The Relationship between the Severity of Restless Legs Syndrome and Demographic Characteristics of Hemodialysis Patients

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ABSTRACT

Objective(s): To find out the relationship between the patients' severity of restless legs syndrome and their demographic characteristics (age, gender, marital status, occupation, monthly income, and education level).

Methods: A cross-sectional study design was conducted on a purposive sample of 90 hemodialysis patients diagnosed with restless legs syndrome in the Wasit and Thi-Qar hemodialysis centers. The study started on October 10th, 2022, to May 31st, 2023. 12 panelists confirmed the content validity of the scale, while Cronbach's alpha of (0.78) confirmed the scale reliability. Data were analyzed using descriptive statistical data analysis that is frequency and percentage, in addition to inferential statistical data analysis are Pearson correlation, independent t-test, and analysis of variance (ANOVA).

Results: The study findings show there is a statistically significant relationship between the severity of restless legs syndrome and gender (P-value = 0.033), while no other statistically significant relationship was found among patients' age, marital status, occupation, monthly income, or level of education and the severity of restless legs syndrome (P-value >0.05).

Conclusions: The study concluded that there is a statistically significant relationship between gender and hemodialysis patients' severity of restless legs syndrome; however, no other statistically significant relationship was found among patients' age, marital status, occupation, monthly income, or level of education with the severity of restless legs syndrome.

Recommendations: The study recommends that future studies focus on the severity of restless legs syndrome among hemodialysis patients with a larger sample size and in more hemodialysis centers in Iraq.

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العلاقة بين شدة متلازمة تململ الساقين والخصائص الديموغرافية لمرضى الانفاذ الدموي

المستخلص

الأهداف: لمعرفة العلاقة بين شدة متلازمة تململ الساقين للمرضى وخصائصهم الديموغرافية (العمر، الجنس، الحالة الزواجية، المهنة، الدخل الشهري، والمستوى التعليمي).

المنهجية: اجريت دراسة مقطعية على عينة غرضية تتكون من (٩٠) مريض من الانفاذ الدموي مشخصين بمتلازمة تململ الساقين في مراكز الأنفاذ الدموي في واسط وذي قار. اجريت الدراسة للمدة من ١٠ تشرين الاول,٢٠٢٢لغاية ٣١ ايار, ٢٠٢٣. ١٢ عضو لجنة أكدوا على مصداقية محتوى المقياس، بينما الفا كرو نباخ (٠.٧٨) أكد ثباتيه المقياس. تم تحليل البيانات باستخدام نهج تحليل البيانات الإحصائية الوصفي وهي التكرار والنسبة المئوية، بالإضافة الى تحليل البيانات الإحصائية الاستدلالية هي ارتباط بيرسون، اختبار (ت) للاستقلالية، وتحليل التباين (ANOVA).

النتائج: تظهر نتائج الدراسة، أن هناك علاقة ذات دلالة احصائية بين شدة متلازمة تململ الساقين والجنس (0.033 = P-value) بينما لم يتم العثور على علاقة ذات دلالة احصائية مع عمر المرضى، الحالة الزواجية، المهنة، الدخل الشهري، اومستوى تعليمهم مع شدة متلازمة تململ الساقين (P-value> 0.05).

الاستنتاجات: استنتجت الدراسة الى وجود علاقة ذات دلالة احصائية بين الجنس وشدة متلازمة تململ الساقين لمرضى الانفاذ الدموي، ولكن لم يتم العثور على علاقة ذات دلالة احصائية بين عمر المرضى، الحالة الزواجية، المهنة، الدخل الشهري، او مستوى تعليمهم مع شدة متلازمة تململ الساقين.

التوصيات: توصي الدراسة أن تركز البحوث المستقبلية على شدة متلازمة تململ الساقين لمرضى الانفاذ الدموي بحجم عينة أكبر وفي المزيد من مراكز الانفاذ الدموي في العراق.

الكلمات المفتاحية: متلازمة تململ الساقين، الخصائص الديموغرافية، مرضى الانفاذ الدموي

Introduction

Survival of many patients suffering from severe renal dysfunction requires hemodialysis until a kidney transplant is available for them [1]. Restless legs syndrome (RLS) is prevalent in patients receiving hemodialysis[2,3].

Restless legs syndrome patients constantly need movement of their extremities to relieve the distress sensation that is most often described as creeping, crawling, tingling, or painful [4,5].

