Section: Orthotics & Prosthetics

Original Research Article

FREQUENCY OF DIABETIC PERIPHERAL NEUROPATHY IN HOSPITALIZED PATIENT WITH DIABETIC MELLITUS

Iqra Ashiq[1], Sobia Batool[2], Madnia Wahid[3], Aniqa riaz[4], Rao Muhammad Waqas Kaleem[5], Ayesha Durrani[6], Ali Akhtar[7]

[1,2,3,4]Bachlor of Science in Orthotics & Prosthetics Institute of Health Sciences, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.
[5,6,7]Faculty of Institute of Health Sciences and Technology, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.

Received *: 10/04/2026*
Received in revised form *: 23/04/2026*
Accepted *: 25/04/2026*

Corresponding Author:
Ali Akhtar,
Faculty of Institute of Health Sciences and Technology, Khwaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan.
Email: ali8310a@gmail.com

DOI: 10.70034/ijmedph.2026.2.276

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 1653-1660

ABSTRACT

Background: Diabetes mellitus is a fast rising chronic metabolic disease throughout the world and is linked to various chronic long-term complications. Diabetic peripheral neuropathy (DPN) is one of the most prevalent complications that occur because of long-term hyperglycemia and the nerve damage that is produced by it, more specifically the lower limbs. It manifests itself with symptoms of numbness, tingling, burning sensation, and pain. To avoid serious complications such as foot ulcers and amputations, it is important to detect DPN early. **Objective:** To determine the frequency of diabetic peripheral neuropathy among hospitalized patients with diabetes mellitus aged 18 to 60 years.

Materials and Methods: The cross-sectional study was carried out in a period of three months (January 2026–March 2026) in different hospitals. Hospitalized diabetic patients aged between 18-60 years and who fitted the inclusion criteria were recruited using a convenient sampling method. The questionnaire and clinical examination were conducted using a structured questionnaire and clinical examination based on the symptoms and signs of peripheral neuropathy. The statistical analysis was conducted with the help of SPSS version 25, and the descriptive statistics were used. The p-value of less than 0.05 was taken as the statistically significant value.

Results: The study found out that there was a significant prevalence rate of diabetic peripheral neuropathy among hospitalized diabetic patients. A large percentage of patients were reported with the symptoms of numbness, tingling and burning sensation in the lower limbs. The incidence of DPN was more prevalent in the patients with longer duration of diabetes and poor glycemic control. Women patients were observed to be more affected than the males.

Conclusion: One of the frequent problems among hospitalized diabetic mellitus patients is diabetic peripheral neuropathy. It is very important to identify and treat early to avoid serious complications and enhance quality of life of patients. Regular screening and effective glycemic control should be emphasized in clinical practice.

Keywords: Diabetic Peripheral Neuropathy, Diabetes Mellitus, Frequency distribution of ankle reflex and knee reflex.

INTRODUCTION

The International Diabetes Federation (IDF) estimates that there are approximately 34.8 million individuals in Pakistan who have diabetes and nearly three-quarters of the people who are diagnosed with diabetes in Pakistan are not adequately managed. As the incidence rate of associated complications, and in particular diabetic peripheral neuropathy, are already observed to be on the upward trend as well, it is also

expected that the rate of incidence related to the complications will also coincidentally be on the upward trend as well. (Kisozi, Mutebi et al. 2017). With the incidence of diabetes mellitus (DM) steadily increasing, the risk and prevalence of its complications are expected to rise in line with the incidence, and it is thus a critical issue in the area of social and community health. (Sun, Wang et al. 2020). Neuropathy is reported to be the most prevalent microvascular complication in individuals with diabetes and may involve the peripheral nervous system, central nervous system and autonomic nervous system. Neuropathic changes have been observed to start at even early stages of deglycation even during the pre-diabetic stage. Of the varying forms, the most common one, which is evident in patients with both type 1 and type 2 diabetes is referred to as peripheral neuropathy (PN). It is one of the top ten causes of death in adults, causing an estimated 3.4 million deaths in the world in 2025 (Chang and Yang et al. 2023).

