Original Article

DOI: 10.4274/haseki.galenos.2021.7646
Med Bull Haseki 2021;59:363-370

Mental Health of the Refugee and Native Patients with End-Stage Renal Diseases Receiving Hemodialysis During COVID-19 in Istanbul: A Cross-Sectional Study from a Tertiary Center

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Abstract

Aim: Patients receiving hemodialysis (HD) are at high risk for developing psychiatric symptoms. The aim of this study is to investigate the levels and correlates of depression, anxiety, somatization and post-traumatic stress disorder (PTSD) symptoms of refugee HD patients and compare to native HD patients.

Methods: This is a descriptive study with a cross-sectional design. A total of 58 refugee (n=27) and native (n=31) end-stage renal disease patients receiving HD were included. The data were collected between 14th and 16th of July 2021. Patient health questionnaire-somatic, anxiety, and depressive symptoms (PHQ-SADS) scales and posttraumatic-stress disorder checklist for DSM-5 (PCL-5) were used for the clinical assessment.

Results: Refugee patients had similar sociodemographic, clinical and HD characteristics with native patients. Anxiety subscale and PCL-5 scores were significantly higher in refugee patients (p=0.04 and p=0.03, respectively), while depression and somatization subscales levels did not differ among groups. The age was negatively correlated with depressive symptom levels in refugee patients while somatic symptom levels were positively correlated with depression, anxiety and PTSD symptom levels in both groups.

Conclusion: The staff of HD centers should be trained in order to recognize psychiatric disorders and symptoms, and routine psychiatric assessment may contribute to improving the mental health and preventing adverse health outcomes in refugee HD patients.

Keywords: Renal dialysis, refugees, depression, mental health, COVID-19

Introduction

In consequence of the compelling treatment schedule, dietary restrictions, and impairment in physical and sexual functioning, living on hemodialysis (HD) is a perpetually challenging condition for patients with end-stage renal disease (ESRD) (1,2). Accordingly, depressive and anxiety disorders are the two most frequent psychiatric disorders in HD patients, the prevalence of depression and anxiety symptoms in HD patients are reported to be higher than the general population and range from 37% to 42% and from 38% to 53%, respectively (3). These two psychiatric conditions commonly co-occur but are frequently underdiagnosed and untreated, whereas both disorders were reported to be closely associated with poor treatment compliance and outcome, hospitalization, impaired quality of life and mortality in this population (3-6). Considering the Coronavirus disease-2019 (COVID-19) pandemic, the uncertainty and health-related anxiety could also increase

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Received: 26.07.2021 **Accepted:** 17.09.2021

the severity of mental disorders or may cause new-onset mental disorders in ESRD patients as individuals with severe chronic illnesses have higher rates of morbidity and mortality rates due to COVID-19 (7,8).

In the last decade, a total of 13 million refugees have been displaced due to the Syrian civil war in the Middle East (9). As of 2021, Turkey is the country hosting the largest number of refugees under "temporary protection" with approximately 3,6 million refugees, and many of those had to experience difficulties such as accessing health and social services, uncertainty around their legal rights, lack of social support, unemployment, financial issues, social isolation and xenophobia after forced migration (10,11). Therefore, post-traumatic stress disorder (PTSD) and other psychiatric conditions including depression, anxiety and somatization were reported to be at higher rates among refugees and have been found to persist over many years (12-14). As one of the most disadvantageous groups in society, refugees with ESRD could be expected to be highly vulnerable to psychological distress during the COVID-19 pandemic, as this population could be more adversely affected by negative consequences of the pandemic such as social isolation, economic hardship and unemployment, as well as uncertainty and health related anxiety (15). However, to date, there are still scant data before and during the COVID-19 pandemic on whether refugee HD patients have a higher risk of developing psychiatric symptoms than native HD patients. To the best of our knowledge, there are only two studies focusing on the mental health of refugee ESRD patients receiving HD (16,17).

