PREVALENCE OF RESTLESS LEG SYNDROME IN TYPE 2 DIABETIC PATIENT IN FAISALABAD

Dr Muhammad Umar Tariq, Dr Muhammad Mohsin Hussain,Dr Mahnoor Bajwa, Dr Sana Aiman, Dr Sulman Aslam

School of Rehabilitation Sciences, The University of Faisalabad

Abstract:

Background: Restless legs syndrome (RLS) is a sensorimotor problem portrayed by a troubling inclination to move the legs. A few clinical conditions have been related with RLS, for example, iron lack, uremia, pregnancy, polyneuropathy and Diabetes Mellitus (DM). Anyway the causes stay obscure in around 70–80% of cases.(Bosco, Plastino et al. 2009)

Objective: To decide the recurrence of eager legs disorder (RLS) and its related elements in patients with type 2 diabetes mellitus. (Siddiqi, Rauf et al. 2015)

Methodology: It was single focused, cross-sectional examination finished with helpful inspecting. The examination populace included 174 subjects (120 diabetics and 54 non-diabetics). Members were enlisted from the Diabetes facility of Jinnah Medical College Hospital, Karachi. The significant clinical and lab boundaries were acquired by clinical history and diagram audit. Multivariable strategic relapse was done to distinguish the variables of RLS among diabetics. (Siddiqi, Rauf et al. 2015)

We enlisted 132 successive patients with idiopathic RLS related with ordinary fasting glycaemia and 128 control subjects. We assessed glucose and insulin levels after a 2-h oral glucose resilience test (2h-OGTT) in patients and control subjects. Furthermore, we decided Insulin Resistance (IR) by Homa-Index. (Bosco, Plastino et al. 2009)

Results: Utilizing the International RLS Study Group (IRLSSG) rules, RLS was recognized uniquely in 67(55.8%) subjects from the diabetic gathering. The mean time of RLS subjects was 56±8 years when contrasted with 46±8 years in the non-RLS subjects. 40% (26/67) of the diabetic/RLS+ subjects had diabetes for >10 years and had fundamentally disturbed glycemic records. Intermittent appendage developments during rest (PLMS) as revealed by the bed accomplice or close relative were accounted for by 32(26.7%) of the diabetic subjects just; of which 21(65.6%) subjects had RLS. Rest unsettling influences were more regular among patients with RLS when contrasted with non-RLS (61.2% versus 21.5%). As indicated by Semmes-Weinstein fiber test, 61% of diabetics and 67% of diabetic/RLS subjects had fringe neuropathy. Strangely, none of our subjects who were analyzed as RLS was ever asked by their doctor for side effects of RLS before this examination. (Siddiqi, Rauf et al. 2015)

Conclusion: This is the originally controlled examination affirming a huge relationship among RLS and type 2 diabetes. In diabetic patients, polyneuropathy addresses the primary danger factor for RLS. In any case, polyneuropathy just part of the way clarifies the expanded commonness of RLS in sort 2 diabetics. Clinical attributes of RLS in diabetic patients are those of an optional structure. (Merlino, Fratticci et al. 2007)

Key terms: RLS, type 2 diabetes, epidemiology, polyneuropathy, case-control study.

Corresponding author:

Dr. Muhammad Umar Tariq *,

School of Rehabilitation Sciences,
The University of Faisalabad

QR code

INTRODUCTION:

Restless leg syndrome (RLS) is a sensorimotor issue described by a troubling inclination to move the legs. A few clinical conditions have been related with RLS, for example, iron insufficiency, uremia, pregnancy, polyneuropathy and Diabetes Mellitus (DM). Anyway, the causes stay obscure in around 70–80% of cases (Almeneessier, Alzahrani *et al*. 2020)

Anxious legs condition (RLS) is a typical rest issue described by undesirable night sensations (shivering, crawling) in the legs and once in a while arms that are briefly diminished by development and prompts a serious trouble in starting and keeping up rest [1–3].

RLS ordinarily more awful during times of rest, unwinding, or latency and might be went with significant effect on daytime capacity and personal satisfaction [2, 3]. RLS is a typical infection that happens in 7–10% of all inclusive community, expanding with age and influencing ladies more frequently than men and equality is a main consideration in clarifying the sex distinction [1, 4–6].

RLS is regularly familial or idiopathic, perceived as essential however might be related with, renal disappointment, iron insufficiency, rheumatoid joint inflammation, polyneuropathy, cryoglobulinemia, and disease [6]. Essential RLS is familial in up to 66% of patients accepted to be an autosomal prevailing problem and optional structure is generally basic in those introducing without precedent for later life [7, 8].

This neurological issue in spite of preliminaries for better acknowledgment stays an undiscovered clinical condition [4, 9]. Analysis of RLS is absolutely clinical and there is no particular test [2, 7].

The fundamental clinical symptomatic models for anxious legs condition were created and endorsed by workshop members and the leader board of trustees of the International Restless Legs Syndrome Study Group as indicated by the National Institutes of Health, and every one of the four fundamental rules should be met for a positive analysis in excess of five times each month [2, 10]. Diabetic patients have 4–4.4-time more danger of creating RLS than in everybody albeit in one investigation no connection recognized [2, 6, 11]. Critical relationship among RLS and diabetes isn't magnificent in light of etiologic job of diabetes in delivering polyneuropathy and renal disappointment [10]. The points of this examination were to search for a relationship among RLS and diabetes for a situation control study and to recognize conceivable danger factors for the improvement of RLS in diabetic patients. (Zobeiri and Shokoohi 2014)

SUBJECT AND METHOD:

This is a case-control concentrate between 140 continuous patients with diabetes going to the diabetes focal point of the Kermanshah University Hospital, which were enlisted from March 2007 to July 2007 and the benchmark group comprises of 140 patients without diabetes who were conceded in the ENT division. Information assortment was finished by doctor from check list which incorporates segment data, factors identified with diabetes, and demonstrative models of RLS which were surveyed with normalized, approved inquiries tending to the 4 negligible measures for RLS as characterized by International Restless legs Syndrome Study Group. The two gatherings were coordinated dependent on age, sex, and weight record (BMI). Avoidance models were renal infection, iron insufficiency pallor, rheumatoid joint inflammation, and pregnancy. In diabetic patient, infection term and kind of diabetes decided however polyneuropathy were not evaluated. Information was examined by utilization of two-dimensional recurrence tables and count of tchouprov subjective connection coefficient for connection of danger elements and diabetes type. For summing up quantitative factors, information are shown in tables as means and standard deviations and test was utilized for correlation of RLS commonness between two gatherings. To coordinating between two gatherings autonomous chi-square and depending on the situation Fisher's definite test and Mann-Whitney test were utilized. (Zobeiri and Shokoohi 2014)

3.**1 Study design:** The study was descriptive, Cross sectional study.
- **3.2 Settings:** Data was collected from Allied Hospital Faisalabad and MTH.
- 3.3 **Duration:** This research had been completed in six months after the approval of synopsis from search committee of School of Rehabilitation Sciences of Faisalabad.
- **3.4 Sampling technique:** probability convenience sampling technique was used.

