

Effect of Restless leg syndrome on the sleep quality of medical students of university in rural Sindh

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Abstract

Background: Restless legs syndrome (RLS) is a neurological condition characterized by unpleasant sensations, cramps, and a gnawing feeling, typically occurring during periods of rest or sleep. Despite established diagnostic criteria by the International RLS Study Group (IRLSSG), RLS remains underdiagnosed, although its symptoms are manageable and preventable.

Materials and Methods: The study targeted medical students at Bhitai Dental & Medical College, Mirpurkhas. A sample of 200 students was selected, excluding those with trauma, infection, or recent viral infections. Data collection involved administering IRLSSG standard questionnaires after obtaining ethical review board approval and informed consent from participants. Statistical analysis was conducted using SPSS-25, with percentage, mean, standard deviation, and chi-square tests to assess RLS severity and scores.

Results: Of the 200 participants, 119 were male and 81 females, with an average age of 1.26 years (SD=.544). Sleep problems were more prevalent in males, with 21.0% having moderate and 12.6% having severe RLS symptoms. Among females, 27.0% had moderate, 21.5% had mild, and 15.0% had severe RLS symptoms, while 24.5% showed no symptoms. The statistical analysis revealed a non-significant value ($p=.296$).

Conclusion: The study concluded that RLS is more common among male students than females, with symptoms ranging from mild to moderate severity.

Keywords: RLS, IRLSSG, WED, sleep quality

Introduction

Restless leg syndrome (RLS) is a debilitating chronic illness. It is distinguished by a gnawing sensation in the limbs and an impulse to move the legs even while at rest or inactive. This impulse is frequently accompanied by unpleasant sensations such as tingling creeping,

sprinkling, or burning. The International Restless Leg Syndrome Study Group (IRLSSG) has produced clinical diagnostic criteria for RLS to better detect and diagnose this disorder. The four important criteria for a valid diagnosis are an urge to move legs accompanied by an unpleasant sensation, beginning during periods of rest and inactivity, worsening in the evening or at night, and being either partially or completely eased by movements. (1)

The most noticeable aspect of the disease is that lying down and attempting to rest triggers these symptoms. The majority of RLS sufferers have difficulties falling or staying asleep. If left untreated, the condition causes tiredness and fatigue during the day. Many persons with restlessness in legs indicate that sleep loss that has an important effect on their careers, personal relationships, and everyday activities. They frequently have difficulty concentrating, have poor memory, or fail to complete

everyday duties. It may additionally make traveling difficult and lead to grief. (2)

A set of criteria for a more consistent diagnosis of this sensorimotor condition, which frequently causes severe sleep problems, was devised and published by the recently

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established International RLS Study Group (IRLSSG) fifty years later research has shown that, although it is prevalent and manageable, which still under diagnosed since the IRLSSG criteria were published. The modified and reworded diagnostic criteria had better represent the working interpretation of the criteria as utilized by clinical specialists in the area, while also incorporating new scientific understanding concerning RLS. (3)

A high prevalence of RLS even in the subclinical and general population and its close relationship with sleep, few epidemiological studies on the prevalence and correlates of RLS in a large sample of a general population have performed, and none conducted in Korea.(4)

Patients with restless legs syndrome (RLS/WED) may experience restlessness as a precursor to other sleep problems, such as insomnia. For the first twenty years, restless leg syndrome was referred to as peripheral nerve discomfort, but it has since been determined it has a genesis in the central nervous system. RLS patients also have difficulty in functioning during inactive circumstances, particularly in physically constrictive ones, and at night, when symptoms are usually at their worst. These problems may make it worse for RLS sufferers to pursue their careers and engage in social and leisure activities. (5)

The objective of this study was to assess the prevalence and severity of Restless Legs Syndrome (RLS) among medical students, and to analyze its impact on sleep quality, with a focus on gender differences in symptom manifestation and severity

Methods:

This observational cross-sectional study was conducted at a medical university in rural Sindh. All medical students were considered as the population of the study. Convenient specific young adults selected a sample of 200 students. Both male and female were included in the study. Besides that, students with a history of trauma and infection had exaggerated routines and recent viral infections also having pain with cramps in calf muscles that increased during inactivity and rest at night, students who provided informed consent for participation. Most of the condition excluded from this study such as; kidney disease, depression, cardiovascular problem and anemia, thyroid problem, and unknown comorbidities. The questionnaires were administered to the students, with the permission of the ethical review committee of Bhitai dental & medical College Mirpurkhas before administration of the questionnaire to the student's informed consent-form taken. Data was confidential and used only for research purpose. The identification codes which only known to the research team. The Data collection procedures were applied standard questionnaire used International Restless Legs Syndrome Study Group (IRLSSG). Questionnaire divided into 10 statements with 5 options; none, mild, moderate, severe, very severe. Study duration was 6 months after approval of the

study. The data were analyzed by SPSS-25. Percentage, mean, standard deviation, and chi-square were applied to measure the severity and overall score of RLS sleepiness.