This study set out to determine the mental health status of refugee and native ESRD patients receiving HD during the COVID-19. Our aim is to investigate and compare the levels of depression, anxiety, somatic anxiety and PTSD symptoms of refugee and native HD patients and we hypothesized that HD dependent ESRD patients have high comobidity of comorbidity of psychiatric conditions and refugee HD patients have higher depression, anxiety, somatic anxiety and PTSD levels compared to the native HD patients during the COVID-19.

Methods

Study Design and Sample

The study was conducted in accordance with the Declaration of Helsinki and its later amendments. Ethics committee approval was obtained from University of Health Sciences Turkey, Haseki Training and Research Hospital Ethics Committee (approval number: 2021-59) and COVID-19 Scientific Review Board of Ministry of Health of the Republic of Turkey. This study is a cross-sectional study conducted in a tertiary center, which enrolled 69 refugee and native patients who were receiving HD in the HD Center of University of Health Sciences Turkey, Haseki Training and Research Hospital, which which a have a high percentage of refugee dialysis patients. The term "native" was used to describe native Turkish patients. The data of the study were collected between 14 and 16 July 2021. Patients younger than 18 and older than 75 years old, those with history of HD less than three months, those undergoing home HD, those who were not able to fill out questionnaires in Turkish and Arabic language, those with intellectual disability that would limit the ability to answer the questionnaires and those who refused to give informed consent were excluded from the study. Finally, a total of 58 adult patients, consisting of 27 Syrian refugees and 31 native patients receiving HD, who met the study criteria and gave informed consent, were included in the study.

Sociodemographic and Clinical Questionnaire

This questionnaire was prepared by the researchers for this study. The following demographic and clinical data were extracted from from the electronic records: Age, gender, education level, comorbidity, primary cause of kidney disease, duration of HD, residual renal functions, urea reduction rate, vascular access route, Kt/V, and also hemoglobin, albumin, urea and creatinine levels obtained at the beginning of July 2021. The data including monthly household income per capita, the number of people living together and duration of refugee status were obtained from the participants.

Patient Health Questionnaire-Somatic, Anxiety, and Depressive Symptoms (PHQ-SADS)

Patient health questionnaire-somatic, anxiety, and depressive symptoms (PHQ-SADS) is a self-administrated tool designed to measure the rates of psychiatric morbidity (18). The scales can be applied together or separately as PHQ-15 (somatization), GAD-7 (anxiety), PHQ-9 (depression), and 5-item panic modules. Cut-off scores of 5, 10 and 15 represent mild, moderate and severe symptom levels on all three scales. Validated forms in Turkish and Arabic language were used for the refugee and native patients (19,20).

Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)

The PCL-5 is a 20-item self-report scale developed to assess the severity of PTSD symptoms of DSM-5 (21). The rating scale ranges between 0 (not at all) and 4 (extremely) for each symptom. A cut-off value of ≥31 was suggested by the authors as the optimal PCL-5 score for PTSD diagnosis. Validated forms in Turkish and Arabic languages were used for the refugee and native patients (22,23).

Statistical Analysis

The analyses were performed using the IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were expressed as numbers

and percentages for categorical variables and as mean, standard deviation for numerical variables. The conformity of variables to normal distribution was assessed using visual (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk tests). The chi-square test was used for two-group comparisons of categorical variables. For the comparison of two and multiple groups the Mann-Whitney U and Kruskal-Wallis tests were used for the comparison of quantitative data, respectively. Spearman's rho correlation coefficients were used for correlation analysis. A p-value of less than 0.05 was considered statistically significant.

Results

There was no significant difference between refugee and native patients regarding; age, gender, education level, primary cause of kidney disease, monthly household income per capita, the number of people living together, duration of HD, residual renal functions, vascular access route, hemoglobin, albumin, Kt/V, urea and creatinine levels (p>0.05). The data regarding sociodemographic, clinical and HD characteristics are provided in Table 1.

