

# Restless Leg Syndrome In Pregnancy: An Experience From Low Socio-Economic Population Of Karachi

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## Abstract

**Objective:** This study aims to determine the frequency of restless leg syndrome during pregnancy and explore its association with various demographic parameters in the studied population.

**Methods:** This cross-sectional study was conducted at Medical College Hospital in Gynecology Out patient department. One hundred and two pregnant females were enrolled after taking informed consent from the study participants. They were asked questions regarding sociodemographic characteristics and clinical features of restless leg syndrome and further questions were asked from those who had positive symptoms of restless leg syndrome. Variables like age, parity, hemoglobin, co-morbid were identified and data was entered and analyzed by SPSS version 25, frequencies and percentages were calculated, correlations were estimated and p value <0.05 considered significant. Chi square test was performed to determine the association of restless leg syndrome with qualitative demographic characteristics and Pearson Correlation was also performed to evaluate the relation between the restless leg syndrome with continuous variables.

**Results:** Restless leg syndrome was identified in 36.6% females which was quite high as compared to non-pregnant females. It was predominantly found in the third trimester and primi-gravidas. Increased parity and increased gestational age were found to be positively correlated with restless leg syndrome. Most patients had mild intensity of the disease and severe disease was found to be less commonly present.

**Conclusion:** In conclusion, restless leg syndrome is a disabling disorder and is associated with sociodemographic characteristics. It was found significantly present in the studied population and associated with increased morbidity among pregnant females. The condition negatively impacts mood, quality of life and general well-being of the mothers.

**Key Words:** Restless leg syndrome; Sleep; Pregnancy; quality of life; Sleep wake Disorders.

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## Introduction

The most important physiological need of a human being is Sleep which is necessary for a competent psychological and physical health<sup>1</sup>. In healthcare, the disorders of sleep are considered

as quite distressing in general. Majorly, sleep disorders are classified into various forms in which the sleep can be disturbed with another component attached like the respiratory, neurological and pain<sup>2</sup>. Disturbed sleep pattern is most usually reported in female gender<sup>3</sup> which is pronounced in more than two third pregnant females. As when a woman becomes pregnant, it also brings major changes that influence a woman physiologically, psychologically, and socially<sup>4</sup>. These changes not only affect the quality of life of the mother but in turn also affects the dynamic of other relationships associated with her as well. According to available literature 10 to 34% of pregnant females are suffering from rest

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less leg syndrome with the peak of incidence in the last trimester of pregnancy and resolves after delivery<sup>5,6</sup>.

Over years much of the work in the western world prove that in pregnant females there is the prevalence of restless leg syndrome. They also say it contributes to the morbidity and general wellbeing of the patient. Restless leg syndrome affects a large number of pregnant population, fairly improves after pregnancy and worst in the last stages of pregnancy<sup>6</sup>.

Restless leg syndrome is the most common sleep disorder in pregnancy. Willis-Ekbom disease / restless leg syndrome is a sensorimotor sleep disorder characterized by “creepy-crawly” sensation in the legs during rest and relieved by activity. Restless leg syndrome is diagnosed according to the criteria of the International restless leg syndrome study group (IRLSSG). Restless leg syndrome could have Primary or Secondary causes, Primary causes are idiopathic while secondary causes could be due to renal pathology, Diabetes (diabetic neuropathy), Parkinson’s disease, and Iron deficiency anemia<sup>7</sup>.

In Pakistan prevalence of restless leg syndrome was reported 30% of female population while prevalence in pregnant females is still unknown<sup>8</sup>. As iron deficiency anemia is one of the significant cause restless leg syndrome it is also most common cause of anemia in 75% of pregnant of female with who are diagnosed with anemia<sup>9</sup>. Usually our pregnant population apart from a deficient diet also suffers with multiple co morbid among which diabetes, hypertension and nutritional diseases are fairly common. Our population also has multi parity, low hemoglobin and co-morbid which adds to the stress and quality of life of individual. It also affects the sleep adversely and hence adds to compromised general wellbeing. This study aims to study the prevalence of restless leg syndrome in pregnancy in Pakistani population and helps to increase the awareness among the general medical practitioners dealing with pregnant females from missing the diagnosis of restless leg syndrome and undertreating