3.5 **Sample size:** Sample size is 167 including males and females
.

Equation: Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1) + p*(1-p)]$

Where, n=sample size, d=Confidence Interval, N=population size,

p=fraction of response we are interested in, DEFF= Design effect.
- **3.6 Sample selection criteria**
    The sample was selected according to the criteria given below
- **3.7 Inclusion criteria**
    - Participants who are socially active
    - Age;18-50years
    - Participants of Faisalabad
- **3.8 Exclusion criteria**
- Participants who are socially inactive
- Participants who are not suffering from any restless leg syndrome

- People with isolation
- Age; More than 45 years

3.11 Data collection Procedure
In this study, participants will be selected according to the mentioned inclusion-exclusion criteria. Consent form will be given to participants to agree for the study. Then restless leg syndrome will be used my researcher to collect data from participants.
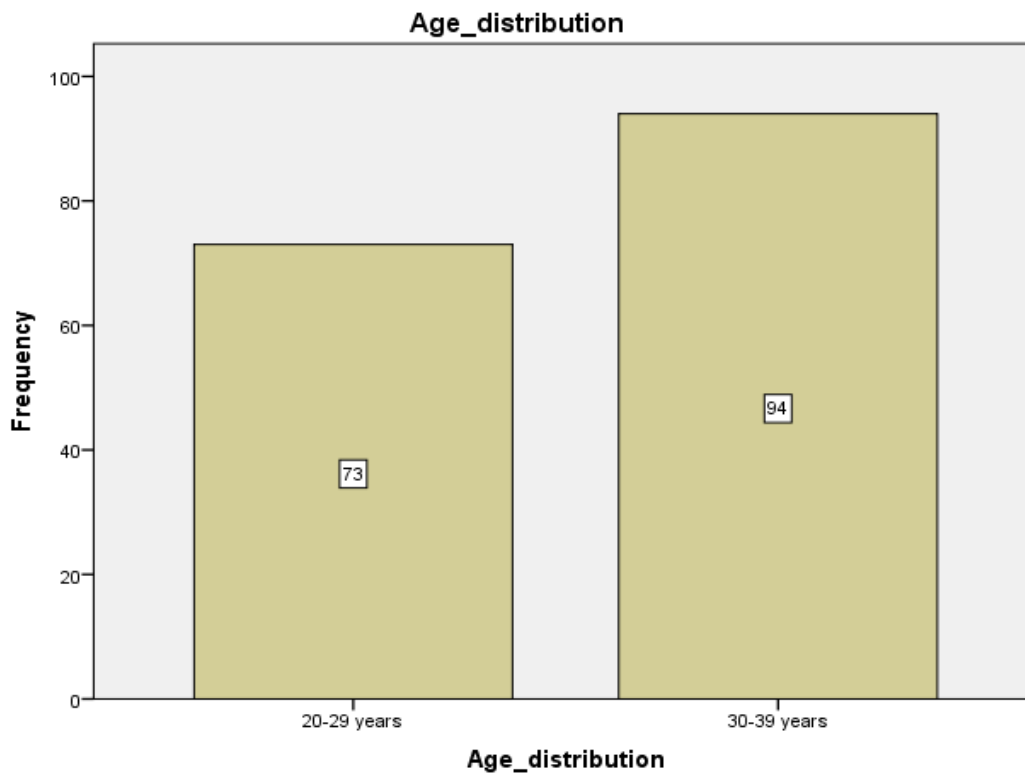
3.11.1 Data collection tools
Data will be collected by using diabetic Questionnaire

RESULTS:

1. Age distribution

Age distribution

		Frequency	Percent	Cumulative Percent
Valid	20-29 years	73	43.7	43.7
	30-39 years	94	56.3	100.0
	Total	167	100.0	

2. Interpretation of the Cambridge Hopkins restless leg syndrome
2.1 Do you have uncomfortable feelings or sensations in legs while you are sitting or lying down?

Do you have uncomfortable feelings or sensations in legs while you are sitting or lying down?

		Frequency	Percent	Cumulative Percent
Valid	Yes	55	32.9	32.9
	No	112	67.1	100.0
	Total	167	100.0	