The comparison of PHQ-9, GAD-7, PHQ-15 and PCL-5 between refugee and native HD patients indicated

Table 1. Characteristics of the refugee and native patients receiving HD

Characteristics		Refugee patients (N=27)	Native patients (N=31)	p
Demographic and clinical characteristics				
Age, mean ± SD		48.0±15.2	49.5±15.8	0.62*
Gender, n (%)	Male Female	12% (44.4) 15% (55.6)	17% (54.8) 14% (45.2)	0.43**
Education status, n (%)	Illiterate	4% (14.9)	2% (6.5)	0.12***
	Primary school	12% (44.4)	13% (41.9)	
	High school	6% (22.2)	9% (29)	
	Graduate school	5% (18.5)	7% (22.6	
Primary kidney disease, n (%)	Diabetic kidney disease	8% (29.6)	10% (32.3)	0.78***
	Hypertensive nephrosclerosis	7% (25.9)	9% (29)	
	Glomerulonephritis	1% (3.7)	1% (3.2)	
	Autosomal dominant polycystic kidney disease	0% (0)	1% (3.2)	
	Others	2% (7.4)	4% (12.9)	
	Unknown	9% (33.3)	6% (19.4)	
Presence of residual renal function, n (%)	-	11% (40.7)	13% (41.9)	0.96**
The number of people living together, mean ± SD	-	6.1±1.8	4.1±1.8	**<0.001***
Monthly household income per capita (Turkish Liras), mean ± SD	-	603±337	568±307	0.89*
Duration of refugee status (year)	-	7.3±1.2	-	-
Hemodialysis characteristics				
Hemodialysis frequency, n (%)	Once weekly	1% (3.7)	1% (3.2)	0.97***
	Twice weekly	3% (11.1)	4% (12.9)	
	Thrice weekly	23% (85.2)	26% (83.9)	
Duration of hemodialysis (year), mean ± SD	-	4.4±4.3	3.7±3.6	0.44*
Vascular access, n (%)	Arteriovenous fistula	24% (88.9)	24% (77.4)	0.24**
	Tunneled catheter	3% (11.1)	7% (22.6)	
Kt/V, mean ± SD	-	1.82±0.34	1.77±0.54	0.38*
Urea reduction rate (%),mean ± SD	-	76±6	76±7	0.43*
Initial serum creatinine (mg/dL), mean ± SD	-	8.2±2.3	7.1±2.3	0.09*
Initial serum urea (mg/dL), mean ± SD	-	123±28	132±36	0.29*
Albumin (g/dL), mean ± SD	-	3.6±0.6	3.9±0.6	0.24*
Hemoglobin(g/dL), mean ± SD	-	9.8±1.8	9.9±1.4	0.91*

*Mann-Whitney U test, **chi-square test, ***Kruskal-Wallis test, bold print indicates statistical significance at 0.05 level

that GAD-7 and PCL-5 scores were significantly higher in refugee patients (p<0.05 for both) while PHQ-9 and PHQ-15 scores did not differ among groups. The data regarding the comparison of the scales between refugee and native patients are provided in Table 2.

When the participants were investigated regarding the symptom severity of psychiatric disorders using suggested cut-off values of the scales; depression and somatic anxiety were found to be the most frequent psychiatric conditions (29.3% for each). Among refugees, somatic anxiety and PTSD were the most frequent psychiatric conditions (33.3% for each), while depression was more frequent among the native patients. The data regarding the symptom severity of depression, anxiety, somatic anxiety and PTSD are provided in Table 3.

Regarding the correlates of PHQ-9, GAD-7 and PCL-5 in refugee and native HD patients; there was a strong negative correlation between the age and PHQ-9 scores in refugee patients (r=-0.611; p<0.01). Duration of refugee status had a moderate and positive correlation with PHQ-9 scores in the refugee group (r=0.475, p<0.05). Somatic anxiety had a strong positive correlation with PHQ-9 scores in both refugee and native patients (r=0.737; p<0.001; r=0.650, p<0.001, respectively); strong positive correlation with GAD-7 scores in refugees (r=600, p<0.01) and weak positive correlation with GAD-7 (r=0.381, p<0.05) in native patients; and moderate positive correlation with PCL-5 scores in refugee patients (r=0.419, p<0.05) and weak positive correlation in native patients (r=0.384, p<0.01). The data on the correlates of PHQ-9, GAD-7 and PCL-5 are provided Table 4.