the pregnant females. Patients because of the nausea and vomiting and diet not rich in essential nutrients and no provision of supplementation often are nutritionally depleted so a lot of awareness is warranted in such instances where a proper diet and wellbeing councilor can make the pregnant females understand the effect of good diet and restful sleep to the patients and its importance to their attendants as well for the betterment of mother and the outcome of pregnancy. . As a nation we need to understand the ailing mother’s plight during pregnancy. Restless leg syndrome’s association with pregnancy and with multiple factors associated with pregnancy add to the ailment and worsens quality of life of patients

The study adds to the prevalence of disease so we create awareness among gynecologist and family physician to give importance to this disease so we can treat it early in an effective way which will lessen the morbidity and improve maternal and in turn fetal health.

### Methodology

This cross-sectional study was conducted in the Gynecology and Obstetrics outpatient department of a Medical College Hospital located in a densely populated, low- to middle-income area, between March 2021 and June 2021. The sampling technique included a total of 102 patients in OPD who were selected through convenient sampling and were assessed with the help of a questionnaire after informed consent. The sample size was calculated with open Epi with formula (Sample size  $n = [DEFF * Np(1-p)] / [(d^2 / Z^2_{1-\alpha/2} * (N-1) + p*(1-p)]$ ). Ethical Review Certificate was taken from IRB before starting the study. The diagnosis of RLS was made according to the consensus criteria by a National Institutes of Health panel: 1) an urge to move the legs, usually accompanied by uncomfortable sensations; 2) beginning or worsening during rest; 3) relieved by movement; and 4) worse, or only occurring, in the evening or at night.<sup>23</sup> They were assessed for presence of restless leg syndrome symptoms according to the criteria of the international restless leg syndrome study group (IRLSSG). Those who were found to be suffered from RLS

were further asked about how it hampers their quality of sleep and usual activities and its severity was also assessed. All pregnant females between the ages of 12 to 45 years were included in study. The pregnant females who already had any severe disease like hypothyroidism, chronic kidney disease, chronic liver disease, depression or neuropathies were excluded.

for the statistical analysis, data was entered and analyzed by SPSS version 25. Demographic data i.e., age, gestational age, parity, weight, height, Hemoglobin and co-morbid were asked and noted. Mean and SD were calculated for age, weight, height, gestational age, hemoglobin. Chi square test was performed to determine the association of restless leg syndrome with qualitative demographic characteristics and Pearson Correlation was also performed to see the relation between the restless leg syndrome with continuous variables.

### Results

A total of 102 pregnant females with restless leg syndrome were included in the study after excluding those with predefined comorbidities. Table 1 shows that the mean age of the participants was 25.1 years, with a mean weight of 61.7 kg and a mean height of 157.6 cm. The average gestational age was 25.8 weeks, with most cases in the third trimester. The mean hemoglobin level was 11.3 g/dl. Additionally, 36.6% of the females were primigravida.

Table 1 also shows the frequency of restless leg syndrome severity scoring. About 63.4% had mild intensity restless leg syndrome, 25.7% had moderate intensity restless leg syndrome and 10.9% had severe intensity restless leg syndrome. All the symptoms were assessed according to severity of restless leg syndrome criteria.

.Table 2 presents the frequency of symptoms among patients with restless leg syndrome, highlighting the severity of the condition. The majority of patients experienced mild to moderate symptoms, while only a few had severe symptoms.

Table 3 illustrates the correlation between restless leg syndrome and various demographic characteristics of the patients. Increased parity and gestational age were positively correlated with restless leg syndrome, while higher hemoglobin levels showed a negative correlation. No significant correlation was found between restless leg syndrome and weight or height..