Do you have uncomfortable feelings or sensations in legs while you are sitting or lying down?
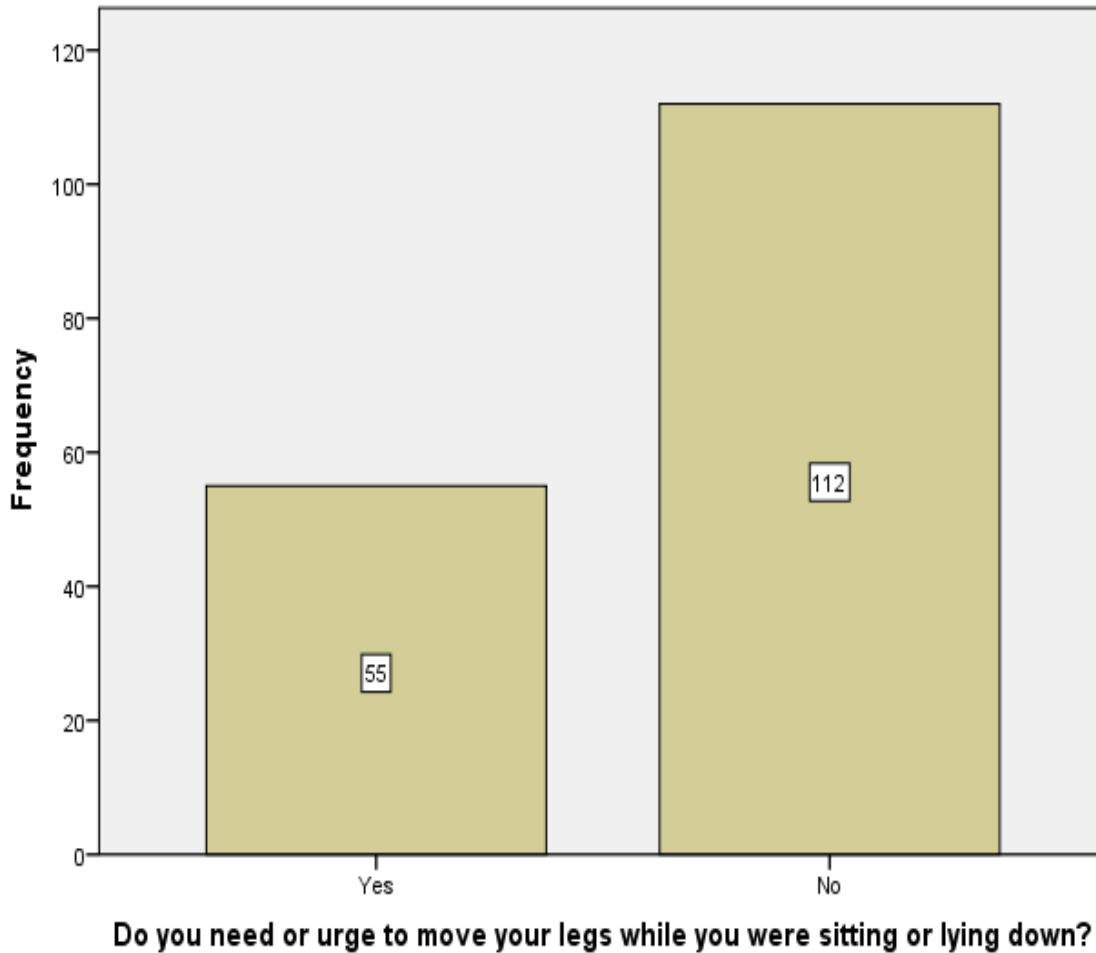
2.2 Do you need or urge to move your legs while you were sitting or lying down?

Do you need or urge to move your legs while you were sitting or lying down?

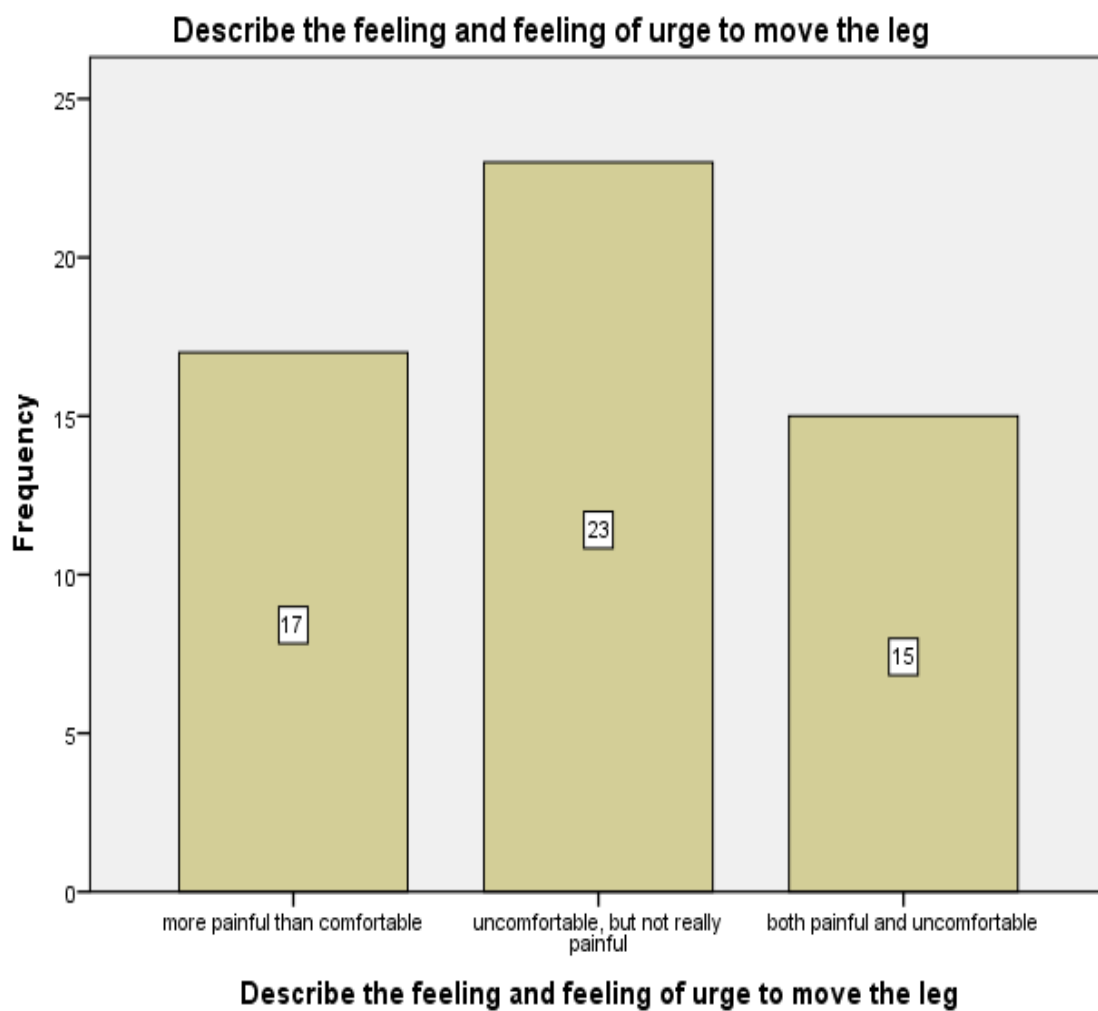|		Frequency	Percent	Cumulative Percent
Valid	Yes	55	32.9	32.9
	No	112	67.1	100.0
	Total	167	100.0	

Do you need or urge to move your legs while you were sitting or lying down?

Now we will continue the questionnaire for the ones who had complaint of discomfort in legs that were only 55 out of 167.