Result

200 medical students 119 were male and 81 females. participants had demographic data mean of age 1.26, (SD=.544). 57.5% male, 42.5% female in the age group of 18–28. After the applying diagnostic criteria 119 male students having sleep disturbance due to RLS. The mean score of RLS sleep disturbance was found 1.530 (SD=1.35), and tiredness and sleepiness 1.40 (SD=1.21). Table no:1. Sleep problem were found in male had moderate 25 (21.0%) and severe in 15 (12.6%) students, in very severe of RLS symptoms were less in count 13 (10.9%) while mild in 21 (17.6%) none 45 (37.8%) which was no occurrence affected by sleep due to RLS symptoms. In addition, in female participants had mild 27 (33.3%) and moderate in 17 (21.0%) included severe 11 (13.6%) sleep disturbance found. However, there was no significant difference between ($p=.024$). RLS symptoms cause excessive fatigue or sleepiness throughout the day. The results shows the how the differ symptoms in both sex, which include male had 28 (23.5%), mild 26 (21.8%), and symptoms of RLS of severe were less 18 (15.1%) but 43 (36.1%) rated no tiredness or disturbance by RLS symptoms. A female participant was affected with RLS moderate 54 (27.0%), mild in 43 (21.5%), moderate RLS in 26 (32.1%) some participants in severe had low 30 (15.0%) RLS found, moreover participants had none 20 (24.5%) RLS symptoms. Table no: 2 the significant valued ($p=.296$).

Table no: 1 Descriptive statistics of qualitative variable

Variable	Mean \pm SD	Maximum	Minimum
Age	1.26 \pm .544	1.00	3.00
Sex	1.41 \pm .492	1	2
Sleep disturbance due to your RLS symptoms	1.530 \pm .135	4	.00
Severe was your tiredness or sleepiness during the day due to your RLS symptoms	1.40 \pm 1.21	4	.00

Figure no: 1

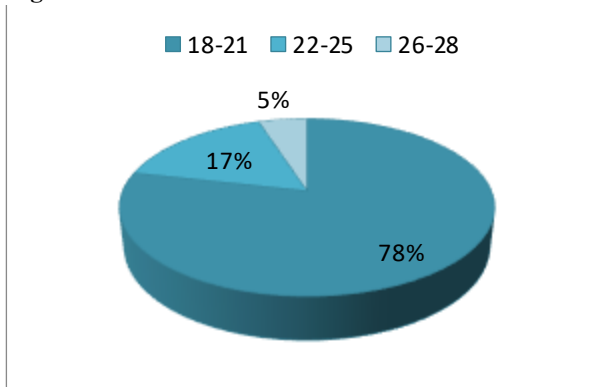


Figure no:2

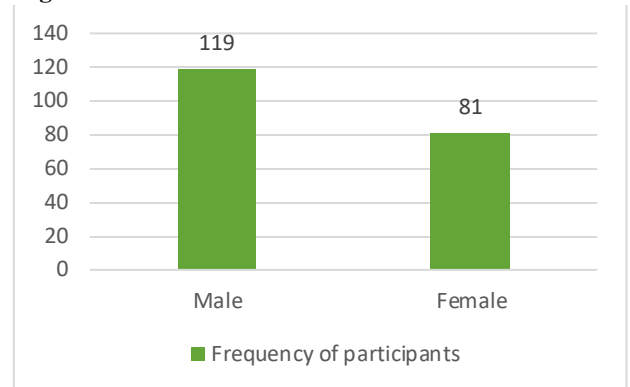


Table no 2: Descriptive characteristics by RLS symptoms for frequency and percentage of variable and by using chi-square test to identify two-tailed significant value

Variable	Sex	None	Mild	Moderate	Severe	Very severe	Total	p-value
Sleep disturbance due to your RLS symptoms	Male	37.8%	17.6%	21.0%	12.6%	10.9%	100.0%	<.024
	Count	43	26	28	18	4	119	
	Female	18.5%	33.3%	21.0%	13.6%	13.6%	100.0%	
	Count	20	17	26	12	6	81	
Severe was your tiredness or sleepiness during the day due to your RLS symptoms	Total Count	60	48	42	26	24	200	>.296
	Male	36.1%	21.8%	23.5%	15.1%	3.4%	100.0%	
	Count	45	21	25	15	13	119	
	Female	24.7%	21.0%	32.1%	14.8%	60.0%	100.0%	
	Count	15	27	17	11	11	81	>.296
	Total Count	63	43	54	30	10	200	