Smoking, obesity, and sedentary lifestyles increase the risk of having RLS [6]. RLS impacts sleep quality and daily living activities and increases the risk of cardiovascular or cerebral diseases[7,8].

RLS negatively impacts patients' emotional and physical well-being and quality of life. It also leads to poor sleep quality, and daytime drowsiness, and increases the risk of using sedatives[9].

Unfortunately, many of Iraqi patients have bad attitudes toward healthy lifestyles and do fewer physical activities [10,11].

Although dopamine agonists have proved successful in treating RLS, their use puts patients at risk for augmentation [12].

There are numerous methods for relieving RLS symptoms, including walking, massaging, knee bending, and moving the legs [13].

As RLS affects patients on hemodialysis so frequently and negatively affects their standard of living, more emphasis should be paid to RLS treatment alternatives [14].

Older age was identified as a predictive contributor to RLS [15]. As elderly physical activities are less [16]. People become more sedentary as they age [17]. Physical inactivity and sedentary lifestyles increase the risk of RLS and falls among adults [18,19].

An Iraqi study in Babylon found that (25.80%) of hemodialysis patients suffer from restless legs syndrome [20].

The current study aims to determine if there is a significant relationship between the severity of restless legs syndrome and the sociodemographic characteristics of

hemodialysis patients in Wasit and Thi-Qar hemodialysis centers.

Methods

Study design and setting

A cross-sectional research design was used for the purpose of the study. The study was carried out at the Martyr Fairouz Hospital and Al-Zahra Teaching Hospital in the Wasit Directorate, and data were also gathered at the Al-Hussein Teaching Hospital, Al-Refaai General Hospital, and Al-Nasiriya General Hospital in the Thi-Qar Directorate.

Sample and Sampling

A purposive sampling method was used to select (90) hemodialysis patients who are diagnosed with restless legs syndrome, and (10) patients for the pilot study were eliminated from the main study sample.

Data collection and study instrument

A tool of three parts was used in the study: the first part was composed of the patients'' demographic characteristics (age, gender, marital situation, working status, monthly earrings, and academic level); The second part composed of four criteria to diagnose the restless legs syndrome; and the third part composed of a valid Arabic version of the International Restless Legs Syndrome Study Group (IRLSSG) that contains ten items in which (1-10) indicates mild severity, (11-20) indicates moderate severity, (21-30) indicates severe, while (31-40) indicates very severe restless legs syndrome. This scale is employed to assess the severity of restless legs syndrome.

Validity and Reliability of the study instrument

The content validity is assessed through a panel of (12) experts Nine of them are faculty members of the Adult Nursing Department, two of them are nephrology specialists, and one is a physical therapist.

The reliability was assessed using internal consistency type to determine whether the (IRLSSG) rating scale was reliable. and the Cronbach alpha result was (0.78), which is acceptable.

Data was gathered using face-to-face interviews utilizing the above-mentioned tools. A brief explanation was given to the participants that the researcher wanted to measure the severity of restless legs syndrome.

Ethical Consideration

A permission was obtained to conduct the study from the University of Baghdad's Nursing College Council after presenting the protocol of the study. Official approval was also obtained from the Institutional Review Board (IRB), represented by the Research Ethics Committee (REC) of the Nursing Faculty, University of Baghdad, and then formal approval was received from the Ministry of Planning to conduct the research. Of equal importance, approval was obtained from Wasit Health Directorate, Al-Zahra Teaching Hospital, Martyr Fairouz Hospital, Thi-Qar Health Directorate, Al-Nasiriya General Hospital, Al-Hussein Teaching Hospital, and Al-Refaai General Hospital to ensure their cooperation. After obtaining written consent from the patients, In-person interviews with patients on hemodialysis who had been identified as having restless legs syndrome were conducted to gather data.

Statistical analysis

The study used the SPSS (Statistical Package for Social Sciences) version (24) application of the statistical analysis system to enter and analyze the collected data. In this study, a confidence interval of (0.95) and a P-value of less than (0.05) is considered to be significant.

Data were analyzed using descriptive statistical data analysis such as frequency and

percentage, in addition to inferential statistical data statistics such as Pearson correlation, independent t-test, and analysis of variance (ANOVA) to measure the relationship between the severity of restless legs syndrome and the demographic characteristics of hemodialysis patients.