**Table 1.** Frequency distribution of Demographic characteristics among patients

Characteristics	Mean± SD	Frequency n (%)
Age in years	25 ±5 years	
Weight in kgs	61 ±9 kg	
Height in cm	157 ±4 cm	
Gestational Week	25 ±9 weeks	
<b>Hemoglobin g/dl</b>	11 ±8 gm/dl	
<b>Parity</b>		
Primigravida	-	37 (36.6%)
Multigravida	-	65 (63.4%)
<b>Smoking Status</b>		
Yes	-	23 (15%)
No	-	79 (85%)
<b>Previous history of restless leg syndrome</b>		
Yes	-	29 (19%)
No	-	73 (81%)
<b>Family History of restless leg syndrome</b>		
Yes	-	35 (23%)
No	-	67 (77%)
<b>Diabetes/GDM</b>		
Yes	-	20(13%
No	-	82 (87%)
<b>Hypertension</b>		
Yes	-	15 (9.8%)
No	-	87(90.2%)
<b>Restless Leg Syndrome Severity Score</b>		
None = 0		0(0%)
PointsMild=0-10		62(60.7%) 23(25.2%)
pointsModerate=11-20 points		17(10%)
Severe=21-30 points		

n= no. of patients, kg=kilogram, cm=centimeter, gm/dl= gram per decilitre, SD= Standard Deviation .

**Table 2.** Descriptive features of restless leg syndrome severity

Feature	Frequency
<b>Overall, how would you rate the restless legs syndrome (restless leg syndrome) discomfort in your legs or arms?</b>	
Mild	18
Moderate	21
Severe	15
Very severe	2
<b>Overall, how would you rate the need to move around because of your restless leg syndrome symptoms?</b>	
Mild	8
Moderate	27
Severe	19
Very severe	2
<b>Overall, how much relief of your restless leg syndrome arm or leg discomfort do you get from moving around?</b>	
Mild	8
Moderate	37
Severe	9
Very severe	2
<b>Overall, how severe is your sleep disturbance from your restless leg syndrome symptoms?</b>	
Mild	15
Moderate	14
Severe	14
Very severe	13
<b>How severe is your tiredness or sleepiness from your restless leg syndrome symptoms?</b>	
Mild	16
Moderate	21
Severe	10
Very severe	9
<b>Overall, how severe is your restless leg syndrome as a whole?</b>	
Mild	19
Moderate	19
Severe	2
Very severe	17
<b>How often do you get restless leg syndrome symptoms?</b>	
Mild	2
Moderate	35
Severe	10
Very severe	9
<b>When you have restless leg syndrome symptoms, how severe are they on an average day?</b>	
Mild	29
Moderate	21
Severe	6
Very severe	0
<b>Overall, how severe is the impact of your restless leg syndrome symptoms on your ability to carry out your daily affairs?</b>	
Mild	10
Moderate	25

Severe	18
Very severe	0
<b>How severe is your mood disturbance from your restless leg syndrome symptoms—for example angry, depressed, sad, anxious, or irritable?</b>	
Mild	9
Moderate	12
Severe	25
Very severe	8

**Table no 3.** Correlation of variables with restless leg syndrome.

s.no.	Variables	p-value	r	R2
1.	Parity	0.977	+0.6	0.20
2.	Hemoglobin	0.0511	-1.2	0.68
3.	Gestational Week	0.012	+1.9	0.76
4.	Age of Patient	0.05	+1.1	0.69
5.	Weight of patient	0.856	+0.2	0.17
6.	Height of patient	0.784	+0.4	0.41

r= correlation coefficient R2= coefficient of determination

**Discussion**

This is the first study conducted in post covid era focusing on pregnant females with restless leg syndrome. This study aims at finding out the morbidity of restless leg syndrome in pregnancy and the characterizing features that are associated with it. Pregnancy being an important factor in sleep disorders that’s why we conducted this research in our setup as well. As the population keeps on climbing and general health status of individuals is declining, restless leg syndrome is considered to increase the morbidity among pregnant females. A study similar to ours found that restless leg syndrome occurs more frequently in pregnant females than in general population<sup>10</sup>. The prevalence of restless leg syndrome in the general population is 5% to 10%, with women being 1.5 to 2 times more likely to report symptoms than men<sup>11</sup>.