Distal symmetrical numbness of the limbs with loss of sensation is the most common type of diabetic peripheral neuropathy (DPN). Neuropathic pain is a by-product of DPN, and occurs in about 20% of diabetic patients. This pain can be easily expressed in various ways including burning, electric shock-like and sharp pain and it may also be accompanied by pruritus, hyperalgesia and produced pain. When diabetic neuropathy occurs, the effective management of the patients becomes much more complicated. Thus, identification and strict management of the risk factors that can be modified is crucial to prevent the development and the progression of neuropathy. Not only does proactive intervention decrease the risk of serious complications that may include foot ulcers, gangrene, and amputation of limbs, but also reduces the overall social and economic burden of diabetic peripheral neuropathy.(Liu, Xu et al. 2019)

According to the Toronto Consensus Panel on Diabetic Neuropathy, DPN is a symmetrical, length-dependent sensorimotor polyneuropathy that is a consequence of metabolic derangements and microvascular changes induced by long-term hyperglycemia and cardiovascular risk factors. Conversely, a large proportion of the patients have no feeling in the foot and may not be aware of the foot injuries, which is referred to as negative symptoms. By not adopting early warning signs and preventive measures such as proper foot care and appropriate footwear, such patients are at the increased risk of developing foot ulcers. Once the diabetic neuropathy begins, patients with diabetes become quite more difficult to deal with. As such, to have effective diabetes management, there is a need to identify and treat the risk factors that could be treated. Early intervention can help in decreasing the risk of severe complications related to diabetic peripheral neuropathy (DPN), including foot ulcer, gangrene, amputation of limbs, and also in decreasing the overall social and healthcare burden of the disease. (Liu, Xu et al. 2019)

Diabetic lower-limb amputation that is not traumatic has been considered as the main cause of non-traumatic lower-limb amputation in most high-income countries. Although there is much research, the causes and mechanisms of DPN remain not well understood. However, it is believed that the condition is primarily related to a series of metabolic derangements that go with diabetes like persistent hyperglycemia, abnormal lipid metabolism and insulin resistance. Such metabolic imbalances could cause dysfunction of the mitochondria, induction of inflammation and oxidative stress, and the transcription and expression of the genes, which eventually results in neuronal and glial damage. Moreover, certain medications frequently prescribed to individuals with diabetes, such as proton pump inhibitors and metformin, may contribute to or worsen DPN by causing vitamin B12 deficiency.(Kisozi, Mutebi et al. 2017) Up to one-third of adults with diabetes are likely to develop diabetic peripheral neuropathy (DPN), making it essential to examine its prevalence and related risk factors.(D'Souza, Kulkarni et al. 2015) In addition, DSPN significantly increases the risk of diabetic foot ulceration as it causes a loss of protective sensation. Due to the strong clinical implications, numerous attempts have been undertaken to strengthen the notion of early identification, including creating new screening strategies (Papanas and Ziegler 2015).

One of the most widespread, and urgent impacts of diabetes mellitus (DM). It may also be manifested in different ways, including peripheral, focal, proximal and autonomic neuropathy. The number of victims to neuropathy in the world is expected to be more than 200 million individuals with diabetes in the world today. Diabetic peripheral neuropathy (DPN) is characterised by presence of symptoms and /or clinical manifestations of peripheral nerve damage or dysfunction in diabetic individuals, when other possible causes are ruled out. This condition impacts some areas of the nervous system and may cause considerable morbidity in patients, thus raising healthcare expenses incurred when dealing with diabetes. Research indicates that 23 per cent to 76 per cent of patients with diabetes will have some type of neuropathy. Many patients experience neuropathic pain in diabetic neuropathy and is described as burning, tingling, electric shocks or sharp and stabbing painful sensations. This pain may originate in the feet and may be thought to travel upwards to the calves, hands and fingers and a pattern of a stocking and gloves. The existence of such pain has a significant impact on the daily functioning, as well as, the quality of life of patients. The intensive glucose control is the only intervention that has been shown to decrease the risk of developing neuropathy in diabetic patients (Levterova, Naydenov et al. 2018). Besides poor glycemic management, older patients, those who have had diabetes in a longer duration, suffer hypertension or cardiovascular

disease, and use tobacco are at a higher risk of developing diabetic neuropathy (Alleman, Westerhout et al. 2015).

Diabetic peripheral neuropathy is present in small quantities in the degeneration of sensory nerve fibers and it affects as many as one out of three diabetes patients. The associated neuropathic pain has a significant impact on the quality of life, emotional and physical health, functional level, sleep. A combination of high blood sugar and metabolic disorders also compromises the immune system of the body and predisposes subtle and unnoticed wounds to being infected and having serious complications with limbs. Past experience shows that in the majority of developed nations, the most common cause of non-traumatic amputation of lower limbs is DPN (Zhu, Hu et al. 2024).

