Original Article

Frequency and severity of restless leg syndrome in Healthcare Professionals

Kinza Batool,[1] Laaraib Bint Nusair,[2] Zikra Azhar, [3] Ayesha Aurangzeb Abbasi, [4] Muqadas Saeed, [5] Sundus Jabeen, [6] Anum Rehman, [7] Saman Shaukat [8]

Abstract

Objective: To determine the frequency and severity of restless leg syndrome in healthcare professionals.
Study design: It was a Descriptive cross sectional study.
Place and duration of study: The study was conducted in hospitals and clinics of Rawalpindi and Islamabad from March 2022 to July 2023.
Material and Methods: This descriptive cross-sectional study was conducted among healthcare professionals, including physicians, nurses, dentists and physiotherapists of age 22- 91 years. After obtaining written consent, the participants were evaluated using the five-point diagnostic criteria of the International Restless Leg Syndrome Study Group to determine the frequency of RLS symptoms. Participants who were tested positive for RLS then completed the Restless Leg Syndrome Rating Scale to assess the severity of symptoms. The data was analyzed using SPSS version 21.0.
Results: The study included 375 healthcare professionals, with 61% being female and 39% male. According to analysis 19.2% of participants displayed symptoms of restless leg syndrome, out of these 5.3% experienced mild symptoms, moderate symptoms were recorded in 9.6% professionals and 4.3% reported severe symptoms. Most individuals with RLS had mild to moderate symptoms and a healthy BMI. Additionally, the study recorded higher prevalence of moderate symptoms of RLS in professional with more standing hours.
Conclusion: The frequency of Restless Legs Syndrome (RLS) among healthcare professionals was 19.2% and severity of symptoms was mild (5.3%), moderate (9.6%), and severe (4.3%).
Keywords: : International restless leg syndrome diagnostic criteria, Restless leg syndrome rating scale, Restless leg syndrome.

1. Introduction

Willis-Ekbom disease, commonly known as Restless Leg Syndrome (RLS), was first described by Sir Thomas Willis in 1685. In 1945, the Swedish neurologist Karl Ekbom further characterized and formally named the condition as “restless leg syndrome" (RLS). (1,2) Uncontrollable urges to stretch the lower extremities due to discomfort are hallmarks of this neurological condition. These sensations include leg cramps, pulling, crawling, tingling, itching, and other unpleasant symptoms. Similar feelings may occasionally also be felt in the arms. RLS symptoms commonly worsen at night and in the evening, disrupting sleep and having a negative effect on one's general well-being. (3) Women are twice as likely to have Restless Leg Syndrome compared to males. (4)

Among the general population, studies show that the incidence of Restless Leg Syndrome Ranges from 2.5 to 15%. (5) In Pakistan prevalence of RLS is 23.6%. (4) RLS prevalence was reported to be 2.1% in an ethnically comparable group in India. (6) RLS has repeatedly been linked to symptoms of despair and anxiety. Although there is conflicting information regarding particular illness correlations, people with RLS generally have worse health than those without condition. The increase in Restless Leg Syndrome symptoms at night causes sleep disturbances which may result in chronic sleep deprivation, fatigue during the

Foundation University, Islamabad,[1,2,3,4,5,6] Senior Lecturer, Foundation University Islamabad,[7] Lecturer, Foundation University, Islamabad. [8]
Correspondence: Kinza Batool , Foundation University, Islamabad **Email:** kinzabatool797@icloud.com

day, and stress, all of which have a detrimental effect on daily life functioning, networking, family life, work, and other aspects of life. [8] Both the incidence and frequency of restless leg syndrome gets higher as individual gets older. Individuals with a familial type of Restless Leg Syndrome typically present at a younger age (before age 45), and the disease progresses slowly over time. [9]

Restless leg syndrome has two different types, i.e., primary and secondary restless leg syndrome. The first type can run in family history, occurring at early age and progresses slowly but its cause is not known yet. [10] Second type of Restless Leg Syndrome is brought on by a medical problem or medicines. This type of RLS can occur at any age and will go away if the underlying issue is addressed. Kidney illness, peripheral neuropathy, pregnancy, and Parkinson's disease are several medical factors that might cause secondary RLS. Secondary RLS can also be caused by drugs such as antidepressants, antihistamines, and anti-psychotics. [11]

While RLS is a widespread illness that affects the majority of the general population, it may be more prevalent in particular professions, including healthcare workers, due to their nature of work.