It was also expressed in our study that pregnant females with hypertension and diabetes were also affected with restless leg syndrome. Few hormonal factors have been reported during pregnancy most commonly hypothyroidism. The metabolic disease burden of Pakistani population is way higher than the rest of the world, we stand tall on diabetes prevalence and the complications associated with it. The undernourished diet, lack of exercise and

healthy habits make us prone to develop further more diseases. Around 3 to 15% pregnant women suffer from subclinical hypothyroidism<sup>12</sup>. Some previous work suggest an association of different hematinics like vitamin B12, RBC Folate or iron level having a correlation with restless leg syndrome while parity also affects the latter<sup>13</sup>. As Parathyroid hormone affect the vitamin D concentrations it has also shown an association of increased PTH levels with restless leg syndrome in uremic patients<sup>14</sup>.

Our study states that it was more expressed in primi-gravidas and in their third trimester. The results of another meta-analysis show that the prevalence of Willis-Ekbom is associated with certain trimester of pregnancy, with the highest prevalence especially in the later seventh and eighth months i.e. the third trimester. The patients who already had this as a pre-existing condition, 11% improved, the symptoms progressed in 5%, and 28% had no change in their symptoms. The prevalence of Restless Legs Syndrome (Willis-Ekbom disease) also decreased, with fewer women reporting symptoms of 6.8% a month postpartum<sup>15</sup>. We aimed to examine the onset of restless leg syndrome across different trimesters and parity. A study in China reported a higher prevalence of restless leg syndrome in the third trimester of pregnancy. It was reported at 16.1%<sup>16</sup>. Hormonal factors play a role in the manifestation and development of restless leg syndrome, especially during pregnancy<sup>17</sup>. High estradiol, increased prolactin, and increased progesterone in pregnancy may trigger restless leg syndrome<sup>17</sup>. These parameters should be included in subsequent studies so that an association is calculated.

We did not take into consideration complications concerning pregnancy. Ramirez et al. proved a high probability that pregnant patients with the symptoms of restless legs syndrome will develop preeclampsia<sup>18</sup>. Meheraban et al. reported that pregnancies complicated by rest less legs syndrome are at an increased risk for preterm birth<sup>19</sup>. Such gynecological complications are fairly present in our population but if complicated by restless leg

syndrome the chances of having it will increase.

Another study published in 2018 also states relationship of restless leg syndrome with quality of sleep. They analyzed obese adolescents on Pittsburgh sleep quality index and found altered sleep quality<sup>20</sup>. A Turkish study demonstrated deteriorated quality of life parameters in association with restless leg syndrome in chronic kidney disease patients<sup>21</sup>. They showed that restless leg syndrome disturbed the physical life quality parameters more rather than psychological or social life parameters. Being a developing country, we face greater hurdles in accessing health opportunities, managing co morbidities, and ensuring survival; therefore, our people are more vulnerable to acquiring such diseases. A study in Korea shows that patients with restless leg syndrome and periodic limb movement during sleep are related to anxiety and depression<sup>22</sup>. From our descriptive assessment of sleep in restless leg syndrome patients, we also found that they had poor sleep which impacted their daily routine and had an impact on their quality of life too.

The above-mentioned comparison shows a higher prevalence of disease in Pakistani pregnant female with predilection in third trimester and most were primigravida with normal hemoglobin. It needs to be evaluated simultaneously by a physician and neurologist when necessary. additionally, awareness among general practitioners and gynecology needs to be improved so they can identify the condition early and make timely referrals. It is a disabling but controllable disorder so we should aware masses to alleviate the agony.

### **Conclusion**

It is concluded that restless leg syndrome which is a recognized entity in general population is more pronounced during pregnancy. Our study found the prevalence to be higher in the studied population compared to the observational studies from the western countries. We showed that it significantly affects the mood, general wellbeing and quality of life of patients. Our study also reported an association with the increased parity and gesta

tional age and negative association with hemoglobin level. So, if these issues are addressed, we can control the incidence and also the severity. The gynecology and medicine department should work together to relieve the patients off the symptoms.

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