Yashfeen Journal of Health Innovation & Practice

Research Article

Correlation Between Restless Legs Syndrome and Anxiety Among Pregnant Women

Abdullah Zafar[a], Adeel Mateen Qureshi[b], Shanza Tanveer[c], Dr Erum Ghaffar[d]*

Abstract

Background: Restless legs syndrome (RLS) is common and treatable. It impairs sleep cycle and quality. The syndrome is characterized by lower extremity dysesthesias, especially at night, and an irrepressible urge to move the legs. Restless legs syndrome symptoms are sleep disturbance and can cause psychological anguish, mental illnesses, and a decline in well-being.

Methods: Cross sectional survey was done. 75 pregnant females who had 2nd and 3rd trimester were selected on the basis of inclusion and exclusion criteria through non probability convenient sampling technique. Age between 22 to 45 years. Data was collected through restless leg syndrome rating scale and Hamilton anxiety rating scale. Data was compiled and analyzed by SPSS version 25. Chi square test was applied to correlate restless legs syndrome and anxiety.

Results: Results of current study showed that 75 pregnant females in which 41 had 2nd trimester, 34 had 3rd trimester had participated and their mean age was 28.66±4.93SD. According to RLS 15 females had mild, 22 had moderate RLS, and 28 had severe RLS while 8 had very severe RLS. According to HAM rating scale 5 females had anxiety symptoms, 25 had mild symptoms, 24 had moderate symptoms and 21 had severe symptoms. P value (0.000)

Conclusions: It is concluded that significant frequency of RLS was present in pregnant females. According to correlation there was significant correlation between RLS and anxiety because restless leg syndrome had significant impact on anxiety among pregnant females.

Keywords: Restless Legs, Willis Ekbom Disease, anxiety, pregnancy

[a] *Physiotherapist at Springfield Autism Centre, Lahore, Pakistan.*
[b*] *Assistant Professor, Yashfeen college of allied health sciences, Lahore, Pakistan.*
[c] *Senior Lecturer at Doctors Institute of health sciences, Lahore, Pakistan.*
[d] *Lecturer, Physical therapy department, Hajvery University, Lahore, Pakistan.*

Corresponding Author:
Adeel Mateen Qureshi
Email address: adeel.mateen@yes.edu.pk

Date of Submission: *07-01-2023*
Revised: *10-02-2023*
Accepted: *20-02-2023*

INTRODUCTION

Willis-Ekbom disease, more commonly recognized as restless legs syndrome (RLS), manifests as a chronic neurological and sensorimotor ailment marked by a compelling inclination to shift the legs. Typically, individuals afflicted by this condition also endure disagreeable or agonizing sensations in their lower limbs, frequently of a considerable intensity (Bener et al., 2019).

Restless Leg Syndrome (RLS) can be categorized into two distinct groups depending on its underlying causes: primary/idiopathic and secondary. Interestingly, despite both classifications presenting comparable clinical symptoms, the majority of cases fall under the primary category. Remarkably, approximately half of individuals diagnosed with primary RLS report a familial susceptibility to this condition. On the other hand, secondary restless leg syndrome (RLS) manifests in patients who concurrently suffer from various medical conditions, such as iron deficiency anaemia, renal failure, diabetes, thyroid disorders, pregnancy, neurological movement disorders, or adverse reactions to specific medications (Catzín-Kuhlmann et al., 2015).

Individuals who receive a diagnosis of Restless Legs Syndrome (RLS) may find themselves grappling with a pervasive sense of restlessness, which has the potential to culminate in the emergence of additional sleep-related disorders, such as insomnia and heightened daytime somnolence (Ohayon et al., 2012).

The manifestation of pain and tingling paresthesia, typically evident in instances of severe peripheral neuropathy, is frequently absent, as is the emergence of increased skin sensitivity to tactile stimuli. These sensations predominantly localize within deeper anatomical tissues rather than the superficial layers. Patient presentations of symptoms may demonstrate variability, with certain individuals encountering minor discomfort, whereas others may endure pronounced disruptions in their sleep patterns and an overall deterioration in their quality of life. Symptoms often intensify as the day progresses, reaching their peak during the nighttime hours, typically manifesting approximately 15 to 30 minutes after adopting a supine position in bed (Mansur et al., 2022).