2.3 Describe the feeling and feeling of urge to move the leg

		Frequency	Percent	Cumulative Percent
Valid	more painful than comfortable	17	10.2	30.9
	uncomfortable, but not really painful	23	13.8	72.7
	both painful and uncomfortable	15	9.0	100.0
	Total	55	32.9	

Describe the feeling and feeling of urge to move the leg

Describe the feeling and feeling of urge to move the leg

2.4 Do you have these feelings when you are resting or physically active?

		Frequency	Percent	Cumulative Percent
Valid	resting	32	19.2	58.2
	active	23	13.8	100.0
	Total	55	32.9	

Do you have these feelings when you are resting or physically active?

Do you have these feelings when you are resting or physically active?
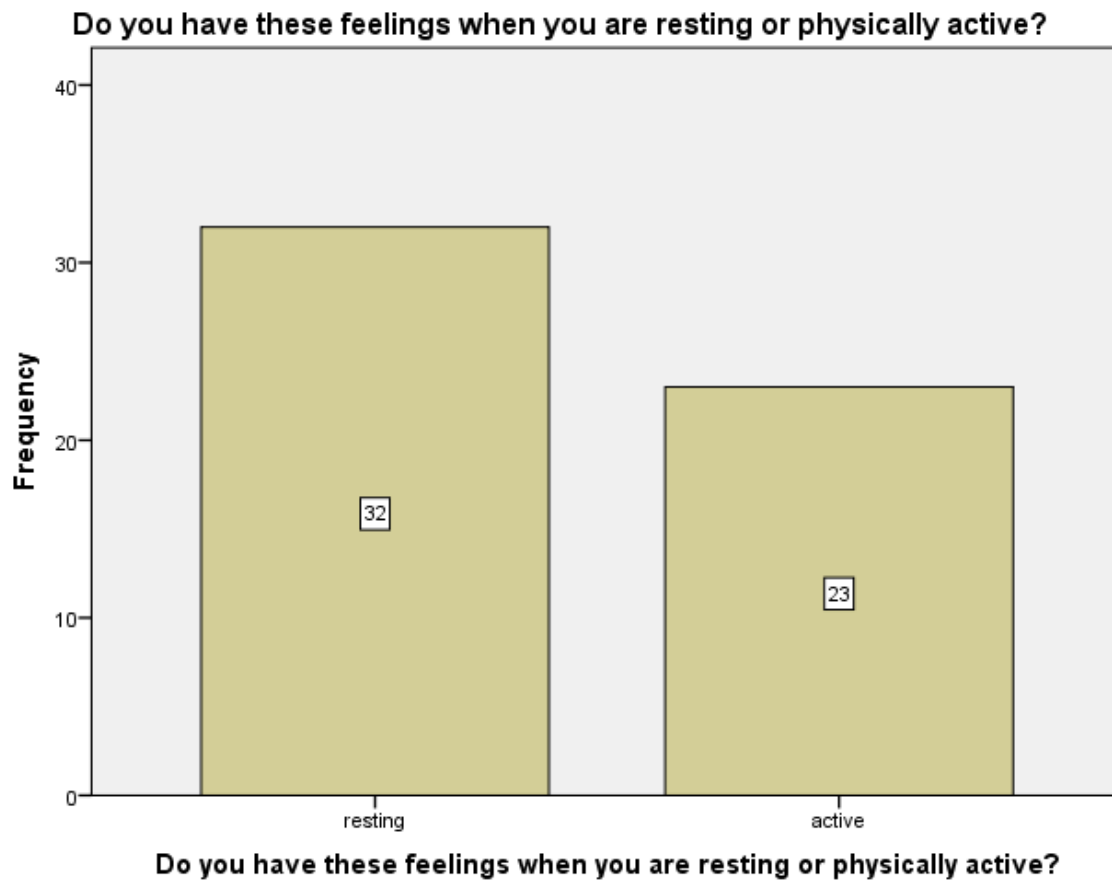
2.5 Do these feelings start when you are resting?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	32	19.2	58.2	58.2
	no	23	13.8	41.8	100.0
	Total	55	32.9	100.0	

Do these feelings start when you are resting?
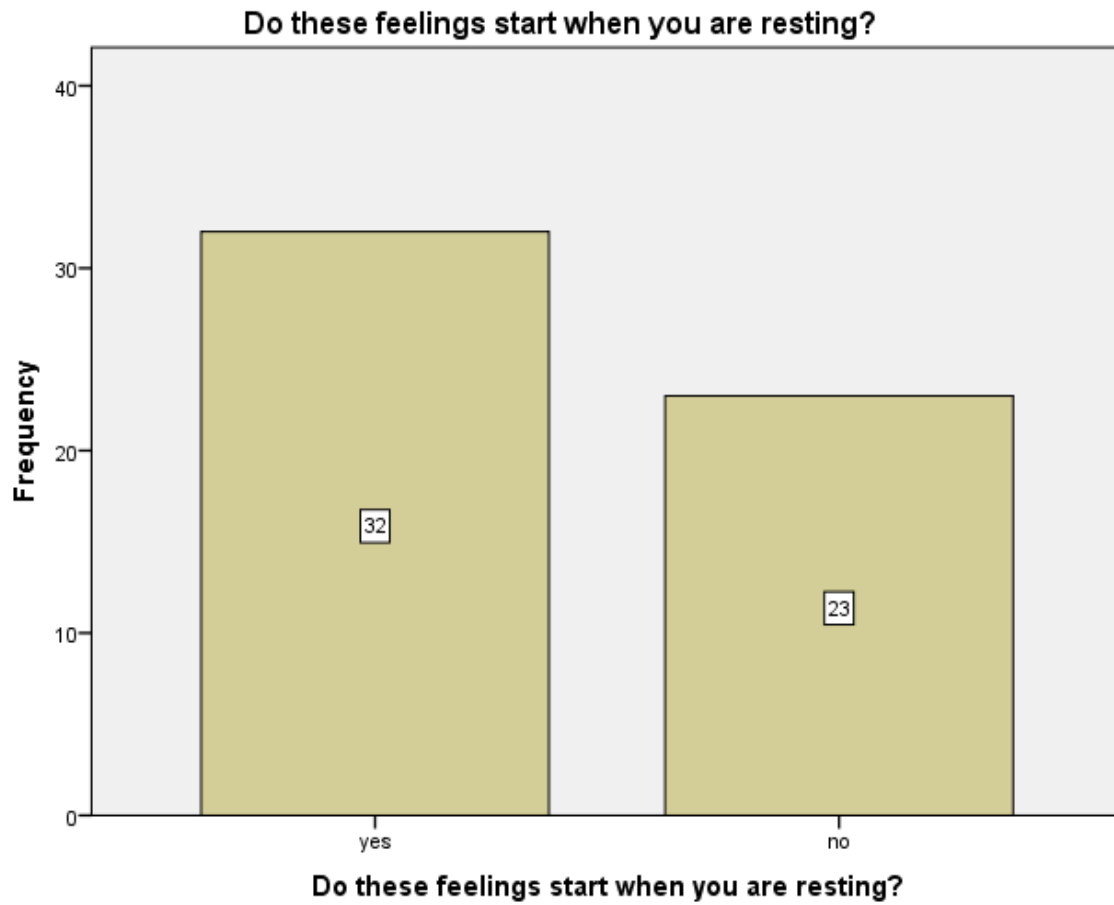
2.6 Do these feelings get better when you start moving after they are started?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	15	9.0	27.3	27.3
	no	23	13.8	41.8	69.1
	dont know	17	10.2	30.9	100.0
	Total	55	32.9	100.0	