Table 2. Comparison of depression, anxiety, somatic anxiety and PTSD levels between refugee and native patients receiving HD

Scales	Refugee patients (n=27)	Native patients (n=31)	p
PHQ-9	5.96±5.11	7.29±5.19	0.32*
GAD-7	7.20±3.89	4.83±4.54	**0.04***
PHQ-15	7.71±4.43	7.32±4.53	0.75*
PCL-5	26.65±15.84	16.52±13.09	**0.03***

*Mann-Whitney U test, PHQ-9: Patient health questionnaire-9, GAD-7: Generalized anxiety disorder-7, PHQ-15: Patient health questionnaire-15, PCL-5: Posttraumatic stress disorder checklist for DSM-5, Bold print indicates statistical significance at 0.05 level

Table 3. Depression, anxiety and PTSD symptoms in refugee and native patients

Symptom severity	Refugee patients (n=27)	Native patients (n=31)
PHQ-9≥10	6 (22.2%)	11 (35.4%)
GAD-7≥10	8 (29.6%)	4 (12.9%)
PHQ-15≥10	9 (33.3%)	8 (25.8%)
PCL-5≥31	9 (33.3%)	5 (16.1%)

PHQ-9: Patient health questionnaire-9, GAD-7: Generalized anxiety disorder-7, PHQ-15: Patient health questionnaire-15, PCL-5: Posttraumatic stress disorder checklist for DSM-5

Discussion

This study aims to investigate and compare the levels of depression, anxiety and PTSD symptoms of refugee and native HD patients during COVID-19. The main findings of the study are as follows: (i) refugee HD patients had similar sociodemographic, clinical and HD characteristics to native patients native patients; (ii) regarding the comparison of the PHQ-SADS subscales scores; anxiety and traumatic stress levels were significantly higher in refugee patients while depression and somatic anxiety levels did not differ among groups; (iii) regarding psychiatric comorbidity; anxiety and PTSD were more frequent among refugee patients and depression was more frequent among native patients; (iv) the age was negatively correlated with depressive symptom levels in the refugee group, while somatic symptom levels were positively correlated with depression, anxiety and PTSD symptom levels among both refugee and native patients.

In a multicenter study conducted in Europe, refugees were found to represent 1.5% of the dialysis population in several European and Middle Eastern countries with a very skewed geographic distribution, and only a limited number of centers treat >20 refugees due to non-reimbursement of the treatment costs (24). In Turkey, all health expenditures of refugees who are under legal "temporary protection" were covered by the Government of The Republic of Turkey. This was probably the main reason of the relatively higher rate of refugee HD patients in our sample. Language and social work assistance for refugee patients in University of Health Sciences Turkey, Haseki Training and Research Hospital could also have contributed to the increased admission rates of the refugees to the HD center of the hospital.

When the rate of participants by gender was examined, the rate of women and men was found to be equal. The majority of the HD patients were middle-aged and with low household income per capita according to the "Income and Living Conditions Survey" of the Turkish Statistical Institute (25). The most common causes of ESRD were diabetic kidney diseases and hypertensive nephrosclerosis as previously reported in other countries and Turkey (16,26). Our results indicated that there was no significant difference regarding sociodemographic, clinical and HD characteristics regarding age, gender, education level, among refugee and native patients.

The presence of comorbid psychiatric disorders in HD patients is a challenging condition for nephrologists as it negatively influences treatment compliance and is

Table 4. Correlates of PHQ-9, GAD-7 and PCL-5 in refugee and native patients receiving HD