The prevalence of restless legs syndrome (RLS) among expectant mothers fluctuates considerably, with estimates ranging from 11% to 29%. In contrast, the occurrence of RLS within the broader populace spans from 5% to 15%. Notably, scholarly sources have presented compelling evidence underscoring the heightened occurrence of RLS in pregnant women when compared to the general population. Specifically, the prevalence rates of RLS in expectant mothers have been documented to range from 10% to as high as 46%, whereas the general populace registers notably lower figures, typically ranging from 2% to 10% (Wali et al., 2018). The occurrence of Restless Legs Syndrome (RLS) within the broader populace of Saudi Arabia has been observed to vary between 5.2% and 8.4%. In a recent research endeavor, an exploration into the prevalence of Restless Legs Syndrome

(RLS) amongst expectant women in Saudi Arabia was undertaken, revealing an incidence rate of 21.3% (Manconi et al., 2021).

The prevalence of familial restless legs syndrome appears to be notably higher among individuals under the age of 45. This demographic encompasses a diverse range of individuals, spanning from early childhood to those surpassing 90 years of age. Notably, women seem to manifest a more pronounced impact when contrasted with their male counterparts. Additionally, there is a discernible disparity in susceptibility between African Americans and individuals of Caucasian descent, which mirrors the observed pattern in those undergoing haemolysis treatment. Patients afflicted with this condition often articulate sensations characterized by a sense of crawling, creeping, pulling, itching, drawing, or stretching(Wijemanne & Jankovic, 2015).

Restless Legs Syndrome (RLS) significantly diminishes the overall quality of life for those affected, akin to the burden imposed by other persistent medical conditions. Those grappling with Restless Leg Syndrome (RLS) often encounter detrimental repercussions across multiple facets of their existence, encompassing work efficiency, participation in routine tasks, interpersonal connections, and even their travel encounters. Furthermore, these individuals frequently manifest indications of despondency, with occurrence rates ranging from 17% to 27%, alongside manifestations of anxiety, with prevalence rates spanning from 8% to 23% (Joseph et al., 2022).

The prevalence of Restless Leg Syndrome (RLS) or Willis-Ekbom disease seems to be nearly double in females when compared to males. Nonetheless, the precise factors that underlie this gender disparity remain incompletely elucidated. One plausible hypothesis revolves around an increased concentration of oestrogen, a hormone that frequently surges during pregnancy, particularly in the third trimester when oestrogen levels are markedly elevated (Ohayon et al., 2012).

Studying additional physiological alterations that take place during pregnancy might offer valuable insights into the potential relationship between Restless Leg Syndrome (RLS) and the reproductive phase in females (Picchietti et al., 2013).

MATERIALS AND METHODS

Study design

We conducted a cross-sectional study aimed at exploring the relationship between restless legs syndrome and anxiety in expectant women.

Eligibility criteria

The typical age range for women who are expecting a child generally falls between 22 and 45 years (Klingelhoefer et al., 2016). This research specifically focused on pregnant women in their second and third trimesters. These women exhibited an increased inclination and imperative to engage in limb movement owing to the discomfort or painful stimuli they were experiencing

(Vahdat et al., 2013). These symptoms intensify notably when at rest, especially while lying down, and become most prominent during the night. Females experience partial or complete alleviation of these symptoms through physical activity, predominantly walking. As part of the exclusion criteria, the research excluded females diagnosed with polycystic ovarian syndrome (PCOS), gestational diabetes, or any form of neuropathy (Trenkwalder et al., 2018).

Statistical analysis

We conducted statistical analyses utilizing SPSS software (version 25.0, USA). To provide an overview of the demographic data, we employed descriptive statistics. Mean and standard deviation, customary statistical metrics, were employed to scrutinize and portray categorical and demographic data. The numeric variables were characterized utilizing the standard deviation, denoted as +/-. In order to establish the association between two variables, the chi-square test was employed. We defined statistical significance as a level below 0.05. Operationally, we considered a result to be statistically significant when the P value was less than 0.05.

