

Original Article

RESTLESS LEGS SYNDROME: DIFFERENCE IN QUALITY OF LIFE PARAMETERS BETWEEN HEMODIALYSIS PATIENTS WITH AND WITHOUT RESTLESS LEGS SYNDROME

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ABSTRACT

Background: The majority of abnormal motions that happen during sleep often involve the movement of legs, the most prevalent of which is Restless Legs Syndrome (hereinafter referred to as “RLS”), also known as “Willis Ekbom Disease”. Hemodialysis therapy causes a variety of side effects in individuals with chronic renal disease, notably Restless Legs Syndrome, which can be quite distressing for this patient population. This study seeks to ascertain the incidence of restless legs syndrome amongst people with chronic renal disease receiving hemodialysis in Lahore health facilities.

Material and methods: A non-probability convenience sample of 70 patients with chronic kidney disease receiving hemodialysis was taken in an observational (cross-sectional) research at the Shaikh Zayed National Institute of Kidney Diseases and the Jinnah Hospital in Lahore. Using the widely accepted IRLSSG diagnostic criteria, restless legs syndrome was identified in respondents who answered yes to all questionnaire items. The WHOQOL BREF (World Health Organization QoL Brief Version) assessment was used to examine one's quality of life.

Results: Participants' mean ages ranged from 54.97±9.54 years. 46 (65.7%) of the 70 participants were men, and 24 (34.3%) were women. RLS was observed to be more common in men (62.2%) than that in women (37.8%). Restless legs syndrome was found to be hurting the quality of life in hemodialysis patients, especially in physical and psychological domains.

Conclusion: The quality of life of hemodialysis patients is negatively affected by RLS, with considerable influence on their psychological and physical well-being. As a consequence, medical practitioners ought to do everything possible to recognize and treat RLS symptoms in this demographic at risk.

Key Words: Restless legs syndrome, hemodialysis, quality of life

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INTRODUCTION

Different types of bodily movements may affect a person. The preponderance of these sorts of movements usually concerns the legs as you sleep and the most frequent of them is restless legs syndrome¹, often referred to as the “Willis Ekbom Disease”. It is a chronic sensorimotor neurological condition² that is characterized by “an unusual sensation of numbness, puffiness, stiffness, discomfort, burning, irritation and pain, in the legs,

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accompanied by a desire to move the involved lower extremity".³ Symptoms generally appear at times of rest and wither away once you move. Hemodialysis therapy can cause several problems in individuals with chronic kidney disease, including RLS⁴, which can be very distressing for this patient population. Iron deficiency brought on by frequent blood loss during dialysis is most likely to be the cause.⁵ A decline in the brain's iron levels causes disruptions of dopaminergic pathways, which leads to sensorimotor symptoms.⁶

Research on restless legs syndrome in hemodialysis patients showed that this condition is more widespread in such patients compared to the regular populace, with an incidence range of 8% to 52% and a mean frequency of 30%.⁷ Restless legs syndrome was identified as being linked with a poorer quality of life and a higher rate of dialysis discontinuations because patients with RLS encounter more fatigue and sleep disturbance than patients without RLS.⁸ Quality of life is a dynamic construct that is affected by one's surroundings, physical, sociocultural, and subjective values.⁹ Furthermore, because of alterations in nocturnal hemodynamics and variations in the structure and function of the left ventricle, restless legs syndrome can also have a detrimental impact on one's cardiovascular health.⁸

To enable both patients and medical professionals to comprehend the importance of this syndrome, and to profit from its care and therapy, it is fundamental to have reliable statistics about the incidence of RLS, as well as, the correlation between RLS symptoms, quality of life and preservation. Within and between hemodialysis patients.

This research intends to investigate the incidence of restless legs syndrome across chronic kidney disease patients who received hemodialysis in Lahore health facilities and to contrast quality of life measures between diagnosed and undiagnosed patients.