Diabetic peripheral neuropathy (DPN) has remained to be one of the most challenging complications of diabetes to cure. Therefore, it is necessary to identify its possible risk factors and preventive measures already at the initial stage to be implemented to ensure that the overall burden of the disease on the society and healthcare provision can be reduced with respect to diminished severe complications. A number of factors, such as the duration of diabetes, old age, high glycosylated hemoglobin A1c (HbA1c) levels, diabetic retinopathy (DR) presence, smoking behavior, and body mass index (BMI) have been reported in the previous studies as having the potential to contribute to the development of DPN. Nonetheless, much of the existing evidence relies on cross-sectional designs and relatively small size of the samples which limits the possibility to make causal inferences and to generalize the results to the overall population.

Within the present study, the predictors of DPN in patients with type 2 diabetes were systematically reviewed and the evidence-based medicine approach was used. The studies which met the predetermined inclusion criteria were included in the final analysis. The results of the combined analysis revealed that the longer the time of the diabetes (MD 2.5, 95% CI 1.71-3.29). In contrast, other factors were not identified to significantly relate with the risk of DPN; these factors include BMI, smoking status, total triglycerides (TG), and total cholesterol (TC). Compared to individuals with Type 2 diabetes mellitus (T2DM), Type 1 diabetes mellitus (T1DM) is not causing peripheral neuropathy at the same rate. Research findings indicate that diabetic peripheral neuropathy (DPN) is normally not present at the time of diagnosis since the disease in question tends to set in earlier in life and is diagnosed rather promptly. Most of the cases of neuropathy begin to manifest after an average of 10 years of disease duration, and long-term studies indicate that up to about one-third (about 30-35% of patients) develop DPN after 25 years of disease duration.

However, the same cannot be said about T2DM, though. As type 2 diabetes can be un-diagnosed over several years, there is a possibility that by the time the diabetes is first diagnosed, many people may already have the signs of the peripheral neuropathy. The incidence of DPN among such patients is likely to increase with age and duration of diabetes, and thus older patients with long-standing T2DM are particularly susceptible to nerve damage.

In addition, recent research also suggests that neuropathy may begin even prior to the onset of full development of diabetes. Some individuals with pre-diabetes or who are unable to metabolize glucose in a normal manner have been reported to experience dysfunction of their sensory nerves or neuropathic pain. Even though the actual prevalence of neuropathy in individuals with normal blood glucose levels is yet unknown, available evidence suggest it to be somewhere between that of individuals with normal blood glucose levels and those with known diabetes.

According to the latest global estimates (20242025), some 537 million adults around the world aged 2079 years are living with diabetes, at a prevalence rate of approximately 1011% of all adults in the global population. It is approximated that this number can rise up to about 640700 million in 2045 unless the current trend is altered. As the number of diabetic patients in each of the world is increasing tremendously, so are the chances of an increase in the number of patients with diabetic neuropathy and other related complications of diabetes.

This is the reason why healthcare workers have a paramount task to diagnose neuropathy at an early stage. Early diagnosis helps clinicians to implement right treatment measures, improve glycemic control, in addition to providing symptom relieving treatments. These interventions can help in preventing the disease progression, reducing complications, and improving the quality of life of diabetic patients.

There may be a number of underlying causes leading to peripheral neuropathy with diabetes mellitus being one of the most commonly reported causes around the world. Other important causes, such as exposure to toxic substances, such as long-term use of alcohol and certain drugs used in cancer therapy (chemotherapeutic drugs), can cause damage to peripheral nerves in the long term. In addition to this, immune-mediated disorders - conditions where the immune system of the body attacks nerve tissues in an incorrect manner can also cause nerve injury. Some individuals might also be predisposed to neuropathic disorders by the inherited mutation or genetic abnormality that interferes with the structure or functioning of peripheral nerves. Because many of these causes are probably treatable or controllable, clinicians should make a comprehensive diagnostic evaluation when neuropathy is suspected. This assessment normally begins with an elaborate history and physical examination which helps the medical practitioner to come up with the risk factors, symptoms and possible exposures. Nerve conduction studies are often part of diagnostic testing, and measure the efficiency with which nerve impulses

travel through the peripheral nerves and help determine the nature and extent of nerve damage. In addition to this, the laboratory tests, such as blood glucose levels, vitamin levels, autoimmune markers, and the metabolic tests are performed to identify underlying systemic or metabolic conditions. A comprehensive and careful evaluation can assist clinicians to identify reversible or treatable factors of neuropathy and choose the most appropriate management interventions. This can be achieved via the implementation of the HR strategy (Lehmann, Wunderlich et al. 2020).