Do these feelings get better when you starts moving after they are started?

Do these feelings get better when you starts moving after they are started?
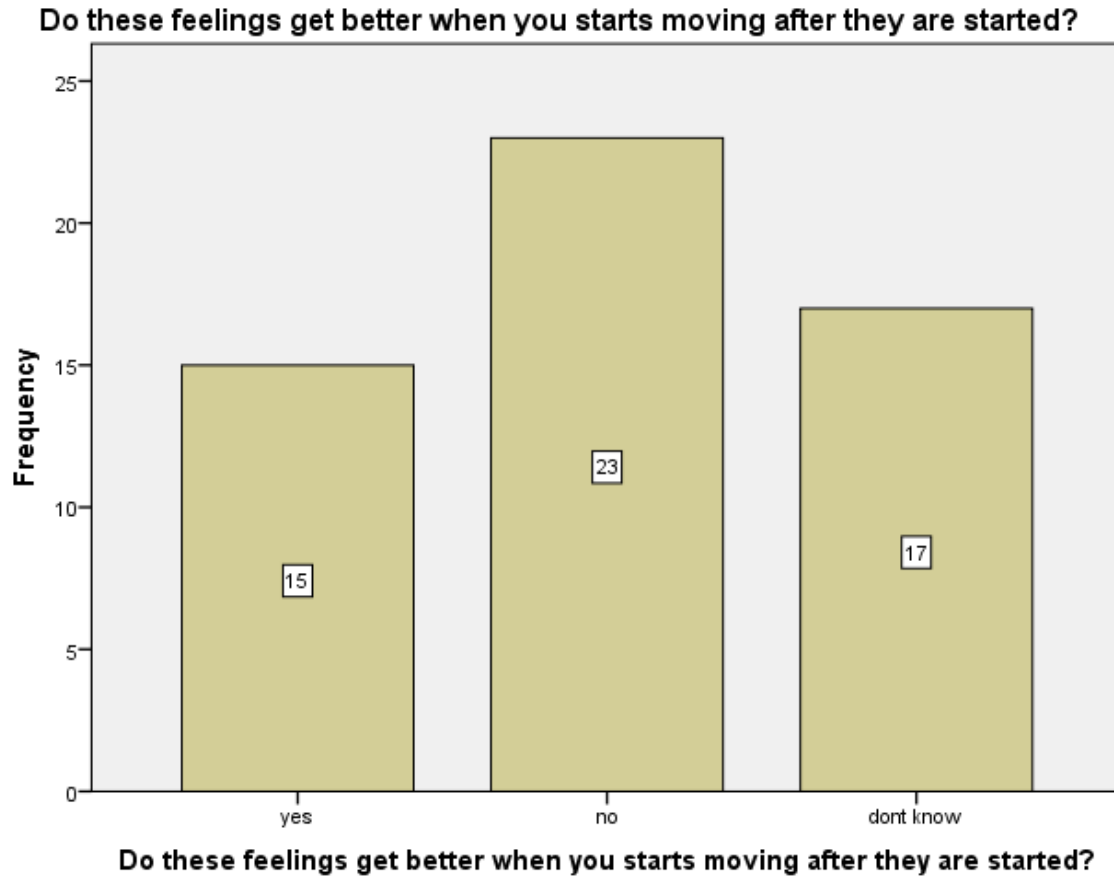
2.7 Do you get up and move around for 2 other reason than because you have these feelings?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	15	9.0	27.3	27.3
	no	23	13.8	41.8	69.1
	dont know	17	10.2	30.9	100.0
	Total	55	32.9	100.0	

Do you get up and move around for 2 other reason than because you have these feelings?

2.8 Do these feeling ever become overwhelming so that you can2t resist moving?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	32	19.2	58.2	58.2
	no	23	13.8	41.8	100.0
	Total	55	32.9	100.0	

