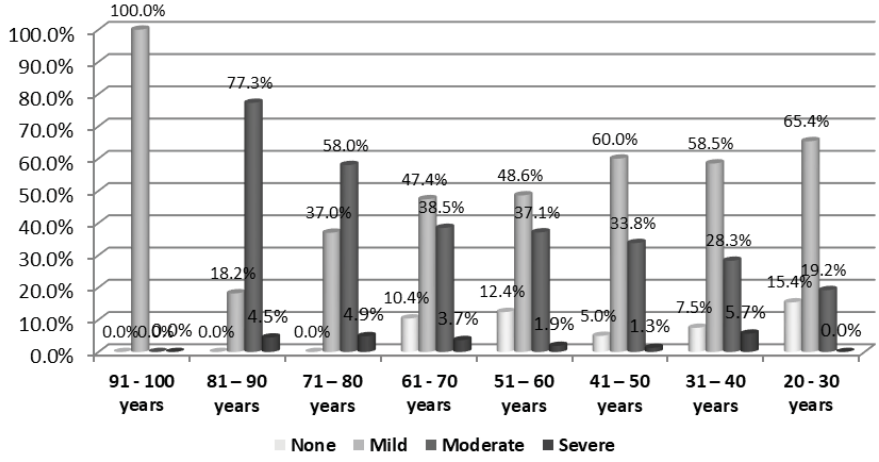

Figure 4
Percentage of patients in each level of depression according to age

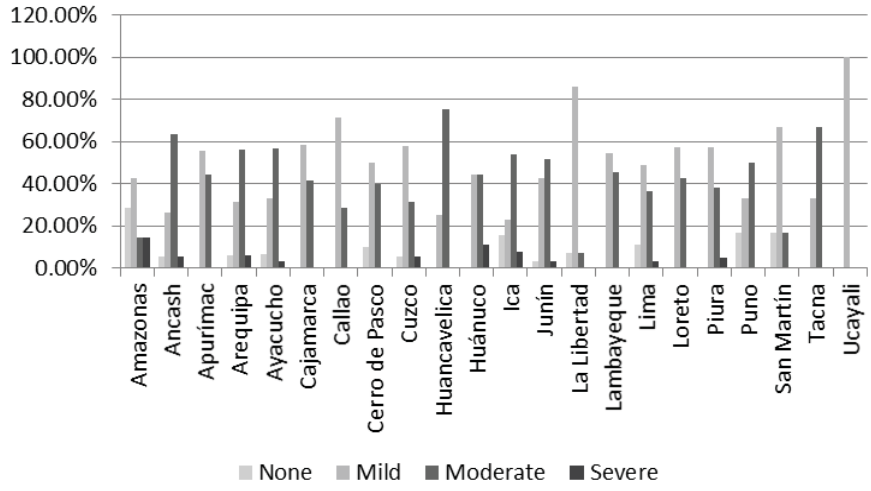

Figure 5
Percentage of patients in each level of depression according to the provenance

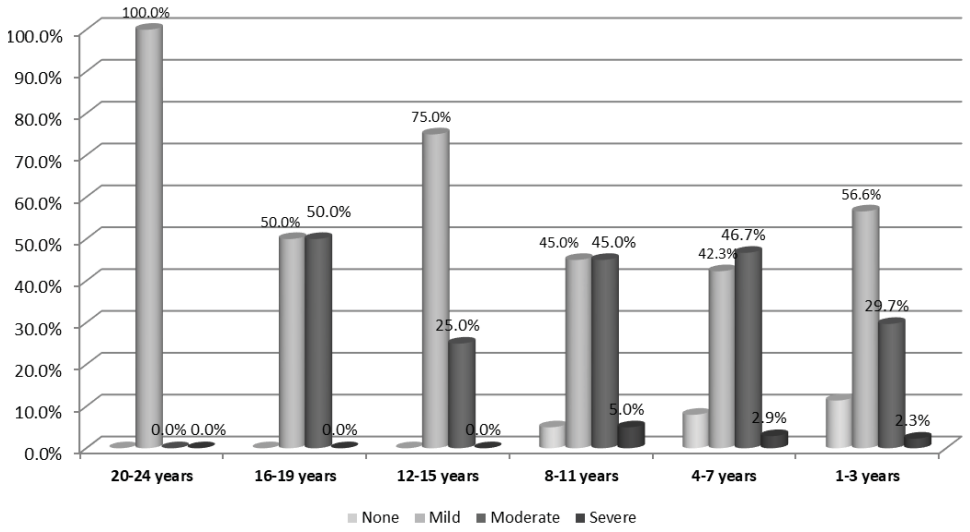

Figure 6
Percentage of patients in each of the levels of depression according to the time of dialysis

Discussion

Chronic Kidney Disease (CKD) is considered a public health problem in the world (Herrera et al., 2014). In Peru and internationally it has been studied in relation to other variables. One of the aspects worked in both medical and psychological clinical contexts is depression in the population of chronic kidney patients, who take it at different levels of intensity, depending on certain variables that are presented in many cases with the role of moderators. This research shows data related to depression in patients with chronic kidney disease in hemodialysis treatment and the sociodemographic variables studied.