Healthcare professionals are often required to work long and irregular hours, which can interfere with their sleep and lead to a higher risk of developing RLS. Furthermore, the physical demands of their jobs, such as extended periods of standing and walking, may make their RLS symptoms worse, resulting in restless nights, exhaustion, and a general decline in job satisfaction. The study by Ameri M et al. found 72% of RLS in nurses. [12] Similarly, many studies were also conducted on patients and in other professionals, there is scarce of information available on healthcare professionals regarding this condition. So, examining the prevalence and severity of RLS in healthcare professionals, this research aims to fill this gap.

2. Materials & Methods

After approval was granted by the Ethical Review Committee of Foundation University Islamabad (No.FF/FUMC/215-239 PHY/22), this descriptive cross sectional study was conducted from March 2022 to July 2023. Data was collected among health care professionals including physicians, dentists, physiotherapists and nurses from different hospitals and clinics in Rawalpindi and Islamabad after getting permission from the concerned authorities.

The sample size was calculated using RAOSOFT keeping a 5% margin of error and 50% response rate, which came out to be 375 participants enrolled in the study. The sample was raised using non-probability purposive sampling technique. Both males and females healthcare professionals were included in the study from age 22 to 91 years. Individuals with neurological conditions, painful arthritis, pregnancy, smokers, diabetes, hypertension, and a positive family history of restless legs syndrome were excluded from the study. The data were obtained with informed consent from the participants.

Data was kept confidential and was used for no purpose other than the study only. The data collection comprised of 3 structured questionnaires tailored to achieve the study objectives. The first part focused on gathering demographic information such as gender, age, profession, working schedule, The second part used five diagnostic points provided by smoking status, neurological condition etc.

The third part then included 10-item questionnaire for assessing the severity among the diagnosed participants using RLS Rating scale. Total score ranges from 0-40 . Score 0 indicates no symptoms, 1-10 (Mild), 11–20 (Moderate), 21–30 (Severe), 31–40 (Very severe). [13,14] SPSS version 21.0 was used to analyse data. Quantitative variables such as BMI, height and weight were reported in form of mean and standard deviation. While qualitative variables were reported in form of frequencies and percentage

3. Results

About three hundred seventy-five healthcare professionals participated in the study. Out of these participants 230 (61%) were females and 145 (39%) were males. Of these healthcare professionals, 143(38%) were physicians, 96 (26%)

were physiotherapists, 74 (20%) were dentists, and 62(16%) were nurses. these participants 230 (61%) were females and 145 (39%) were males. Of these healthcare professionals, 143 (38%) were physicians, 96 (26%) were physiotherapists, 74 (20%) were dentists, and 62(16%) were nurses.

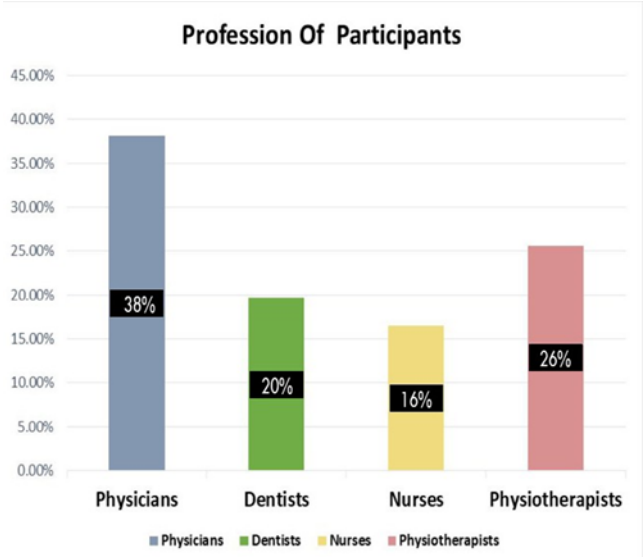

Figure 1: Profession of Participants

According to the findings,19.2% of the sample was reported with RLS positive results. Severity of symptoms recorded in these participants revealed 5.3% reporting minor symptoms (rated 1–10), 9.6% reported moderate symptoms (rated 11-20) and 4.3% reported severe symptoms (rated 21-30), The overall mean age was 31.4 years, the mean weight was 66.1 kg and the mean height was 167.5 cm.