Do these feeling ever become overwhelming so that you can2t resist moving?
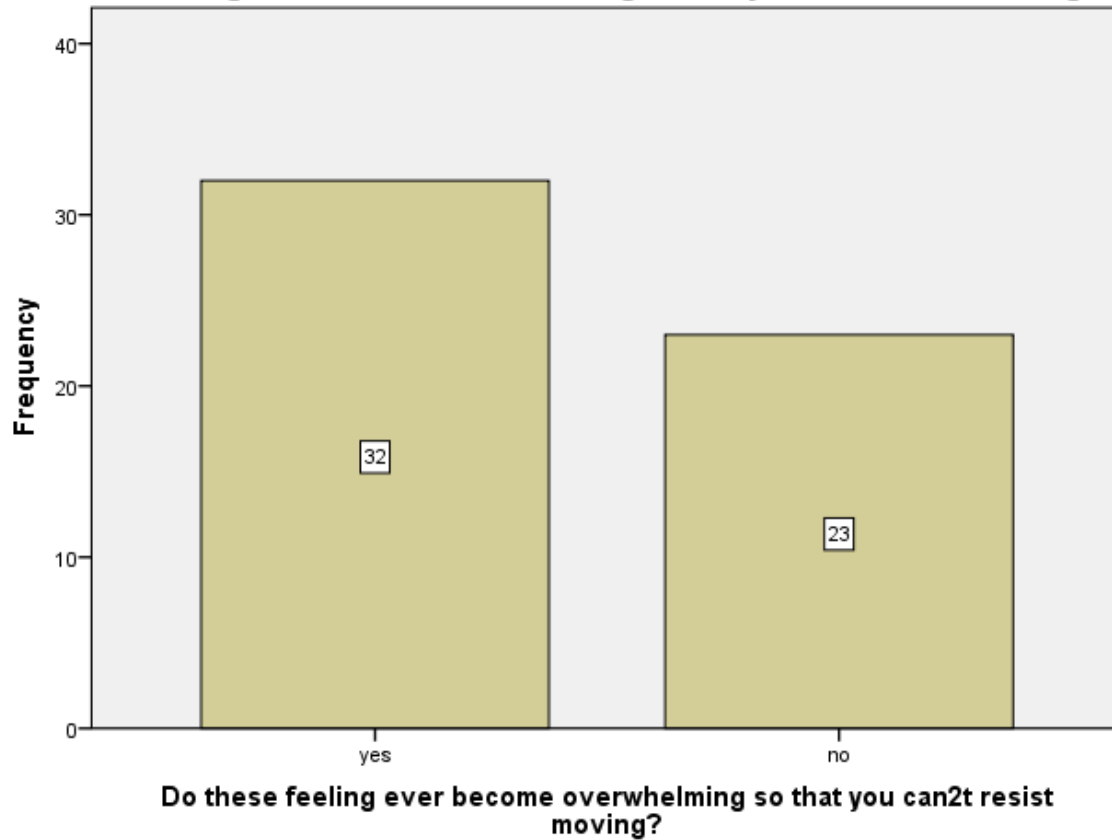
2.9 When you are awake and having these feelings how often you find your legs moving or jumping?

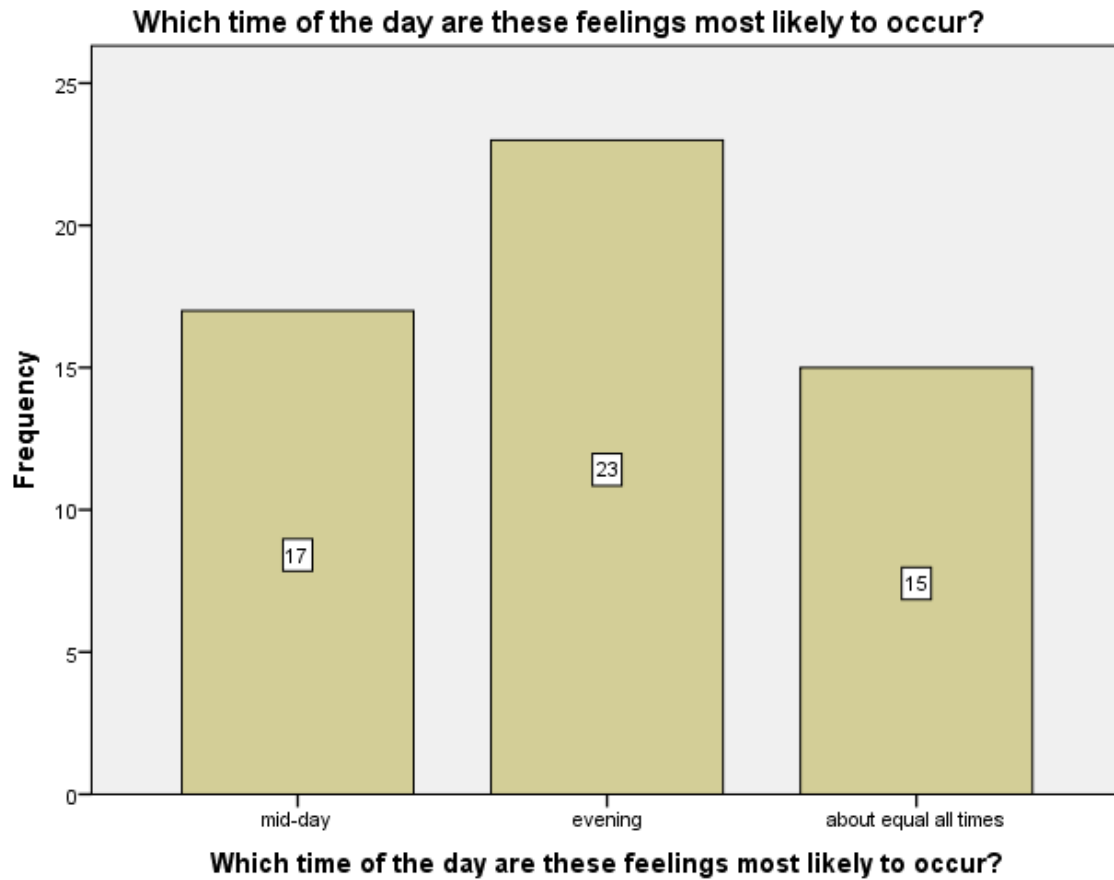|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	often	40	24.0	72.7	72.7
	almost always	15	9.0	27.3	100.0
	Total	55	32.9	100.0	