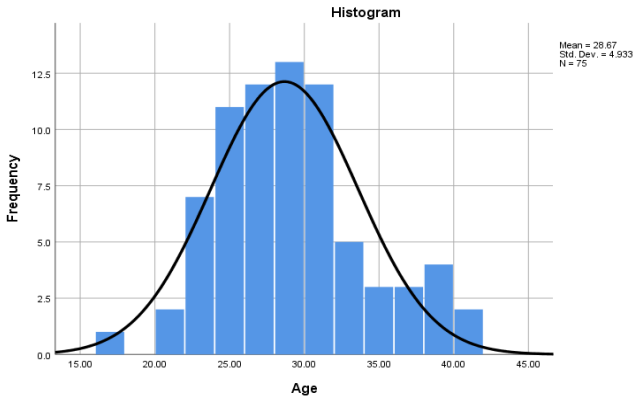
Measurement tools

The primary tools employed for evaluating outcomes encompassed the Hamilton Anxiety Rating Scale alongside customized questionnaires tailored for the evaluation of Restless Leg Syndrome. Comprehensive baseline demographic information was gathered from all participating patients. The investigators applied the Hamilton Anxiety Rating Scale to gauge the extent of anxiety associated with restless leg syndrome in expectant mothers. The assessment entailed a total of 14 inquiries, with each query presenting four distinct response choices. The highest attainable score on the assessment amounted to 56. A lower numerical outcome implies a reduced degree of anxiety, while a higher numerical result signifies an escalated level of anxiety (Seeman, 2020). The researchers employed the RLS-Q questionnaire as a means of assessing the severity of restless leg syndrome symptoms in expectant mothers. The assessment consisted of ten questions, with each question offering four response options. The maximum achievable score on this evaluation was 40 (Picchietti et al., 2013).

RESULTS

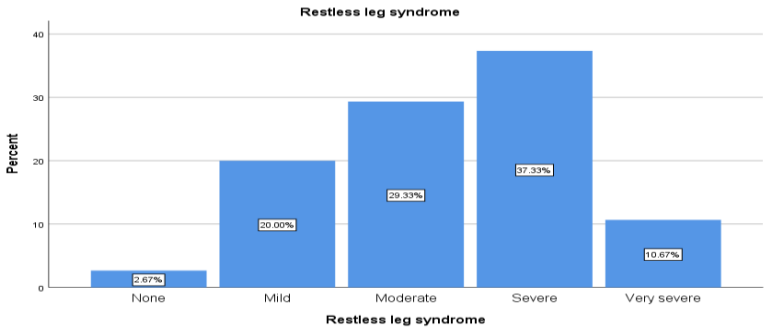
The results from our current investigation reveal that a total of 75 expectant mothers were included in the study, encompassing a spectrum of ages spanning from 22 to 45 years (figure 1).

Figure 1: histogram of age



The study computed the participants' average age to be 28.66 years. The study's results revealed that 41 female participants entered their second trimester, while 34 female participants advanced to the third trimester (figure 2).

Figure 2: Bar chart of restless leg syndrome

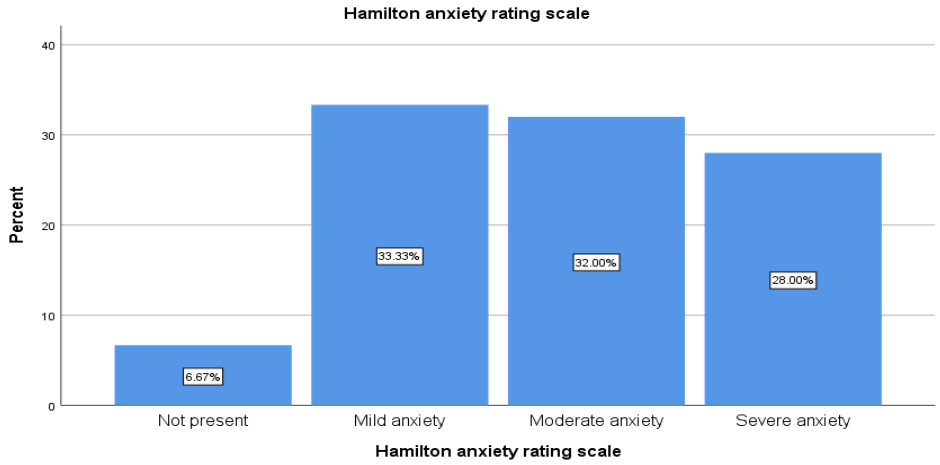


By scrutinizing the research findings related to restless leg syndrome, we observed that among a cohort of 75 female subjects, 15 demonstrated mild manifestations of Restless Leg Syndrome (RLS), while 22 encountered symptoms of moderate intensity. A substantial proportion of 28 individuals fell within the severe category, while 8 participants disclosed experiencing symptoms of an exceptionally severe nature in connection with RLS (figure 3).