Table 1 : Demographics of Participants

Variables	Mean Values	Standard Deviation
Age of participants (year)	31.4	10.8
Weight of participants (kg)	66.1	13.8
Height of participants (cm)	167.5	9.6
BMI of participants (kg/m^2)	23.5	5.6

14 nurses, 13 physical therapists, 16 dentists, and 29 physicians all had favorable results for restless leg syndrome (RLS). The majority of RLS-positive cases among physicians fell into the healthy and overweight groups. Among individuals with a healthy BMI, dentists had the fewest RLS-positive participants. Across all BMI categories, physical therapists and nurses displayed RLS positivity; among the positive cases, nurses had the largest percentage of obese people

.

Majority of the participants who were tested positive for RLS had healthy BMI but as mentioned below physicians, physical therapists and nurses with healthy BMI were majorly affected by moderate symptoms in contrast dentist with healthy BMI were affected by mild symptoms

Table-2: Restless Leg Syndrome Severity with BMI of Participants

Profession of Participant	Severity of Restless Leg Syndrome in Participants	BMI of Participants			
		Under weight (<18.5)	Healthy Weight (18.5-<25)	Over weight (25-<30)	Obese (>30)
Physician	None	27	47	29	11
	Mild(1-10)	0	4	4	1
	Moderate(11	2	7	2	1
	Severe(21-	2	2	3	1
	Total	31	60	38	14
Dentist	None	13	36	6	3
	Mild(1-10)	1	6	1	0
	Moderate(11	1	5	1	0
	Severe(21-	0	1	0	0
	Total	15	48	8	3
Physical therapist	None	23	42	9	9
	Mild(1-10)	0	0	1	0
	Moderate(11 -20)	1	3	3	1
	Severe(21-30)	1	2	0	1
	Total	25	47	13	11
Nursing	None	9	24	12	3
	Mild(1-10)	0	1	1	0
	Moderate(11	0	5	2	2
	Severe(21-	0	1	0	2
	Total	9	31	15	7

The majority of RLS-positive physicians, physical therapists, and nurses experienced moderate symptoms while sitting for 0-5 hours, unlike dentists who mainly reported mild symptoms. As shown in Table- 3; 24 physicians out of 29 positive cases reported 0-5 hours of sitting, 12 out of 16 dentists, 13 physiotherapists and 14 nurses diagnosed positive for RLS had 0-5 hours sitting time during their shift.

Table-3: Restless Leg Syndrome Frequency with Sitting Hour Cross tabulation

Restless leg syndrome with Sitting Hours Cross tabulation				
Profession of Participants	Restless Leg Syndrome in Participants in Participants	Sitting Hours		Total
		0-5 Hrs.	6-10 Hrs.	
Physician	Positive	24	5	29
	Negative	82	32	114
	Total	106	37	143
Dentist	Positive	12	4	16
	Negative	44	14	58
	Total	56	18	74
Physical therapist	Positive	13	0	13
	Negative	76	7	83
	Total	89	7	96
Nursing	Positive	14	0	14
	Negative	44	4	48
	Total	58	4	62

4. Discussion

This descriptive study was conducted among healthcare professionals to determine the frequency and severity of restless leg syndrome in them. This study included 375 participants from different hospitals and clinics in Rawalpindi and Islamabad.

In this study the healthcare professionals (physicians, nurses, dentist, and physiotherapist) were diagnosed using the international Restless leg syndrome study (IRLSSG) diagnostic criteria tool and for severity IRLS rating scale was used. The results showed that 19.2% of the participants were RLS positive and had severity ranging from mild (5.3%) to moderate (9.6%) to severe (4.3%).