Results

Table 1. Assessment of Severity of Restless Legs Syndrome among Hemodialysis Patients

Severity of Restless Legs Syndrome	Frequency	Percentage
Mild (1-10)	12	13.33
Moderate (11-20)	37	41.11
Severe (21-40)	41	45.55

Table 1 shows that (13.33%) suffer from mild restless legs syndrome, more than one-third (41.11%) suffer from moderate restless legs syndrome, also more than one-third (45%) suffer from severe restless legs syndrome, which was the highest percentage.

Table 2. Distribution of Hemodialysis Patients with Restless Legs Syndrome according to their Demographic Characteristics.

Demographic Characteristics	Classifications	Restless Legs Syndrome Cases N= 30	
		F	%
Age in Years	33-38	3	3.33
	39-44	6	6.66
	45-50	9	10
	51-56	10	11.11
	57-62	30	33.33
	63-68	16	17.77
	69-74	16	17.77
	Total	90	100
Sex	Male	35	38.88
	Female	55	61.11
	Total	30	100
Marital Status	Single	9	10
	Married	57	63.33
	Divorced	3	3.33
	Widow	17	18.88
	Separated	4	4.44
	Total	90	100
Occupation	Employer	8	8.88
	Freelance	6	6.66

	Self-employed	24	26.66
	Housewife	43	47.88
	Retired	6	6.66
	Unemployed	3	3.33
	Total	90	100
Monthly Income in IQD	≤300.000	42	46.66
	301.000 - 600.000	28	31.11
	601.000-900.000	3	3.33
	901.000-1200.000	15	16.66
	1201.000-1500.000	1	1.11
	≥1501.000	1	1.11
	Total	90	100
Educational Level	Illiterate	15	16.66
	Read and write	11	12.22
	Elementary School	28	31.11
	Middle School	3	3.33
	High school	2	2.22
	Diploma	5	5.55
	Bachelor	17	18.88
	Master degree	4	4.44
	Doctorate	5	5.55
	Total	90	100

N=Number, **F**= Frequency, **%**= Percentage, ≥= Equal and More Than, ≤= Equal and Less Than, IQD= Iraqi Dinar.

Table (2) shows that in terms of age, one-third of restless legs syndrome patients (33.33%) were within the age range (57-62) years. The study found that more than half (61.11%) of the sample were females. In terms of marital status, more than half (63.33%) of the sample are married. In terms of occupation, more than one-third (47.88%) of the sample are housewives. In terms of monthly income, more than one-third of the sample (46.66%) have an income that is less than (300.000) IQD. In terms of educational level, more than one-quarter of the sample (31.11%) have completed an elementary degree.

Table 3. Relationship between the Severity of Restless Legs Syndrome and Hemodialysis Patients Age

Correlations			
		Age	The Severity of Restless Legs Syndrome
Age	Pearson Correlation	1	0.130
	Sig. (2-tailed)		0.220
	N	90	90

RLS Severity	Pearson Correlation	0.130	1
	Sig. (2-tailed)	0.220	
	N	90	90

Table (3) shows there is no significant relationship between the severity of restless legs syndrome for hemodialysis patients and their age (P-value=0.220).

Table 4. The Statistical Difference among Hemodialysis Patients' Socio-Demographic Groups in Response to the Severity of Restless Legs Syndrome

Demographic Characteristics	Groups	Mean	S.D.	Value	P- value
Gender	Male	19.86	6.912	T= 2.168	**0.033**
	Female	23	6.569		
Marital Status	Single	26.33	6.364	F= 2.004	0.101
	Married	20.56	6.756		
	Divorced	21.67	1.155		
	Widow	22.65	6.334		
	Separated	26	9.695		
Occupation	Employer	19.88	8.132	F= 0.958	0.448
	Freelance	22.67	6.218		
	Self-Employed	20.42	5.429		
	Housewife	22.47	7.285		
	Retired	25.67	7.062		
	Unemployed	18.33	8.021		
Monthly Income	≤300.000	21.81	7.181	F= 1.212	0.311
	301.000 - 600.000	20.57	5.500		
	601.000-900.000	21.67	2.887		
	901.000-1200.000	23.93	8.819		
	1201.000-1500.000	25	0		
	≥1501.000	19	0		
Level of Education	Illiterate	22.67	5.066	F= 0.617	0.761
	Read and write	21.64	6.038		
	Elementary School Graduate	21.36	6.606		
	Middle School	28.33	10.408		
	High School	19.50	0.707		
	Diploma Graduate	22.20	9.203		
	Bachelor Graduate	22.12	8.154		
	Master degree	17.50	8.660		
	Doctorate	20.60	6.693		

F=Frequency, **L**= Levene Test, **SD**= Standard Deviation, ≥= Equal and More Than, ≤= Equal and Less Than, **T**= Independent T-Test, **F**= One-Way ANOVA.