When you are awake and having these feelings how often you find your legs moving or jumping?
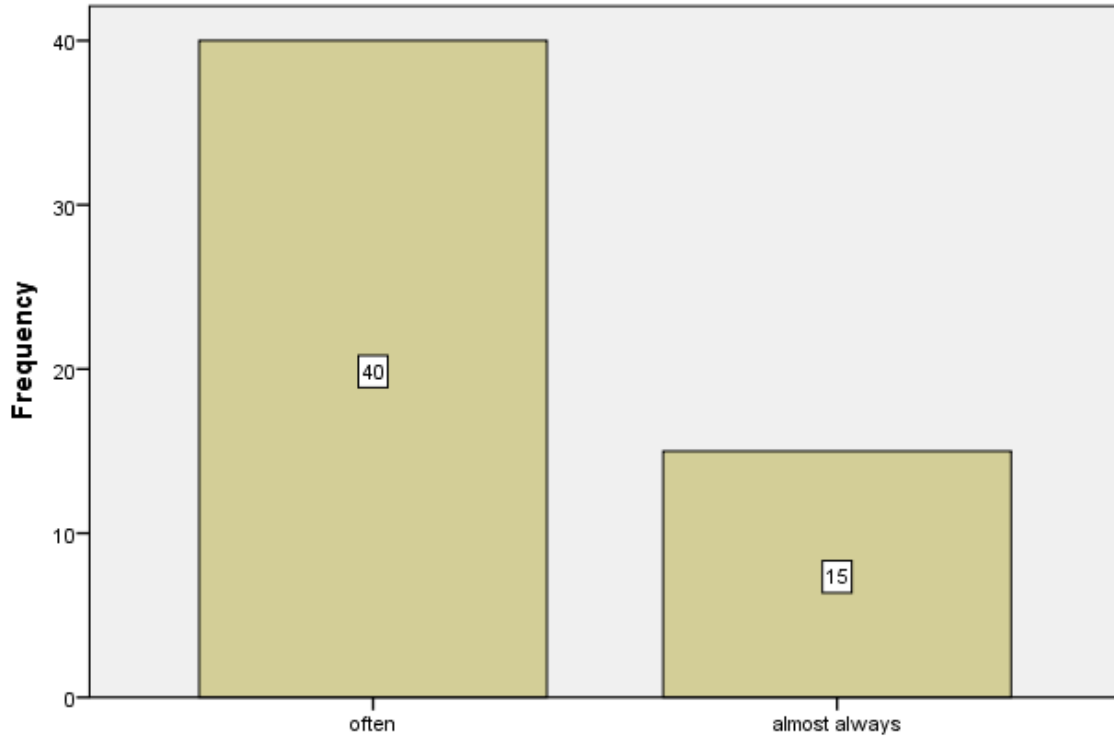
When you are awake and having these feelings how often you find your legs moving or jumping?

2.10 Which time of the day are these feelings most likely to occur?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	mid-day	17	10.2	30.9	30.9
	evening	23	13.8	41.8	72.7
	about equal all times	15	9.0	27.3	100.0
	Total	55	32.9	100.0	

2.11 Which time of the day are these feelings least likely to occur?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	morning	31	18.6	56.4	56.4
	evening	24	14.4	43.6	100.0
	Total	55	32.9	100.0	

Which time of the day are these feelings least likely to occur?
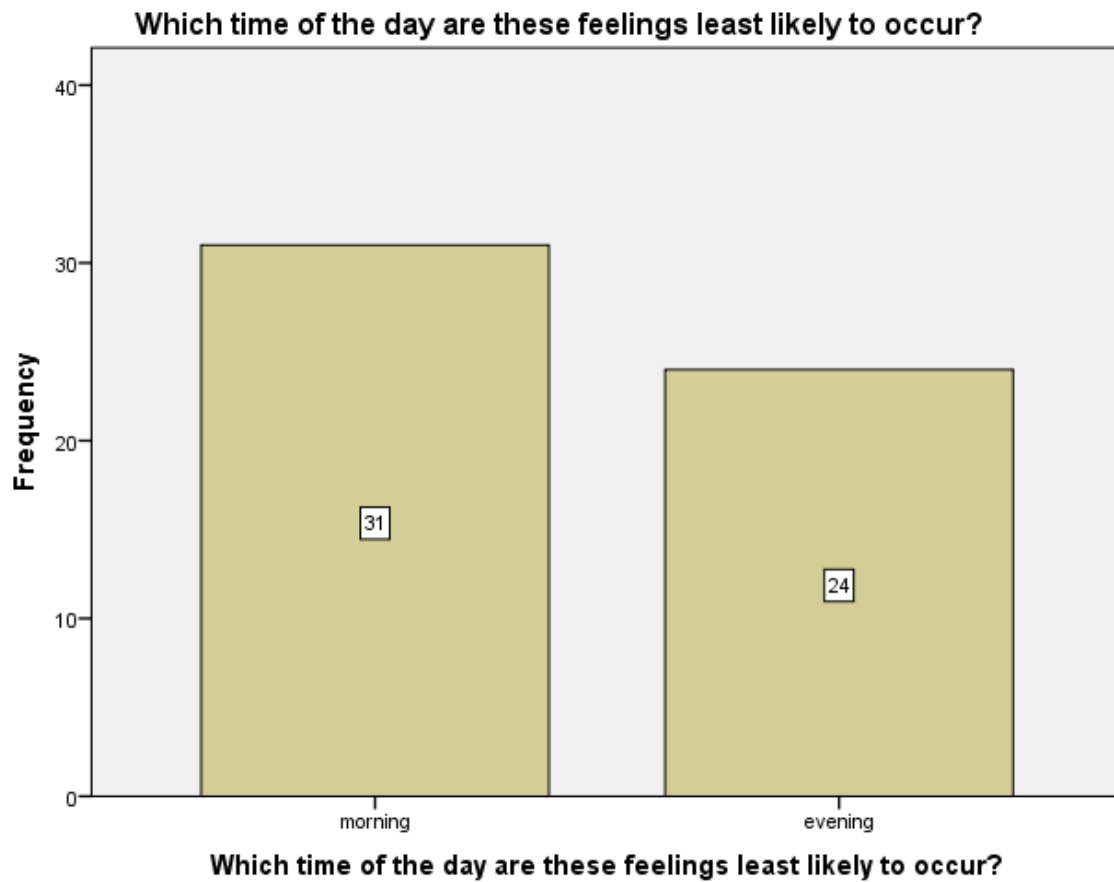
2. 12 Will simply changing the leg position relieve these symptoms?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	doesn't usually relieve	32	19.2	58.2	58.2
	usually relieve	23	13.8	41.8	100.0
	Total	55	32.9	100.0	
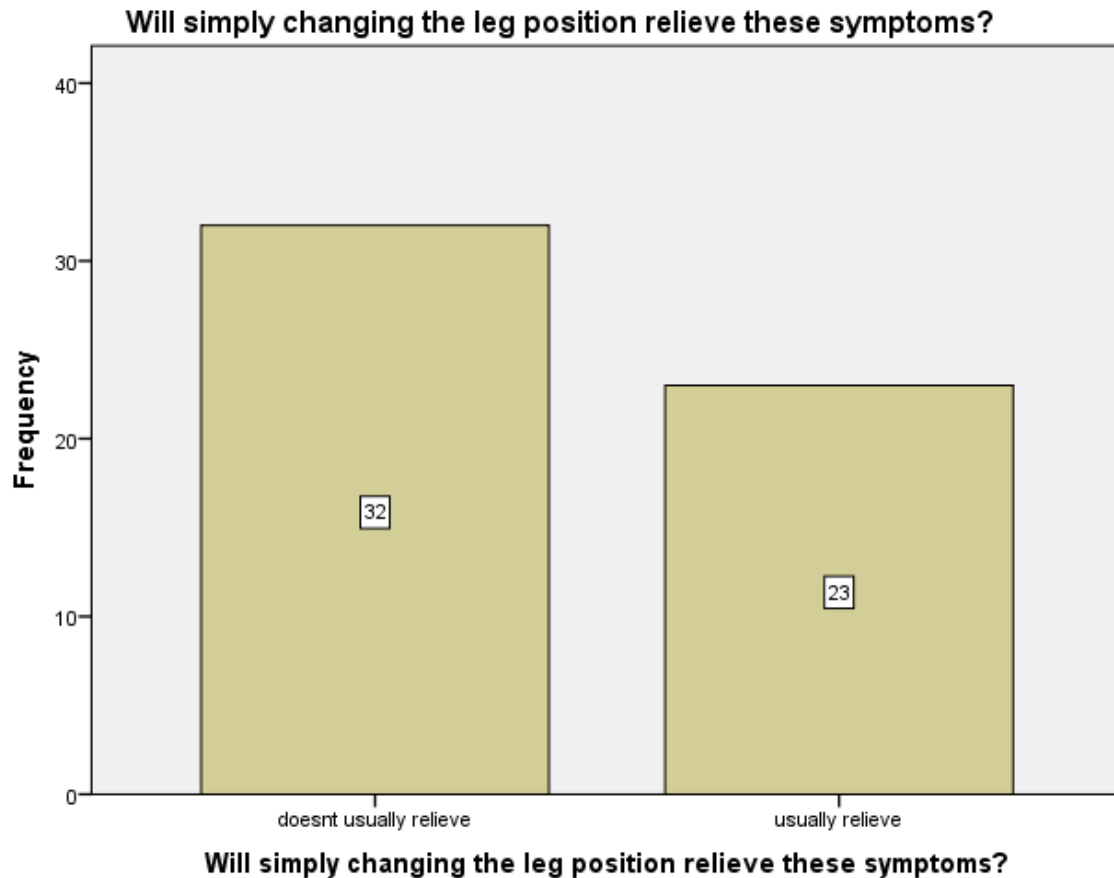
From the above data we have concluded that only 55/167 (32.9) percent people suffering with diabetes 2 had restless leg syndrome which shows that there is moderate prevalence of the restless leg syndrome among them.