The so-called diabetic peripheral neuropathy (DPN) is commonly regarded as one of the most common chronic complications of diabetes mellitus, and is to a large extent attributable to long-term hyperglycemia, which is central to the pathogenesis of the peripheral nerve damage. The progressive damage to nerve fibers with many years of continuous high blood glucose levels occurs, in particular, in the distal parts of the peripheral nerves. As a result, the degeneration of nerves normally begins in the longest nerves of the body, especially those that extend along the spinal cord to the lower limbs and feet, in order to give the characteristic stocking-glove pattern of sensory loss that is characteristic of many patients with DPN.

It is chronic hyperglycemia that triggers a chain reaction of metabolic and biochemical imbalances, which cause nerve damage. They include activation of polyol pathway, accretion of advanced glycation end products (AGEs), mitochondrial dysfunction, and disturbed lipid metabolism. The combination of these changes with each other disfigures the usual structure and functioning of nerve cells and the tissues that support them. At the same time, diabetes is associated with microvessel complications, which impairs the supply of blood to the peripheral nerves. A low blood flow causes inadequate oxygen and nutrient supplies, especially to the most distant parts of long nerve axons. The feet and lower leg nerves are especially susceptible to ischemia and hypoxia, which further contributes to the acceleration of the degeneration of nerve fibers.

Chronic oxidative stress and inflammation is another key process that was implicated in the development of DPN. The persistent metabolic imbalance of diabetes predisposes excessive production of reactive oxygen species and inflammatory cytokines. Such compounds result in injury of nerve membranes, impairment of axonal transport and breakage of normal neuronal signaling. The long-term cumulative consequences of oxidative stress, inflammation and vascular insufficiency leads to structural and functional damage of peripheral nerves.

Although diabetes has been the most consistent underlying causative factor of DPN, there is emerging evidence that even in the pre-diabetes stage, neuropathic changes could be precipitated. The early symptoms of nerve dysfunction might already be noticed in individuals with impaired glucose tolerance or with metabolic syndrome. Additionally, a series of comorbid conditions (obesity, high blood pressure, dyslipidemia, and sedentary lifestyle) can also further predispose the risk of neuropathy through exacerbation of metabolic imbalances and vascular damage.

Recent global estimates show that, in 20242025 there will be over 537 million adults in the world, with diabetes, and its number is rapidly increasing. The major social health problem in Pakistan is diabetes. According to the recent international and regional reports, about 33 million adults in Pakistan are today living with diabetes and this makes the country one of the countries with the highest level of diabetes burden in the world. As diabetes is on the increase, it is also likely that complications like diabetic peripheral neuropathy will also increase significantly. The findings of the research that has been conducted in Pakistan suggest that there is a high probability of development of some degree of neuropathy in a predetermined percentage of patients with long-term diabetes, particularly, those with poor glycemic control and long history of the disease.

One of the most crucial measures of the prevention or delay of the evolution of DPN is the key issue of controlling the level of blood glucose. The use of insulin therapy, oral hypoglycemic drugs, and lifestyle interventions, such as dietary changes, weight management, and physical activity can all be of great help in preventing nerve damage risk. Extensive clinical trials and meta-analyses of thousands of diabetic patients with both type 1 and type 2 diabetes have demonstrated that maintaining the blood glucose levels of diabetic patients close to normal levels has a dramatic impact in reducing the development and progression of diabetic neuropathy. Therefore, timely detection of diabetes, stringent glycemic control, and management of risk factors are key factors in reducing the burden of neuropathy and enhancing the future outcomes of patients with diabetes (Aleidan, Ahmad et al. 2020).

MATERIALS AND METHODS

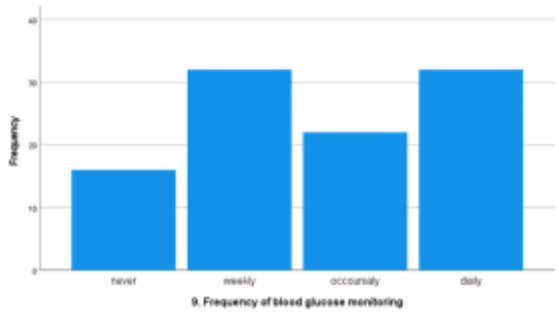
The research was cross-sectional. The study had been conducted in the different hospitals and wards. The duration of the study was three (3) months from January 2026 to March 2026. Within this time, data collection, data analysis and report writing was accomplished. Hospitalized people who have a diagnosis of diabetes mellitus submitted the data. Clinical assessment and uniform questionnaires were used to collect data. The study was aimed at determining the prevalence of diabetic peripheral neuropathy in hospitalized patients with diabetes mellitus aged between 18 and 60 years.