Table (4) shows there is a significant sex difference in response to the severity of restless legs syndrome (P-value = 0.033). Restless legs syndrome was more severe among female patients (Mean=23) than male patients (Mean=19.86). Table (4) displays there is no significant difference among the groups of socio-demographic characteristics in response to the severity of restless legs

syndrome [marital status (P-value =0.101), occupation (P-value =0.582), monthly income (P-value =0.311), and level of education (P-value = 0.729)].

Discussion

The study shows more than one-third of hemodialysis patients have severe restless legs syndrome, which was the highest percentage.

An Indian study found that more than half of hemodialysis patients (66.27%) have severe restless legs syndrome, which was the highest percentage, which supports the current study findings [21].

An Iranian study supports the current study results as they found that more than half (63%) of hemodialysis patients have severe restless legs syndrome, which was the highest percentage [22].

The study shows more than one-third of restless legs syndrome patients were within the age range of (57-62) years.

The current study findings are supported by a study done in Iran in which the mean age and the standard deviation of the massage group (57.5 ± 14.6) suggested that most of the group ages were between (43-72) years, while the mean age and the standard deviation (56.10 ± 13.56) of the control group suggested that most of the group ages were between (43-70) years [23].

The study shows that half of restless legs syndrome patients are females.

A study conducted in Indonesia lends confirmation to the current findings, as the study found that more than half of the stretching exercises and control groups (57.9% and 52.6%) respectively are females[24].

The study revealed that more than half of the sample are married. The current findings are supported by a study done in Iraq that found that more than fifty percent of hemodialysis patients in both the study and the control groups (63.3% and 66.7%) are married [25].

The study shows that regarding occupational status, more than one-third of the sample are housewives. A study in Iraq found that (72.5% and 44.4%) of the study and the control groups of hemodialysis patients respectively are jobless [26]. The

current study findings are supported by a study done in Iran that found that more than one-third of the study groups (43.3%) are housewives[27].

The study shows that more than one-third of the sample have insufficient income. An Iraqi study has found that more than half of hemodialysis patients don't have enough income [28].

The current study findings are supported by a study done in India that found that more than half of the stretching exercises and the control groups (53.4% and 60.4%) respectively have low monthly income (<10,000) Rupees [21].

The study shows that more than one-quarter of the sample have completed elementary degrees, while one-third of the leg massage group are bachelor graduates. The current study findings are supported by a study done in Iran that found that more than one-third (47.15%) of the total sample are primary school graduates [29].

The study shows that there is no significant relationship between age and the severity of restless legs syndrome (P-value= 0.220). A study conducted in Egypt observed a lack of association between age and the intensity of restless legs syndrome in the control group (P-value=0.218) and the stretching exercises group (P-value = 0.370) supports the outcomes of the present study[30].

The study shows there is a significant gender difference in response to the severity of restless legs syndrome (P-value =0.033). A study conducted in Iran also discovered a statistically significant correlation between gender and the severity of restless legs syndrome (P-value = 0.04) [31].

The study shows there is no significant difference between marital status, occupation, and educational status in response to the severity of restless legs syndrome (P-value=0.775, P-value=0.654, P-value=0.116) respectively. A study conducted in India also revealed there was no association between marriage status, profession, educational level, and the severity

of restless legs syndrome (P-value=0.3, P-value=0.6, P-value=0.05) respectively [21].

The study shows there is no significant monthly income difference in response to the severity of restless legs syndrome (P-value=0.311). The results of a study conducted in Turkey also found no correlation between monthly income and the severity of restless legs syndrome (P-value = 0.169) [32].

Conclusion

According to the study's findings, there was a significant difference among sex groups regarding the severity of restless legs syndrome with females suffering a more severe syndrome than males.

Recommendations

The study recommends that future studies focus on the severity of restless legs syndrome with a larger sample size and in more hemodialysis centers in Iraq. The study also recommends that patients with restless legs syndrome especially females should engage in educational and interventional programs that address the syndrome to alleviate the syndrome severity.

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