Bukhari SZ.et al conducted a questionnaire study in 2019 on 172 nurses above age 20 years to assess the occurrence and severity of RLS among nurses

working in different setups in Lahore, Pakistan. According to their finding, the prevalence was 54.7% and its severity was mild (27.3%), moderate (14%) and severe (8.7%) in most RLS- affected nurses but the frequency of RLS in the current study was 19.2% and the severity was mild (5.3%), moderate (9.6%) and severe (4.3%). The contributing factor was because of the targeted population i.e. nurses only as the current study included all health care professionals (physicians, nurses, physical therapists and dentists). [15]

Qureshi et al. (2019) conducted a cross- sectional study at medical universities in Karachi, Pakistan involving 337 medical students aged 18-25 years, to determine the prevalence of Restless Leg Syndrome (RLS) using the IRLSSG diagnostic criteria. Their findings revealed a prevalence of 35.6%. In contrast, the present study observed an RLS prevalence of 19.2% among healthcare professionals aged 22-91 years. This disparity in prevalence rates may be attributed to several factors, including the demographic composition of the two study populations. The earlier study primarily involved female physiotherapists with a mean age of 21, while the current study encompassed a broader range of healthcare professionals, including physicians, dentists, physical therapists, and nurses, with a mean age of mean age of 31. [1]

Ameri M et al. conducted a cross sectional study in Shahroud Hospital Iran in 2021 to check the occurrence of Restless Legs Syndrome and its association with fatigue among 200 nurses working in critical care by using RLS questionnaire and the multidimensional fatigue inventory. The study concluded that the frequency of RLS was 72% and its severity was mild (28%), moderate (36.5%), severe (30%) and very severe (5.5%). In the current study the frequency of RLS among healthcare professionals was 19.2% and its severity was mild (5.3%), moderate (9.6%) and severe (4.3%). This difference in frequency of RLS could be because this study included critical care nurses only but the current study was on all health care professionals. The critical care nurses have more stress and fatigue due to more work pressure, extending periods of standing, high muscular usage and faulty posture as compared to other health care professionals. [12]

In 2021, Anujin Davaadorj et al. conducted a cross sectional study to assess the prevalence of restless leg syndrome (RLS) among adults of age 18-80 years (n=1846) in general population of Mongolia. The results revealed that approximately 6.6% of the participants tested positive for RLS. These findings favours with the outcomes of the current study. Both studies indicated a predominance of mild to moderate cases of RLS, and the current study similarly demonstrated a comparable level of severity. Furthermore, the frequency of RLS symptoms in the previous study was lower than that observed in the current study. [16]

In 2013, Siraj Omar Wali and Bahaa Abaal Khail conducted a cross-sectional study in Jeddah, Saudi Arabia, aimed at determining the prevalence of Restless Legs Syndrome (RLS) and its associated risk factors among 2,682 middle-aged Saudi school employees through individual interviews. The study found an RLS prevalence of 8.4%. In contrast, the current study, which focused on healthcare professionals, reported a higher prevalence of 19.2%. This discrepancy in prevalence rates may be attributed to the different demographic characteristics of the study populations. The previous study primarily involved middle-aged individuals, while the current study specifically targeted healthcare professionals, who may have work-related stressors that could influence the occurrence of RLS. [17]

A cross-sectional study conducted by M. Ishaq et al. in 2020 on medical students of Karachi reported that nearly 8% of the participants had RLS with mild (3% males and 6% females) to moderate (4% males and 8% females) severity. Whereas, the RLS frequency among healthcare professionals was 19.2% and severity was mild (5.3%), moderate (9.6%) and severe (4.3%). The difference in frequency could be because the current study was conducted on healthcare professionals and this study was on medical students, so the RLS frequency of current study is higher due to long shifts, emergencies, and the working environment of healthcare professionals. [18]

Conclusion:

The frequency of Restless Legs Syndrome (RLS) among healthcare professionals was 19.2% and severity of symptoms was mild (5.3%), moderate (9.6%), and severe (4.3%).

Disclosure /Conflict of interest:

Authors declare no conflict of interest.