Data Analysis Procedure

The data was investigated using SPSS version 27, which is a statistical package for the social sciences. The result was presented in table and charts. A P value of < 0.05 was consider statistically significant. A non-probability convenient sampling technique

was used in the study. Both male and female diabetic patient admitted in the hospital were including after obtaining written informed consent. Patient with non-diabetic, sever illness or unrelated neurological disorder were excluded from the study. Ethical approval from the hospitals and confidentiality of all the participants were mentioned throughout the research.

RESULTS



Bar graph of frequency of blood glucose monitoring

This graph shows the rate of blood glucose monitoring by the study participants. Those who monitored weekly and daily gave an equal proportion of 32 (31.1%). Twenty-two (21.4%) and sixteen (15.5%) participants reported occasional and never monitoring of their blood glucose levels, respectively. Also, 1 (1.0%) response was marked as missing. Comprehensively, the monitoring practices of the participants were different and a significant number of participants regularly checked their levels of blood glucose.

Table 1: Types of diabetes

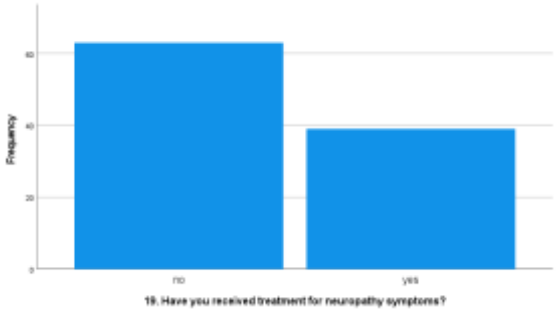
Type of diabetes			
		N	%
type 1		23	22.3%
type 2		37	35.9%
Unknown		42	40.8%
Missing	System	1	1.0%

The following table shows the type of diabetes among the study participants. The greatest number of respondents had unknown type of diabetes 42 (40.8%), then the type 2 diabetes 37 (35.9%). The number of respondents who reported having Type 1 diabetes was 23 (22.3) respondents. Also, 1 (1.0%) answer was marked as missing. In general, the majority of the respondents either had type 2 diabetes or an unspecified type.

Table 2: Symptom frequency

Symptom	Never N (%)	Often N (%)	Sometimes N (%)	Missing N (%)
Numbness in feet	31 (30.1%)	22 (21.4%)	49 (47.6%)	1 (1.0%)
Tingling sensation in feet	25 (24.3%)	21 (20.4%)	56 (54.4%)	1 (1.0%)
Burning pain in feet	32 (31.1%)	30 (29.1%)	40 (38.8%)	1 (1.0%)
Sharp/stabbing pain in legs	25 (24.3%)	27 (26.2%)	50 (48.5%)	1 (1.0%)
Reduced sensation in feet	37 (35.9%)	27 (26.2%)	38 (36.9%)	1 (1.0%)
Difficulty walking	36 (35.0%)	27 (26.2%)	39 (37.9%)	1 (1.0%)
Muscle weakness in legs	26 (25.2%)	32 (31.1%)	44 (42.7%)	1 (1.0%)

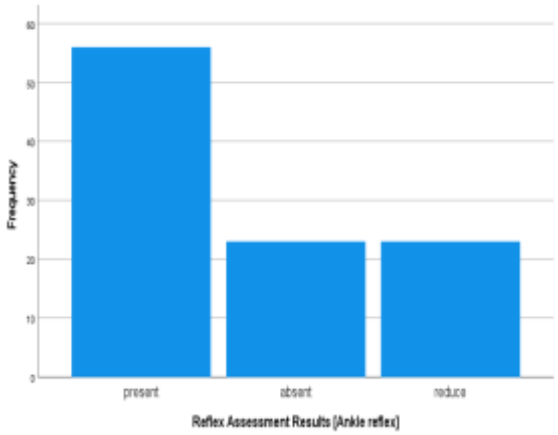
This table presents the frequency of neuropathic symptoms among the study participants, including numbness, tingling sensation, burning pain, sharp or stabbing pain, reduced sensation, difficulty walking, and muscle weakness in legs. The majority of participants reported experiencing most symptoms intermittently, with a high proportion falling under the "sometimes" category across all variables. A notable number of respondents also reported experiencing symptoms "often," while a smaller proportion stated that they never experienced these symptoms. Overall, the findings indicate that neuropathic and lower limb-related symptoms are commonly present among the study participants.