MATERIAL AND METHODS

Cross-sectional research on a population of 70 patients with chronic kidney disease taking hemodialysis was carried out at the Shaikh Zayed National Institute of Kidney Diseases and The Jinnah Hospital in Lahore over 8 months. The participants were chosen by non-probability convenience sampling. This research included male and female subjects over 40 with chronic kidney disease undergoing hemodialysis. This research excluded participants with rheumatologic diseases, chronic neurological ailments, and chronically painful symptoms including neuropathy.²

The equation $N = [(-Z_{\alpha/2})^2 \times P(1-P)] / d^2$ was employed to assess the sample group based on the results of prior research.¹⁰ By using widely accepted IRLSSG diagnostic criteria, restless legs syndrome was considered to be present in participants who answered 'Yes' to all four questions. Whereas, the WHOQOL BREF instrument, developed by the World Health Organization, was implemented to assess the quality of life.

For said quality of life profile, the WHOQOL-BREF was adopted. The questionnaire comprises 26 items, subdivided into four aspects. Each domain represents how an individual feels about their quality of life. The scale for domain scores is positive (i.e. higher scores denote higher quality of life). The mean score of the elements in each domain was used to determine the domain score.

Using the IRLSSG's internationally accepted diagnostic criteria, individuals who answered "yes" to all four queries, were deemed to have restless legs syndrome.²

Restless legs syndrome was identified using internationally recognized criteria. Participants responding to all four questions were diagnosed as having Restless legs syndrome.

An impulse to do movements of legs with an unpleasant and uncomfortable sensation. Symptoms begin or worsen when the patient is

at rest or in a state of inactivity such as sitting or lying down.

Complete or partial relief of symptoms by movement.

Worsening of symptoms in the night or evening time than during the day.

IBM SPSS Statistics 20 was employed to evaluate the data. The mean, standard deviation, range, and histogram were utilized to show the quantitative variables. Categorical factors were analyzed using cross-tabulation, frequency, percentages (%), bar charts, and pie charts. To determine the quality of life in both groups—those with and without diagnoses—an independent sample t-test was applied.

Whereas, to conduct the research, approval from the institutional ethical committee was obtained.

RESULTS:

In the present study, 70 hemodialysis patients were questioned to complete the WHO quality of life questionnaire and the diagnostic criteria for restless legs syndrome. The individuals' average age was 54.97 ± 9.54 years. 46 (65.7%) of the 70 individuals were men and 24 (34.3%) were women. Restless legs syndrome was found in 52.86% of the cases.

Out of 70 hemodialysis patients 37(52.86%) had restless legs syndrome.

Men had a greater prevalence of RLS (62.2% than women (37.8%). (**Table 1**)

Table-1: Frequency distribution of hemodialysis patients with and without restless legs syndrome in terms of gender

Restless legs syndrome		Frequency	Percentage
Diagnosed	Male	23	62.2%
	Female	14	37.8%
Not diagnosed	Male	23	69.7%
	Female	10	30.3%
Total		Count	46
			24

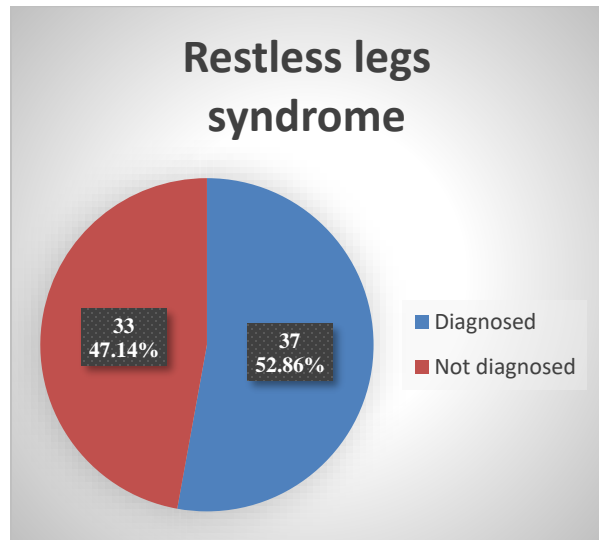


Figure-1: Prevalence of restless legs syndrome

The mean duration of hemodialysis in 70 patients was 57.73 months, out of 70 patients, 42 (74.29%) had hypertension and 41 (58.6%) had diabetes. Utilizing an independent samples t-test, it was discovered that individuals with and without restless legs syndrome had varying physical and psychological health, with non-diagnosed patients having a higher mean score. The environmental and social life domains did not differ between the two groups ($P > 0.05$). As a result, a significant difference between patients with and without restless legs syndrome was discovered in the quality of life indicators (physical, psychological) (**Table 2**), with the impact on patients undergoing hemodialysis being more detrimental.