	PHQ-9				GAD-7				PCL-5			
	Refugee patients (n=27)		Native patients (n=31)		Refugee patients (n=27)		Native patients (n=31)		Refugee patients (n=27)		Native patients (n=31)	
	r	p	r	p	r	p	r	p	R	p	r	p
Age	-0.611	**<0.01**	-0.175	0.37	-0.316	0.16	-0.192	0.31	-0.169	0.44	-0.347	0.08
Monthly household income per capita	-0.019	0.93	-0.316	0.25	0.007	0.98	-0.083	0.75	-0.205	0.38	-0.299	0.30
Duration of HD	0.171	0.46	0.080	0.68	-0.030	0.89	0.054	0.78	-0.037	0.87	-0.059	0.77
Duration of refugee status	0.475	**0.03**	-	-	0.264	0.25	-	-	0.197	0.40	-	-
Kt/V	0.173	0.45	0.057	0.77	-0.030	0.89	-0.005	0.98	-0.212	0.33	-0.126	0.53
Albumin	0.366	0.10	-0.002	0.99	0.079	0.73	0.145	0.45	-0.063	0.78	-0.022	0.92
Hemoglobin	0.011	0.96	-0.320	0.09	0.017	0.94	-0.060	0.75	-0.266	0.21	-0.226	0.26
Urea	0.222	0.33	0.076	0.69	-0.107	0.64	0.276	0.14	-0.179	0.415	0.005	0.97
Creatinine	0.119	0.607	0.076	0.70	0.049	0.83	0.276	0.14	-0.034	0.88	0.007	0.97
Somatic symptoms (PHQ-15)	**0.737**	**<0.001**	**0.650**	**<0.001**	**0.600**	**<0.01**	**0.381**	**0.04**	**0.419**	**0.04**	**0.513**	**<0.01**

r: Spearman's rho correlation coefficient, HD: Hemodialysis, PHQ-9: Patient health questionnaire-9, GAD-7: Generalized anxiety disorder-7, PHQ-15: Patient health questionnaire-15, PCL-5: Posttraumatic stress disorder checklist for DSM-5, Bold print indicates statistical significance at 0.05 level

associated with adverse outcomes such as hospitalization and mortality (27). HD requires regular attendance for several hours per week and dietary restrictions, restricts the patient's autonomy and may lead to a feeling of being machine-dependent. These conditions commonly result in exacerbation of the comorbid psychiatric disorders such as depression and anxiety as well as the emergence of new-onset mental conditions (28). Furthermore, patients with ESRD were found to have higher prevalence rates of depression than those with other chronic diseases (29). When it comes to the nationality and refugee status; in a recent study, the authors have reported that adverse clinical outcomes associated with depressive symptoms differ among ethnic groups, and ethnicity is suggested to be an important factor that could influence the adverse clinical outcomes and depression in HD patients (30). Immigrant HD patients were reported to be more prone to develop depressive and anxiety symptoms than the native patients (31). Accordingly, authors from Jordan have reported that among Syrian refugees with HD dependent ESRD; 36% had severe depression, 74% were anxious about their illness and 43% had feelings of being a burden to their families (17). In another very recent study conducted in Turkey, it was reported that Syrian refugee HD patients had higher depressive symptom levels compared to native HD patients (16). Our results indicated that our sample had higher rates of anxiety, depression and somatic anxiety. The most frequent psychiatric conditions were somatic anxiety and PTSD in refugee patients, while one-third of native patients reported moderate or higher depressive symptoms. Our results indicated similar depression and anxiety levels in HD patients compared to the literature (2,28,32). However, on the contrary to the results of previous studies conducted in Turkey and other countries reporting higher depression levels in refugee populations (16,31,33), depression rates were lower in refugee patients than in native patients. This discrepancy probably resulted from the different methodology of these studies, and it could be explained as follows: (i) different self-report scales with different sensitivity and specificity levels such as Beck depression inventory and hospital anxiety and depression scale were used by the researchers in some of these studies and this could be associated with the discrepancy of the rates of depression; (ii) in our study, we used the cut-off values ≥10 for PHQ-9 indicating moderate or higher depression severity and did not take into account those with mild symptoms in order to obtain more accurate rates of depression, (iii) these studies were conducted in different countries and psychiatric symptom levels of refugees could vary according to the host country (12).