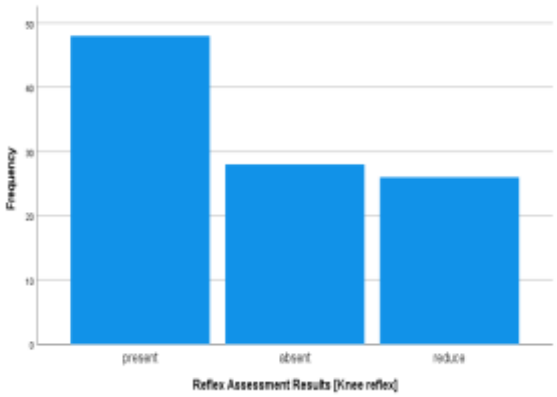


The results of the clinical examination of the various neuropathic sensory tests of the research participants, which include pin-prick sensation, light touch, vibration sense, temperature sensation and pressure

sensation. The general finding was that the majority of the participants had normal sensory reactions in pin-prick, light touch, vibration, and temperature tests. But many of them exhibited missing or defective sensations in various modalities, with a range of the extent of neuropathic involvement. In the mono-filament (pressure) test more than half the subjects demonstrated retained sensation, and a large proportion of these subjects showed reduced or nonexistent responses. In general, the results suggest that sensory impairment has a considerable percentage of participants.

Bar graph of reflex assessments





Reflex assessment revealed that a greater percentage of respondents had current reflexes in both the ankle (54.4) and knee (46.6) reflexes. Nonetheless, a significant proportion of them had absent (ankle 22.3%, knee (25.2%)) and weakened reflexes (ankle 22.3%, knee (25.2%)). These results show that there was a significant amount of reflex abnormality in the participants.

Table 3: Reflexes assessment test among participants

Reflex Test	Present N (%)	Reduced N (%)	Absent N (%)	Missing N (%)
Ankle reflex	56 (54.4%)	23 (22.3%)	23 (22.3%)	1 (1.0%)
Knee reflex	48 (46.6%)	26 (25.2%)	28 (27.2%)	1 (1.0%)

DISCUSSION

The current investigation was done to find out the prevalence of diabetic peripheral neuropathy (DPN) in hospitalized patients with diabetes mellitus aged 18 to 60 years. Diabetes mellitus is a chronic metabolic disorder rapidly increasing all over the world and is related to a variety of long-term complications. One of the most common and medically serious of these problems is diabetic peripheral nerve damage that affects peripheral nerve, and causes sensory, motor, and autonomic dysfunction. According to international reports including the data provided by the International Diabetes Federation, the burden of diabetes is increasing significantly in Pakistan and thus, the prevalence of its complications such as neuropathy is also likely to increase.

A total of 102 hospitalized diabetic patients were involved in this study. The results show that a significant proportion of the sampled (53.4) had no reported case of diabetic peripheral nerve damage, although 45.6% of respondents had a confirmed case. This observation means that a considerable proportion of the patients might either never be diagnosed or diagnosed late which is a failure in routine practice in the screening of patients in hospital. The same has been found to be reported in the past, although in this case that of patients in the hospital, it may be possible that diabetes peripheral neuropathy is being underscored in the past.

The symptom profile that was observed in this study revealed that most of the participants had experienced neuropathic symptoms which included numbness in feet, tingling sensation, burning pain, sharp or stabbing pain, reduced sensation, difficulty walking, and muscle weakness in legs. Most of the symptoms were said to be as frequently or occasionally as nerve involvement had been reported. The results are similar to the works that define diabetic peripheral neuropathy as a distal symmetrical polyneuropathy, which typically starts in the lower extremities and has a topography of a stockings and gloves.

The findings of the clinical examination were also another corroboration of the presence of a neuropathy. Majority of the patients claimed to have a normal response in the sensory tests, though a significant proportion of patients claimed to have reduced or no response in pin-prick, light touch, vibration, temperature and pressure sensation tests. Reflex examination also revealed abnormalities with loss or absence of ankle and knee reflexes in large percentage of patients. These results are consistent with the previous research that has shown that both

the sensory fibers of the nerve and the motor fibers of the nerve is affected by diabetic peripheral neuropathy.