Table-2: A Comparison of quality of life in diagnosed and non-diagnosed groups.

	Restless legs syndrome	N	Mean	Std. Deviation	p-value
Physical health	Diagnosed	37	18.46	6.92	0.008
	Not diagnosed	33	22.88	6.60	
Psychological	Diagnosed	37	19.51	5.82	0.024
	Not diagnosed	33	22.58	5.16	
Social relationships	Diagnosed	37	10.78	2.45	0.712
	Not diagnosed	33	11.00	2.42	
Environment	Diagnosed	37	28.89	6.19	0.104
	Not diagnosed	33	31.24	5.68	

DISCUSSION

One of the most debilitating issues that hemodialysis individuals encounter is restless legssyndrome. It is more prominent in hemodialysis patients than in the regular populace.² According to the RLS criteria used in this research, 52.9% of individuals (n=70) had restless legs syndrome.

According to cross-sectional research in 2018, hemodialysis patients had an RLS prevalence of 19%.² A Prevalence of 10.3% was observed by Ramachandran et al. in 2018.¹¹ Turk's investigation revealed the prevalence of restless legs syndrome of 16.8%.¹² Whereas, a 2017 meta-analysis reported that 34% of patients had restless legs syndrome.¹³

The prevalence of restless legs syndrome (52.68%) was determined to be nearer to the prevalence of previous studies (mean 30%, range 8%-52%).⁷ Diverse demographics, races, diagnostic criteria for restless legs syndrome, variations in dialysis procedures, and research methods might each have an impact on the variance in the frequency of RLS amongst patients with end-stage kidney disease.

Among 70 participants, 24 (34.3%) were women and 46 (65.7%) were men. Males (62.2%) were reported to have restless legs syndrome more frequently than females (37.8%). Whilst Chavoshi et al. claimed that the incidence was higher in the female population.⁷ Gender and restless legs syndrome were not strongly associated ($P>0.05$). The variation in

the male-to-female ratio between participants throughout sampling could be the cause of the discrepancy in gender incidence.

According to the WHO Quality of Life (WHO QOL) questionnaire, patients with and without restless legs syndrome diverged in all four areas related to the quality of life (physical, psychological, social, and environmental), with non-diagnosed individuals receiving higher mean scores. As a direct consequence, patients on hemodialysis have a poorer quality of life due to restless legs syndrome, with considerable negative effects on their physical ($P<0.05$) and psychological ($P<0.05$) wellness. Restless legs syndrome negatively influences hemodialysis patients' physical health, according to Kutlu et al.² Whereas, Tuncel D et al. observed that instead of physical factors, the minimum level of quality of life reported by those with RLS is induced by mental health and sleep-related factors.¹⁴

Such differences in results could represent the reflection of the quality of life assessment taking into account a variety of factors. Thus, individuals who adopt or receive considerable social and family support would be able to deal with their disease more speedily with less influence on their quality of life.

Thus, medical professionals should use their medical knowledge to create assorted medication and exercise therapeutic strategies to improve overall symptoms and in turn, the quality of life for such patients. They should

perhaps take every measure to diagnose and treat restless legs syndrome symptoms in this at-risk population.

CONCLUSION

Restless legs syndrome is a prevalent condition among chronic kidney disease patients undergoing hemodialysis treatment. The quality of life is strongly influenced by restless legs syndrome, both physically and psychologically in these patients and so they need special attention so that their quality of life can be improved.