Table 1: statistical findings of trimester

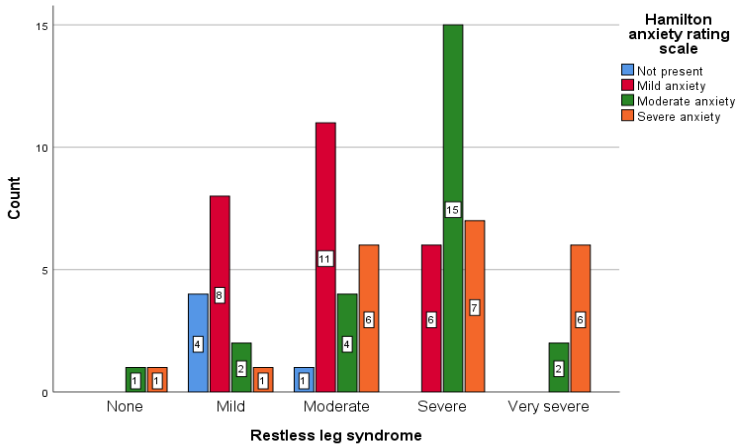
Trimester	Frequency	Percent%
2nd trimester	41	55.5%
3rd trimester	34	44.5%
Total	75	100.0%

Figure 3: Graph of Hamilton anxiety rating scale



The Hamilton Anxiety Scale was utilized to assess anxiety levels within the study's participant group. The findings unveiled that among the female cohort as a whole, five participants displayed no discernible signs of anxiety. In contrast, 25 participants exhibited mild anxiety symptoms, while 24 participants demonstrated moderate anxiety symptoms. Additionally, 21 participants reported experiencing severe anxiety symptoms that were specifically linked to their pregnancy (figure 3).

Figure 4: Graph of correlation between HAM and RLS-Q



A chi-square analysis was employed to assess the frequency disparities between RLS and HAM, resulting in a notably significant p-value of 0.000 (figure 5).

DISCUSSION

Previous research has indicated that Restless Legs Syndrome (RLS) occurs at a higher frequency in pregnant women compared to the general population, with a documented prevalence rate of 7.2%. This increased occurrence remains consistent when pregnant women are compared to their non-pregnant counterparts, as RLS is approximately twice as prevalent in the former group when compared to men of similar age. The recorded prevalence rate closely mirrors findings from extensive epidemiological investigations, such as the 26% prevalence rate in Italy and the 32% prevalence rate in France. Restless Leg Syndrome (RLS) manifests in pregnant women regardless of their age, resembling its occurrence in the broader population. Factors such as the number of previous pregnancies or body mass index do not appear to influence the condition's presence (Harrison et al., 2019).

In this research, we undertook a comprehensive examination of various aspects related to pregnancy and the postpartum phase spanning 12 weeks, within a cohort comprising 561 postpartum women grappling with Restless Legs Syndrome (RLS) in the context of neurology and obstetrics. Within our study group, we discerned a disease prevalence of 21%. Roughly 20% of these cases displayed persisting symptoms even at the end of the 12-week postpartum period, albeit with a diminished intensity compared to the antenatal phase. Conversely, a complete recuperation was observed in 80% of the cases immediately following childbirth. Our findings illuminate that a significant proportion of the participants, specifically around 77%, reported an exacerbation of Restless Legs Syndrome (RLS) symptoms during the third trimester of their pregnancy, with heightened frequency. In contrast, women experiencing enduring symptoms of restless leg syndrome (RLS) indicated a consistent symptom severity throughout their pregnancy. For those who had previously encountered restless leg syndrome (RLS) in a prior pregnancy, there existed a notable likelihood (46.6%) of symptom recurrence in their current pregnancy. The outcomes of this investigation are in harmony with previous research concerning the prevalence and duration of restless leg syndrome (RLS) during pregnancy (Allen et al., 2014).