Results of foot examination indicated that the number of complications among the participants is high. The most common findings were skin drying and cracks and then there were deformities of the feet, developing of callus and foot ulcers. These complications are clinically relevant because they are related to the loss of protective sensation and increased risks of infections, delayed wound healing and amputations. In addition, a study has been conducted to determine that diabetic peripheral neuropathy is one of the key risk factors to non-traumatic amputations of the lower extremities and wounds in the diabetic foot.

The research also discovered that the duration of diabetes of most patients was less than five years; nonetheless, neuropathic symptoms were still evident in many cases. It implies that diabetic peripheral neuropathy can be obtained by individuals with poor glycemic control or long-term and undiagnosed hyperglycemia even in the early stages of the disease. The percentage of participants who did not know their HbA1c levels was also rather high, which is why it can be said that they were not keen on monitoring their glycemic levels, which is one of the primary risk factors that would result in the development of neuropathy.

Most of the patients in this analysis were undergoing pharmacological therapy either in the form of hypoglycemic agents, insulin or a combination of both. However, the blood glucose monitoring was not regular since some of the patients did not even monitor their blood glucose levels. The possibility of neuropathic progression is further increased by the presence of concurrent illnesses hypertension, heart disease, and kidney disease in a significant fraction of those with diabetes even though over half of those surveyed reported following a diabetic diet and physical activity.

Generally, the results of this study align with the national and international literature that suggests that one of the most frequent side effects of type 2 diabetes is peripheral neuropathy brought about by diabetes. Poor glycemic control, prolonged disease duration and multiple comorbidities put hospitalized patients at an even greater risk. The findings show that there is need to diagnose at an early stage, regularly screen and treat diseases.

CONCLUSION

The current research hypothesizes that diabetic peripheral neuropathy represents a frequent and clinical important outcome among patient with diabetes mellitus who is hospitalized and falls within the age of 18 and 60. Over and above half of the research participants were found to have diabetic peripheral neuropathy but a significant number of the research participants were found to have no problems at all despite the presence of diabetic peripheral neuropathy.

The research also concludes that neuropathic symptoms such as numbness, tingling, burning pain, decreased sensation and difficulty in walking are highly prevalent among diabetic patients. The results of the clinical examination showed sensory and reflex defects in a high percentage of the patients and foot examination has indicated a good percentage of the complications in the skin cracks, deformities, formation of callus, and foot ulcers.

The study also reveals that many people are irregular in monitoring their blood glucose and inadequate knowledge of glycemic control, which can lead to the development and progression of neuropathy. Most of the patients were undergoing therapy to manage diabetes, but the management of the risk factors and the follow up were not the best.

These results are effectively used to indicate that all diabetic patients, who are hospitalized, should undergo routine screening to determine the presence of peripheral neuropathy caused by diabetes. Strict glycemic control, frequent monitoring of the HbA1c, lifestyle change, and patient education in foot care is the key to preventing complications. Early diagnosis and multidisciplinary intervention can greatly decrease morbidity, prevent impairment and enhance the quality of life of diabetic individuals with diabetes.

REFERENCES

1. Aleidan, F. A., et al. (2020). "Prevalence and risk factors for diabetic peripheral neuropathy among Saudi hospitalized diabetic patients: a nested case-control study." International Journal of General Medicine: 881–889.
2. Akhtar, S., et al. (2023). "The prevalence of peripheral neuropathy among the patients with diabetes in Pakistan: a systematic review and meta-analysis." Scientific Reports 13(1): 11744.
3. Ahmed, F. W., et al. (2025). "Association Between Diabetic Peripheral Neuropathy and Risk of Falls in Adults with Type 2 Diabetes: A Narrative Review." Indus Journal of Bioscience Research 3(6): 190–197.
4. Alleman, C. J., et al. (2015). "Humanistic and economic burden of painful diabetic peripheral neuropathy in Europe: a review of the literature." Diabetes research and clinical practice 109(2): 215–225.
5. Akhtar, S., et al. (2023). "The prevalence of peripheral neuropathy among the patients with diabetes in Pakistan: a systematic review and meta-analysis." Scientific Reports 13(1): 11744
6. Battula, P., et al. (2017). "Prevalence of sensory peripheral neuropathy in diabetic patients at diabetes care centre: a cross sectional study." Int J Res Med Sci 5(9): 4066
7. Baxi, H., et al. (2020). "Prevalence of peripheral neuropathy and associated pain in patients with diabetes mellitus: Evidence from a cross-sectional study." Journal of Diabetes & Metabolic Disorders 19(2): 1011–1017.
8. Brinati, L. M., et al. (2017). "Prevalence and factors associated with peripheral neuropathy in individuals with diabetes mellitus." Revista de Pesquisa: Cuidado é Fundamental Online 9(2): 347–355
9. Burgess, J., et al. (2021). "Early detection of diabetic peripheral neuropathy: a focus on small nerve fibres." Diagnostics 11(2): 165.
10. Brinati, L. M., et al. (2017). "Prevalence and factors associated with peripheral neuropathy in individuals with diabetes