The somatic symptoms of depressive disorders have similar characteristics with the symptoms of uremia such as sleep disturbances, fatigue, anorexia, gastrointestinal symptoms, aspects of volume overload and pain, which may complicate complicate recognizing the underlying psychiatric illness (34). Somatic symptoms and distress are also associated with mental disorders, particularly in the refugee population facing traumatic experiences and economic difficulties, which was also the case in our sample (13,35). Hence, investigating somatic distress in both native and refugee HD patients appears to appers to provide substantial benefit for the detection and management of the mental disorders, and also psychological trauma following humanitarian crises. Besides, patients receiving HD were also found to have higher somatic complaints

than the general population (36). In our study, one-third of the participants reported moderate or higher somatization and refugee patients had significantly higher levels of somatic symptoms than native patients and this was consistent with studies conducted in Turkey and other countries (14,37,38).

Somatic complaints and distress are also closely associated with psychological trauma and PTSD was previously reported to be a frequent mental health issue among Syrian refugees in Turkey (13,39). Accordingly, in our study, the comparison of PTSD symptom levels revealed that refugee HD patients were having significantly higher PTSD levels than native patients, as expected. As this study is conducted during COVID-19, the pandemic could be another factor which has contributed to the exacerbation of PTSD and somatic distress as previously reported (40,41). These results suggest that HD dependent refugee ESRD patients may be at high risk of somatic anxiety which is associated with the disease itself and psychological trauma.

The age was found to be negatively associated with levels of depression in refugee patients with ESRD in our study. Younger age is reported to be associated with higher depression levels in patients receiving HD (42). However, there are contradictory findings in the literature on the association of the age with psychiatric symptoms among refugee and native HD populations (13,43,44). This discrepancy was probably associated with the different life conditions of refugees in host countries where these studies were conducted. Another explanation is that, the high risk of depression for younger populations populations could be resulted from the negative impact of COVID-19 and related preventive measures on social life, and this probably is also the case for the younger patients with ESRD (40,45,46). The duration of refugee status was positively correlated with levels of depression, and this result suggests that being under refugee status for a longer duration with a chronic illness such as ESRD could be associated with higher depression levels. Somatic symptoms correlated with depression, anxiety and PTSD levels in both refugee and native patient groups. Individuals with comorbid depression and anxiety are at high risk for somatic symptoms (47). As a considerable amount of the refugees have experienced traumatic events, traumatization may also be an important etiologic factor for somatization in the refugee population. Regarding HD characteristics, laboratory levels of the parameters such as Kt/V, hemoglobin, albumin, urea and creatinine did not correlate with PHQ-9, GAD-7 and PCL-5 scores.

Study Limitations

Our study is conducted in a single center and has a relatively small sample size. Thus, the findings of this study cannot be generalized. Due to the cross-sectional design, the effect of the psychiatric conditions on the outcomes of HD could not be investigated. The psychological assessment was conducted via self-rating scales instead of clinical interviews and this may have resulted in increased levels of psychiatric symptoms. Finally, refugee patients in our sample were only registered refugees, and our results does not represent the unregistered Syrian refugees with ESRD which may have higher psychiatric symptom levels and probably could not reach the HD treatment. However, given the growing concerns about the mental health of refugees around the world, our study may contribute to the literature as it is one of the first studies focusing on the mental health of refugee patients with ESRD which may cause a significant psychological burden.

Conclusion

Our results indicated a high rate of comorbidity of psychiatric conditions in ESRD patients receiving HD, refugee patients appear to have higher comorbidity of anxiety, somatization and PTSD than native HD patients. Hence, refugee HD patients should be closely monitored in terms of psychiatric symptoms. Therefore, routine psychiatric assessment of these patients in order to achieve early diagnosis and more effective management, may contribute to improve the mental health and prevent adverse health outcomes in HD patients. Policy-makers should promote the implementation of formal screening programs for psychiatric disorders among ESRD patients receiving HD. Physicians, nurses and social workers of HD centers should be trained and supported in order to recognize psychiatric symptoms and disorders and to provide psychoeducation programs for the patients and their relatives. HD centers should establish a solid collaboration with consultation-liaison psychiatrists.

Authorship Contributions

Concept: M.Y., Design: M.Y., E.C., Data Collection or Processing: Y.B., Analysis or Interpretation: M.Y., E.C., S.A., H.K., Literature Search: M.Y., S.A., H.K., Writing: M.Y. Y.B.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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