The population of renal patients and types of treatments requires specialized care generally provided in level III and IV hospitals of the Social Security-EsSalud and Hospitals level II and III of the Ministry of Health-MINSA, including subcontracted centers of both institutions, especially in Lima. It can be observed that there are samples ranging from 20 to 92 years coinciding with what Álvarez et al. (2001) and Perales-Montilla, García-León and Reyes del Paso, (2012) referred, that depression is present in all stages, processes and repercussions of hemodialysis treatment and is often associated with organic symptoms, affecting the quality of life of these patients. It should be noted that 7.8% do not present depression, a fact that could be related to different personality resources and family and social support.

On the other hand, male patients show percentages and levels close to those obtained in the female population, especially in those that makes the levels mild and moderate. Focusing on the male population, this one has a higher percentage in the level of Mild depression, while women in the Moderate, which agrees with the results found by Gómez et al. (2015) who also refer that the older women show greater depression. The high level of mild depression in men is due to a baggage of responses that are related with a context where neuropsychological conditions, culture and the psychosocial environment, among others, would not encourage direct emotional expression such as crying ('men do not cry' popular saying), however, these would influence aspects such as the change of role in the family, at the work performance, in the economic self-sufficiency and especially in its self-image (Pérez-Domínguez et al., 2012) and can be found in the genesis of his appearance.

The result in women could be related to a greater predisposition and social advantage to externally show and make evident their emotional and physical pain. It is important to emphasize that in both sexes depression is fluctuating with ranges above 30%, where, of every 100 cases, 40 would be affected at a Mild and Moderate level and only 3 out of 100 would be affected by depression in a Severe way, evidencing a range of approximately 6% that do not present depression.

Depression levels according to marital status show a major tendency to moderate depression

in widowed patients, following the divorced and single; these findings can be understood in the sense that patients, especially older adults, would be more affected in many cases by the absence of the partner and / or significant companion, as a source of support to manage the disease and attend their treatments, being depression an affective disorder associated with loss and anxiety (Pérez-Domínguez et al., 2002; Rubio et al., 2012). These results would be in relation to the findings that evidence that depression levels are related to age and also how the disease progresses clinically - elderly patients have a tendency to increase depressive rates according to age, especially between 71 to 100 years - and in particular between 71 to 90 years, a range in which depression tends to affect much more.

Regarding the levels of depression according to the region of origin -according to place of birth-, it was observed that, the regions that present the highest and most severe levels of depression are: Amazonas, Huancavelica, Ica, Callao, Apurímac, La Libertad, San Martin, Loreto and Ayacucho; These results could be related to the findings of the studies of the National Institute of Mental Health that detects areas of higher incidence of depression in Peru. According to these studies, the highest levels of depression occur in mountain and jungle areas and other cities in the interior of the country, at moderate and severe levels, this could be related to migration and the limited resources in those areas for treatment and transfers to social security, to which other comorbidities and problems of social and economic support are added.

In relation to the time of dialysis treatment, a certain tendency to increase with time is distinguished; however, there are variations that could be due to other medical, family and social factors, such as in the range of 20-24 years of treatment of the disease that could be influencing the deterioration of the organism (Álvarez, Fernández, Vázquez, Mon, Sánchez, & Rebollo, 2001). These significant differences could be related to the response to the diagnostic process, medical procedures, comorbidity and functional limitation, loss of independence and the type of treatment of kidney disease, including emotional impact, psychological grief due to loss of health and change in personal and family life styles (García & Calvanese, 2008).

The levels of depression according to the level of education are coincident with what Ortega and Pérez (2004) cite, they affirmed that renal patients with a lower educational level have a higher tendency to depression than other educational levels. Faced with these results, it could be stated that the development status, daily performance and work would make them more vulnerable to the disease and hemodialysis treatment, as it involves stressors related to autonomy and performance, dependence on the machine, treatment time, hours and place of treatment, diet restrictions, social relationships, family and work situation, among others, generating emotional disorders and higher levels of depression and anxiety that are associated with poor quality of life (García & Calvanese, 2008).

The levels of depression at higher ages -in the case of patients older than 90 years- reach the highest percentages in the mild level, which may be related to the comorbidity, care and treatment of the patient and family-social network. Anxiety and depression is greater in older chronic kidney patients and during the first months of hemodialysis, adding that the presence of depression is also significant in younger patients, although renal patients have depressive symptoms regardless of age and modality of treatment (Páez et al., 2008; Ortega & Pérez, 2004).

The present investigation show limitations in the type of sampling carried out, not random, which does not allow it to have external validity; however, the large sample size may allow a smaller error and a better approximation. It is important to perform studies with a greater diversity of sociodemographic variables that allow us to clarify their role and the clinical picture of depression and kidney disease, deepening aspects that may be affecting the behavior of the variables studied.

Conclusions

- Depression is part of the clinical emotional context of the chronic renal patient, observed from the diagnosis, in the stages of the disease and in the dialysis treatment.
- The population of men with chronic kidney disease on dialysis has a greater tendency to mild depression, women tend towards moderate depressions.

- The greater the age range and the lower the level of education, the greater the tendency to maintain depression in the chronic renal patient.

- Depression levels according to dialysis time are moderate, but tend to increase as dialysis time increases.

- There are significant differences in levels of depression according to sociodemographic and clinical factors.

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