Figure no:3

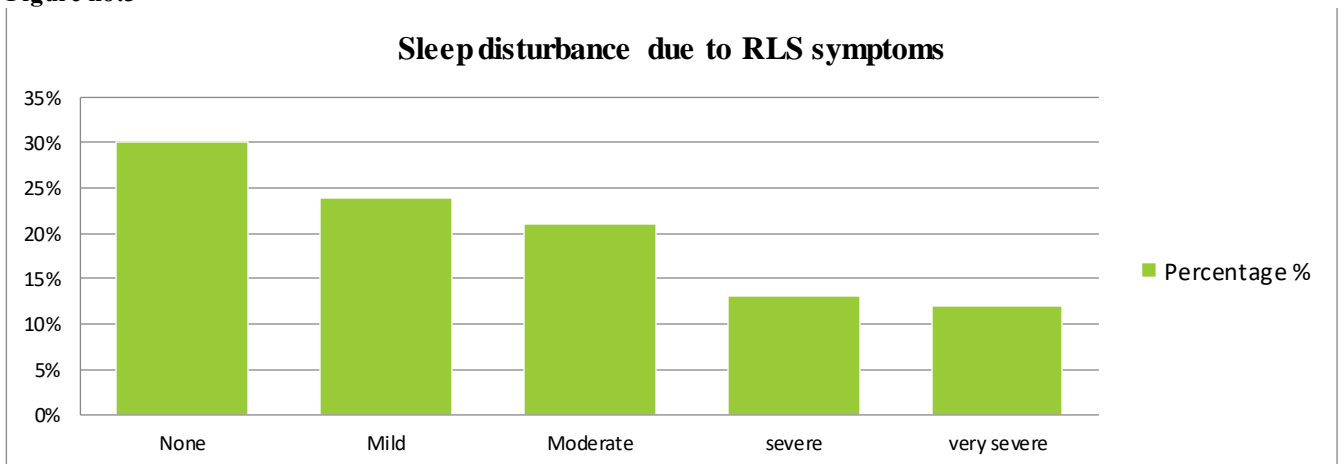
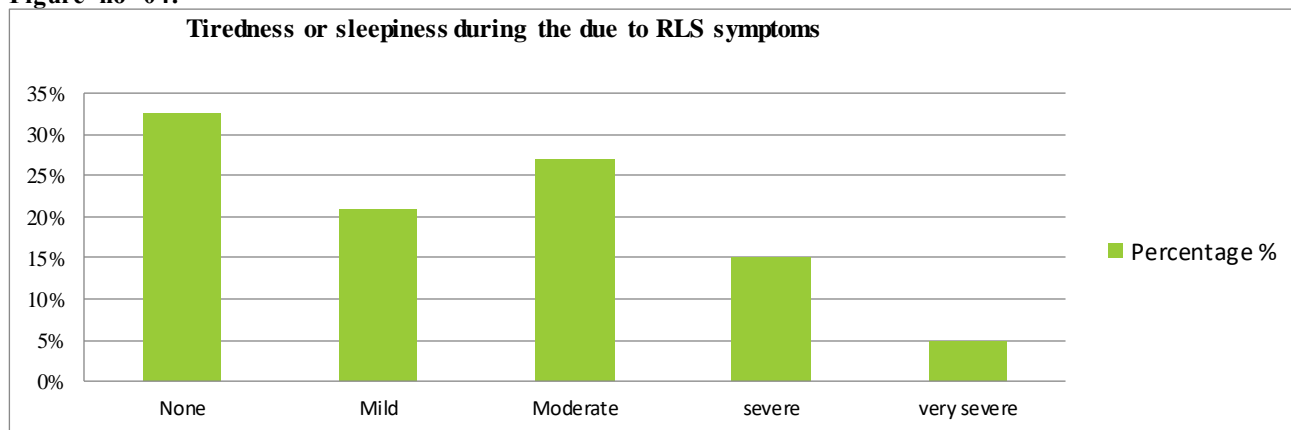


Figure no 04:



Discussion

This study is significant because it is the first known attempt to systematically classify Restless Legs Syndrome (RLS) among young adults in Pakistan, specifically focusing on medical students. By examining the prevalence and impact of RLS on sleep quality, this research addresses a gap in the literature regarding the neurological condition's effects on a specific population that is often underdiagnosed.

The novelty of the study lies in its focus on a university-going population with no known comorbidities, providing insights into how RLS manifests in otherwise healthy young adults. This contrasts with previous studies that often included participants with other health conditions, making it difficult to isolate the effects of RLS alone.