AUTHOR'S CONTRIBUTION

MP: Main author, Data analysis and discussion writing

EH: Research Supervisor and Data analysis

MNJ: Article writing

SS: Data collection and manuscript writing

SA: Data collection and manuscript writing

REFERENCES

1. Hein M, Lanquart JP, Hubain P, Loas G. Risk of resistant hypertension associated with restless legs syndrome and periodic limb movements during sleep: a study on 673 treated hypertensive individuals. *Sleep Med.* 2019 Nov 1;63:46-56. <https://doi.org/10.1016/j.sleep.2019.05.013>
2. Kutlu R, Selcuk NY, Sayin S, Kal O. Restless legs syndrome and quality of life in chronic hemodialysis patients. *Niger J Clin Pract.* 2018;21(5):573-7. DOI: 10.4103/njcp.njcp_84_17.
3. Tsai LH, See LC, Chien CC, Chen CM, Chang SH. Risk factors for restless legs syndrome in hemodialysis patients in Taiwan: A case-control study. *Medicine.* 2019 Dec;98(51) doi: 10.1097/MD.00000000000018450.
4. Ajorpaz NM, Rahemi Z, Aghajani M, Hashemi SH. Effects of glycerin oil and lavender oil massages on hemodialysis patients' restless legs syndrome. *J Bodyw Mov Ther.* 2020 Jan 1;24(1):88-92. <https://doi.org/10.1016/j.jbmt.2019.06.012>.
5. Allen RP, Picchiatti DL, Garcia-Borreguero

- D, Ondo WG, Walters AS, Winkelman JW, Zucconi M, Ferri R, Trenkwalder C, Lee HB, International Restless Legs Syndrome Study Group. Restless legs syndrome/Willis-Ekbom disease diagnostic criteria: updated International Restless Legs Syndrome Study Group (IRLSSG) consensus criteria-history, rationale, description, and significance. *Sleep med.* 2014 Aug 1;15(8):860-73. <https://doi.org/10.1016/j.sleep.2014.03.025>
6. Rizzo G, Li X, Galantucci S, Filippi M, Cho YW. Brain imaging and networks in restless legs syndrome. *Sleep med.* 2017 Mar 1;31:39-48. <https://doi.org/10.1016/j.sleep.2016.07.018>.
7. Chavoshi F, Einollahi B, Haghighi KS, Saraei M, Izadianmehr N. Prevalence and sleep related disorders of restless leg syndrome in hemodialysis patients. *Nephro-Urol Mon.* 2015 Mar;7(2). doi: 10.5812/numonthly.24611.
8. Novak M, Winkelman JW, Unruh M. Restless Legs Syndrome in Patients With Chronic Kidney Disease. In *Semin Nephrol* 2015 Jul 1 (Vol. 35, No. 4, pp. 347-358). Elsevier.. <https://doi.org/10.1016/j.semnephrol.2015.06.006>
9. Hemati Z, Alidosti M, Reisi M. The relation between the quality of life and restless legs syndrome in patient sunder going hemodialysis is dialysis centers in chahar mahal and bakhtiari, 2011..
10. Micozkadioglu H, Ozdemir FN, Kut A, Sezer S, Saatci U, Haberal M. Gabapentin versus levodopa for the treatment of restless legs syndrome in hemodialysis patients: an open-label study. *Ren Fail.* 2004 Jan 1;26(4):393-7. <https://doi.org/10.1081/JDI-120039823>
11. Ramachandran P, Devaraj U, Sebastian S, Krishnaswamy UM, D'Souza GA. Restless legs syndrome in patients with chronic renal failure on hemodialysis: Does peripheral iron status matter?. *Ann Mov Disord.* 2018 Jan 1;1(1):39.
12. Turk AC, Ozkurt S, Turgal E, Sahin F. The association between the prevalence of restless leg syndrome, fatigue, and sleep quality in patients undergoing hemodialysis. *Saudi Med J.* 2018 Aug;39(8):792. doi: 10.15537/smj.2018.8.22398.

13. Gheshlagh RG, Farajzadeh M, Zarei M, Baghi V, Dalvand S, Sayehmiri K. The prevalence of restless legs syndrome in patients undergoing hemodialysis: a systematic review and meta-analysis study. *Basic Clin Neurosci.* 2017 Mar;8(2):105.
doi: 10.18869/nirp.bcn.8.2.105.
14. Tuncel D, Orhan FÖ, Sayarlioglu H, Isık IO, Utku U, Dinc A. Restless legs syndrome in hemodialysis patients: association with depression and quality of life. *Sleep Breath.* 2011 Sep;15:311-5.
<https://doi.org/10.1007/s11325-010-0382-z>