DISCUSSION:

In the current investigation eager leg condition was closed in 42% of diabetic patients and is higher than an overview led in Iran (15) inwhich the anxious disorder was affirmed in 28.6% of diabetic patients when contrasted with controls (7.1%). Lower paces of anxious conditionhad been accounted for in Asian nations (Japanese (2–4%) and ingapore (0.1%) of diabetic patients (16, 17). Like the current investigation is an examination from Pennsylvania (18) in which 45% of diabetic patients met the four

demonstrative measures for fretful leg condition. The current investigation uncovered that fretful condition is ordinary citizen among ladies in concurrence with Hening et al,. (19) who detailed a higher rate of eager leg disorder among females. Diabetes mellitus is a typical reason for fringe neuropathy, so a higher commonness of fretful disorder is normal among this gathering of patients, in the current information no huge measurable distinction was accounted for in persistent with and

without anxious disorder as to neuropathy, in arrangement with Skomro et al,. (2) who reasoned that the predominance of tactile polyneuropathy was comparable in diabetics with and without RLS, and in logical inconsistency to Lopez et al,.(11) who found an relationship among RLS and fringe neuropathy, anyway a multivariate examination (4) indicated that diabetes mellitus stay an autonomous variable for fretful condition even in the wake of adapting to fringe neuropathy, moreover Gallego et al,.(20) noticed decreased dopamine in a few regions of the focal sensory system of rodents recommending a focal job. (Mirghani, Amirthalingam et al. 2016)

CONCLUSION:
This is the main examination which shows the RLS commonness and danger factors in Turkish sort 2 diabetes mellitus patients. The outcomes demonstrated that RLS is considerably more incessant in DM patients even subsequent to barring polyneuropathy than as a rule Turkish populace. The length of diabetes and insulin use are identified with RLS. (Akın, Bölük et al. 2019)

Almost, half of type 2 diabetic patients satisfied the four measures of the anxious disorder and it is related with higher estimations of glycated hemoglobin among ladies, raising the attention to doctors about the eager condition for legitimate conclusion and treatment for great control of diabetes mellitus is profoundly required. (Mirghani, Amirthalingam et al. 2016)

Limitations of study:
The study was more time consuming.
The interaction with the tailors was not enough because they couldn't take break from work & we had to get our data while they were working.

Most of the tailors were not so educated so it was hard to get them know about each terminology as the questionnaire was in English language.
This study was conducted only in one city, Faisalabad.

Recommendations:
On the basis of our study, it is to be recommended that;
Tailors should be educated about the work-related musculoskeletal disorders and its associated risk factors.

Tailors should be given awareness and education about proper ergonomics of the work stations.

Recommendation to the one who will study this topic is to have enough time while collecting data & he/she should use the questionnaires in the language that is understandable by the tailors.

REFERENCES:
1. Akın, S., et al. (2019). "Restless legs syndrome in type 2 diabetes mellitus." Primary care diabetes **13**(1): 87-91.
2. Bosco, D., et al. (2009). "Role of the Oral Glucose Tolerance Test (OGTT) in the idiopathic restless legs syndrome." Journal of the neurological sciences **287**(1-2): 60-63.
3. Merlino, G., et al. (2007). "Association of restless legs syndrome in type 2 diabetes: a case-control study." Sleep **30**(7): 866-871.
4. Mirghani, H., et al. (2016). "The effect of restless leg syndrome on diabetes control among type-2 diabetic patients in the Northwest region of Saudi Arabia." J Diabetol **7**(3): 1-6.
5. Siddiqi, S. A., et al. (2015). "Restless legs syndrome in patients with type 2 diabetes mellitus." Pakistan Journal of Neurological Sciences (PJNS) **10**(1): 14-20.
6. Zobeiri, M. and A. Shokoohi (2014). "Restless leg syndrome in diabetics compared with normal controls." Sleep disorders **2014**.