This study investigated the showed that 57.5% male, 42.5% female effect of resting leg syndrome in the RLS sleep quality medical student. These results are in agreement with the other studies like, Azmin et al found a prevalence rate of 9.7% in their study and noted a significant association with male gender (9). Similarly, et al. reported a higher prevalence of RLS in male patients compared to female patients (10). On the other hand, some studies have highlighted risk factors and associations with RLS without specifically focusing on gender differences. For example, discussed the association between vascular risk factors, cardiovascular disease, and RLS in both men and women (11).

Sleep disturbance to the best of our knowledge, after reading through several studies, this was the first attempt to classify RLS in Pakistan's youth to determine the effects and consequences on the sleeping patterns of students who have this neurological illness. Since our sample of a university going student the severity of the symptoms was of the mild category with no comorbidities and were healthy adult considered. This study concluded, much like ours, that patients suffering from RLS were subject to some sort of sleep disturbance cause by RLS. Our study reemphasizes the fact that RLS is more of a disease in the male than in the female, a point highlighted

by the previous study found the RLS sleepiness symptoms were higher in female than male twenty-four students diagnosed with this sign. According to a 2015 study that was published in Sleep Medicine, students misdiagnosed their health condition as restless legs syndrome and were unaware that it was Willis-Ekbom Disease.(1,2) study of Selma Civi et al. their study found 66% more people reported disturbance of sleep onset and maintenance of sleep and they found the result RLS positive.(6) A study of Sunil Rangarajan et al. according RLS was also associated with symptoms of limb movement in sleep such complained, in comparison of participants showed four male 28.6% and eight female 61.5%. (7) Graciela E. Silva, Ph.D. et al. found in young population with RLS symptoms also were more participants had trouble in falling asleep than participants without RLS symptoms, large percentage of those youngsters affected their quality of sleep after tiredness. Our study had the point to discuss the young adult had initiative symptoms that might be progress in future and noted, during sleep and mid of sleep symptoms of RLS appeared for a short period of time and the symptoms of RLS remains constant and developed tiredness during a day. This study found affects in RLS sleep quality, resultant those males who do not work any exercise or activity during the symptoms they felt symptoms on that day. Our study was in higher percentage than previous studies (8). Studies have shown that sleep disturbances, such as insomnia, reduced sleep efficiency, and increased sleep latency, can be associated with RLS (12). Furthermore, research has indicated that RLS can cause significant discomfort and sleep disturbance, emphasizing the impact of this condition on sleep quality (13).

Future recommendations for addressing RLS in youth can be drawn from various studies focusing on different aspects of the condition. Healthcare providers can play a crucial role in improving RLS awareness, providing psychosocial support, education, and monitoring treatment effects to enhance the management of RLS in affected individuals Harrison et al. (14). Early detection of RLS is essential as it is a treatable condition that can worsen diabetic neuropathy and negatively impact quality

of life and sleep (15). Iron therapy has been indicated for children with RLS or Periodic Limb Movement Disorder, especially when ferritin levels are below a certain threshold, to potentially alleviate symptoms (16).

Moreover, a systematic and detailed assessment of the clinical presentation of RLS is vital for accurate diagnosis and effective follow-up in youth with the condition (17). Non-pharmacologic interventions such as foot reflexology and the use of cold-water bags have shown promise in reducing RLS severity and improving sleep quality in specific patient populations (18,19). Additionally, acupuncture has been suggested as a potential treatment option for RLS that does not respond adequately to conventional therapies (20).

Furthermore, addressing underlying factors such as iron deficiency, cardiovascular risk factors, and neurological conditions associated with RLS can be crucial in managing the condition in youth (21-23). Cognitive strategies to alleviate RLS symptoms and the use of warm compression have also been explored as potential interventions to improve symptoms and quality of life in individuals with RLS (24,25).

Conclusion

This study concluded with the set of data of medical student population it prevailed mostly among in male than female students. Severity of symptoms mild to moderate among participants. Restless legs syndrome is a sleep disorder that is an urge to move legs. Symptoms vary person to person. Rls can be due to some other comorbidities disease for example anemia, renal dysfunction, thyroid condition, neurological problem etc, but actual pathophysiology of this condition is still under diagnose to prove root-cause of RLS.

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Author's Contribution:

Dr. Noor Jahan: Conceptualization and design of the review article.

Prof. Dr. Atif Mehmood: Provided critical revisions and substantial intellectual content.

Dr. Naveed Ahsan: Contributed to the interpretation of findings and data analysis.

Dr. Faria Khan: Result compilation and discussion.



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