In a comprehensive cross-sectional investigation exploring the incidence of Restless Legs Syndrome (RLS), the author noted a significant variability in prevalence rates amongst pregnant women, spanning from a modest 1% to a noteworthy 30%. The diversity in documented prevalence within the realm of scholarly literature can be ascribed to a multitude of factors, including the demographic attributes of the study cohort, their respective cultural backgrounds, the methodological approaches employed in data acquisition, the criteria used to establish the presence of Restless Legs Syndrome (RLS), and the specific gestational stage under scrutiny. Notably, this study uncovered a discernible variation in the array of diagnostic criteria applied to assess Restless Legs Syndrome (RLS), representing an endeavor to comprehensively explore this phenomenon through a multifaceted research approach. This study's principal objective resided in determining the prevalence of Restless Legs Syndrome (RLS), which was quantified at 21.3%, aligning with

previously reported prevalence rates. By way of illustration, a study conducted in Turkey disclosed a frequency of 10%, while a separate investigation in Pakistan revealed a prevalence rate of 30%. Within the confines of the current study, it was discerned that the incidence of Restless Legs Syndrome (RLS) exhibited variations across the trimesters, with rates standing at 13.6% during the initial trimester, 14.3% during the subsequent trimester, and 24.1% during the final trimester. These findings harmonize with the outcomes documented in several antecedent studies (Sevim et al., 2004).

Restless Legs Syndrome (RLS) presents as a widespread condition prevalent in both North America and Europe. Conversely, prior investigations have indicated that the occurrence of Restless Legs Syndrome (RLS) in the Asian population registers at an estimated rate below 4%, while in Europe, it exhibits a prevalence of less than 1%. Notably, Turkey has witnessed a notable growth rate of 3.19% in this regard. Restless Legs Syndrome (RLS) presents as a widespread condition prevalent in both North America and Europe. Conversely, prior investigations have indicated that the occurrence of Restless Legs Syndrome (RLS) in the Asian population registers at an estimated rate below 4%, while in Europe, it exhibits a prevalence of less than 1%. Notably, Turkey has witnessed a notable growth rate of 3.19% in this regard. Within the ambit of this research, a comprehensive survey was conducted involving a cohort of 20 patients, seeking to discern the presence of symptoms associated with Restless Legs Syndrome (RLS) within their family members. Strikingly, analogous manifestations were noted among the kin of 3.7% of the individuals who had been clinically diagnosed with Restless Legs Syndrome (RLS). This particular observation concurs with previously documented prevalence rates documented in the context of Turkey (Wijemanne & Jankovic, 2015). The latest research unveiled that Restless Legs Syndrome (RLS) was prevalent in 45.9% of the study participants. In a previous investigation by Szenykiralyi et al., a significant patient cohort suffering from end-stage renal disease (ESRD) demonstrated a doubled incidence of depressive symptoms in individuals with Restless Legs Syndrome (RLS) in contrast to those devoid of RLS indications. Nevertheless, this present study is not without its limitations. It was hampered by a relatively modest sample size and the absence of a comparative analysis between pregnant and non-pregnant females (Venkateshiah & Ioachimescu, 2015)

CONCLUSION

The results of this research reveal a substantial correlation between restless leg syndrome and anxiety among expectant mothers. The study at hand has unearthed a notably elevated incidence of restless leg syndrome in pregnant women compared to their non-pregnant counterparts. This discovery underscores the significant impact of this condition on the heightened levels of anxiety experienced by pregnant individuals.

FUNDING

The author and research was self-supported funding.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

REFERENCES

Allen, R. P., Picchietti, D. L., Garcia-Borreguero, D., Ondo, W. G., Walters, A. S., Winkelman, J. W., Zucconi, M., Ferri, R., Trenkwalder, C., & Lee, H. B. (2014). Restless legs syndrome/Willis–Ekbom disease diagnostic criteria: updated International Restless Legs Syndrome Study Group (IRLSSG) consensus criteria–history, rationale, description, and significance. Sleep medicine, 15(8), 860-873.