References:

1. Qureshi MF ASDFDARAAAIAZAIASAPR RLS among HS of KarachiSDisorders 2020;2020:1 5. Prevalence Rate of Restless Leg Syndrome among Healthcare Students of Karachi. Liaquat National Journal of Primary Care. 2020;
2. Allen RP, Picchietti D, Hening WA, Trenkwalder C, Walters AS, Montplaisi J, et al. Restless legs syndrome: Diagnostic criteria, special considerations, and epidemiology. A report from the restless legs syndrome diagnosis and epidemiology workshop at the National Institutes of Health. Sleep Med. 2003;4(2):101–19.
3. Waage S, Pallesen S, Moen BE, Bjorvatn B. Restless legs syndrome/Willis-Ekbom disease is prevalent in working nurses, but seems not to be associated with shift work schedules. Front Neurol. 2018 Jan 29;9(JAN).
4. Mahmood K, Farhan R, Surani A, Surani AA, Surani S. Restless Legs Syndrome among Pakistani Population: A Cross-Sectional Study. Int Sch Res Notices. 2015 Jan 27;2015:1–5.
5. Kutner NG, Zhang R, Huang Y, Bliwise DL. Racial di-erences in restless legs symptoms and serum ferritin in an incident dialysis patient cohort Nephrology-Original Paper International Urology and Nephrology. 2012.
6. Rangarajan S, Rangarajan S, D'Souza GA. Restless legs syndrome in an Indian urban population. Sleep Med. 2007 Dec;9(1):88– 93.
7. Ohayon MM, O'Hara R, Vitiello M V. Epidemiology of restless legs syndrome: A synthesis of the literature. Vol. 16, Sleep Medicine Reviews. 2012. p. 283–95.
8. Bogan RK. Neuropsychiatric Disease and Treatment Effects of restless legs syndrome (RLS) on sleep. 2022
9. Gupta R, Dhyani M, Kendzerska T, Pandi- Perumal SR, Bahammam AS, Srivanitchapoom P, et al. Restless legs syndrome and pregnancy: Prevalence, possible pathophysiological mechanisms and treatment. Vol. 133, Acta Neurologica Scandinavica. Blackwell Publishing Ltd; 2016. p. 320–9.
10. Xiong L, Montplaisir J, Desautels A, Barhdadi A, Turecki G, Levchenko A, et al. Family study of restless legs syndrome in Quebec, Canada: Clinical characterization of 671 familial cases. Arch Neurol. 2010 May;67(5):617–22.
11. Oka Y, Ioue Y. [Secondary restless legs] Author Information
12. Ameri M, Mirhosseini S, Basirinezhad MH, Ebrahimi H. Prevalence of restless legs syndrome and its relationship with fatigue in critical care nurses. Indian Journal of Critical Care Medicine. 2021 Nov 1;25(11):1275–9.
13. Allen RP, Picchietti DL, Garcia-Borreguero D, Ondo WG, Walters AS, Winkelman JW, et al. 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;15(8):860–73.
14. Abetz L, Arbuckle R, Allen RP, Garcia- Borreguero D, Hening W, Walters AS, et al. The reliability, validity and responsiveness of the International Restless Legs Syndrome Study Group rating scale and subscales in a clinical-trial setting. Sleep Med. 2006 Jun;7(4):340–9.
15. Zunisha Bukhari S, Asim Arif M, asad Ullah Arsalan syed, komal khan A. Restless Leg Syndrome: A Cross Sectional Study on Nurses.
16. Davaadorj A, Byambajav P, Munkhsukh MU, Och M, Zorigt S, Boldbaatar D, et al. Prevalence of restless leg syndrome in Mongolian adults: Mon-TimeLine study. Vol. 20, Journal of Integrative Neuroscience. IMR Press Limited; 2021. p. 405–9.

17. Wali SO, Abaalkhail B. Prevalence of restless legs syndrome and associated risk factors among middle-aged Saudi population. Ann Thorac Med. 2015 Jul 1;10(3):193–8.

18. Ishaq M, Riaz S, Iqbal N, Siddiqui S, Moin A, Sajjad S, et al. Prevalence of restless legs syndrome among medical students of Karachi: an experience from a developing country. Sleep Disorders. 2020;2020. Coombes BK, Bisset L, Vicenzino B. Management of lateral elbow tendinopathy: One size does not fit all. J Orthop Sports Phys Ther. 2015;45(11):938-949.