Bener, A., Al-Hamaq, A. O., Ağan, A. F., Öztürk, M., & Ömer, A. (2019). The prevalence of restless legs syndrome and comorbid condition among patient with type 2 diabetic mellitus visiting primary healthcare. Journal of Family Medicine and Primary Care, 8(12), 3814.

Catzín‐Kuhlmann, A., Juárez‐Armenta, A., Ortiz‐Panozo, E., Monge‐Urrea, A., Puchner, K. P., Cantú‐Brito, C., López‐Ridaura, R., Rice, M. S., Kurth, T., & Lajous, M. (2015). Restless legs syndrome and hypertension in Mexican women. Movement disorders clinical practice, 2(3), 274-279.

Harrison, E. G., Keating, J. L., & Morgan, P. E. (2019). Non-pharmacological interventions for restless legs syndrome: a systematic review of randomised controlled trials. Disability and rehabilitation, 41(17), 2006-2014.

Joseph, N., Suresh, S., Prasad, S., Malwee, S. M., Brittas, A., & Gupta, V. (2022). Study on restless leg syndrome and its relationship with quality of sleep among the general population of Mangalore, India. The Egyptian Journal of Neurology, Psychiatry and Neurosurgery, 58(1), 109.

Klingelhoefer, L., Bhattacharya, K., & Reichmann, H. (2016). Restless legs syndrome. Clinical Medicine, 16(4), 379.

Manconi, M., Garcia-Borreguero, D., Schormair, B., Videnovic, A., Berger, K., Ferri, R., & Dauvilliers, Y. (2021). Restless legs syndrome. Nature reviews Disease primers, 7(1), 80.

Mansur, A., Castillo, P. R., Cabrero, F. R., & Bokhari, S. R. A. (2022). Restless legs syndrome. In StatPearls [Internet]. StatPearls Publishing.

Ohayon, M. M., O'Hara, R., & Vitiello, M. V. (2012). Epidemiology of restless legs syndrome: a synthesis of the literature. Sleep medicine reviews, 16(4), 283-295.

Picchietti, D. L., Bruni, O., de Weerd, A., Durmer, J. S., Kotagal, S., Owens, J. A., Simakajornboon, N., & Group, I. R. L. S. S. (2013). Pediatric restless legs syndrome diagnostic criteria: an update by the International Restless Legs Syndrome Study Group. Sleep medicine, 14(12), 1253-1259.

Seeman, M. V. (2020). Why are women prone to restless legs syndrome? International Journal of Environmental Research and Public Health, 17(1), 368.

Sevim, S., Dogu, O., Kaleagasi, H., Aral, M., Metin, O., & Çamdeviren, H. (2004). Correlation of anxiety and depression symptoms in patients with restless legs syndrome: a population based survey. Journal of Neurology, Neurosurgery & Psychiatry, 75(2), 226-230.

Trenkwalder, C., Allen, R., Högl, B., Clemens, S., Patton, S., Schormair, B., & Winkelmann, J. (2018). Comorbidities, treatment, and pathophysiology in restless legs syndrome. The Lancet Neurology, 17(11), 994-1005.

Vahdat, M., Sariri, E., Miri, S., Rohani, M., Kashanian, M., Sabet, A., & Zamani, B. (2013). Prevalence and associated features of restless legs syndrome in a population of Iranian women during pregnancy. International Journal of Gynecology & Obstetrics, 123(1), 46-49.

Venkateshiah, S. B., & Ioachimescu, O. C. (2015). Restless legs syndrome. Critical care clinics, 31(3), 459-472.

Wali, S., Alsafadi, S., Abaalkhail, B., Ramadan, I., Abulhamail, B., Kousa, M., Alshamrani, R., Faruqui, H., Faruqui, A., & Alama, M. (2018). The association between vitamin D level and restless legs syndrome: a population-based case-control study.

Journal of Clinical Sleep Medicine, 14(4), 557-564.

Wijemanne, S., & Jankovic, J. (2015). Restless legs syndrome: clinical presentation diagnosis and treatment. Sleep medicine, 16(6), 678-690.