mellitus." Revista de Pesquisa: Cuidado é Fundamental Online 9(2): 347–355
11. Chang, M. C. and S. Yang (2023). "Diabetic peripheral neuropathy essentials: a narrative review." Annals of palliative medicine 12(2): 39098–39398.
12. D'Souza, M., et al. (2015). "Diabetic peripheral neuropathy and its determinants among patients attending a tertiary health care centre in Mangalore, India." Journal of public health research 4(2): jphr. 2015.2450.
13.] D'Souza, M., et al. (2015). "Diabetic peripheral neuropathy and its determinants among patients attending a tertiary health care centre in Mangalore, India." Journal of public health research 4(2): jphr. 2015.2450.
14. Eijaz, S., et al. (2022). "Prevalence of Complications Associated with Diabetes among Pakistani patients: a questionnaire-based Survey." Current Diabetes Reviews 18(9): 87–95.
15. Galiero, R., et al. (2023). "Peripheral neuropathy in diabetes mellitus: pathogenetic mechanisms and diagnostic options." International Journal of Molecular Sciences 24(4): 3554.
16. Gul, S., et al. (2017). "Prevalence of peripheral neuropathy and pattern of involvement on nerve conduction study in patients of Type 2 diabetes mellitus with clinical symptoms of peripheral neuropathy in kashmiri population a hospital based study." Imp J Interdiscip Res 3(2).
17. Iftikhar, M., et al. (2014). "Frequency of peripheral neuropathy in patients with diabetes mellitus." Journal of Ayub Medical College Abbottabad 26(4): 584–586.
18. Iftikhar, M., et al. (2014). "Frequency of peripheral neuropathy in patients with diabetes mellitus." Journal of Ayub Medical College Abbottabad 26(4): 584–586
19. Juster-Switlyk, K. and A. G. Smith (2016). "Updates in diabetic peripheral neuropathy." F1000Research 5: F1000 Faculty Rev–1738.
20. Khawaja, N., et al. (2018). "The prevalence and risk factors of peripheral neuropathy among patients with type 2 diabetes mellitus; the case of Jordan." Diabetology & metabolic syndrome 10(1): 8.
21. Kisozi, T., et al. (2017). "Prevalence, severity and factors associated with peripheral neuropathy among newly diagnosed diabetic patients attending Mulago hospital: a cross-sectional study." African health sciences 17(2): 463–473.
22. J.Khawaja, N., et al. (2018). "The prevalence and risk factors of peripheral neuropathy among patients with type 2 diabetes mellitus; the case of Jordan." Diabetology & metabolic syndrome 10(1): 8.
23. Lehmann, H. C., et al. (2020). "Diagnosis of peripheral neuropathy." Neurological research and practice 2(1): 20.
24. Levterova, B., et al. (2018). "Prevalence and impact of peripheral neuropathy on quality of life in patients with diabetes mellitus pilot study." Trakia J Sci 16(Suppl 1): 71–76.
25. Liu, X., et al. (2019). "The risk factors for diabetic peripheral neuropathy: a meta-analysis." PloS one 14(2): e0212574.
26. Mauermann, M. L. and N. P. Staff (2026). "Peripheral neuropathy: a review." JAMA 335(3): 255–266
27. Mehra, M., et al. (2014). "Diabetic peripheral neuropathy: resource utilization and burden of illness." Journal of medical economics 17(9): 637–645
28. Papanas, N. a Savelieff, M. G., et al. (2025). "The global and regional burden of diabetic peripheral neuropathy." Nature Reviews Neurology 21(1): 17–31.
29. Pnd D. Ziegler (2015). "Risk factors and comorbidities in diabetic neuropathy: an update 2015." The review of diabetic studies: RDS 12(1-2): 48.
30. Pop-Busui, R. (2023). "Autonomic diabetic neuropathies: a brief overview." Diabetes Research and Clinical Practice 206: 110762.
31. Pfannkuche, A., et al. (2020). "Prevalence and risk factors of diabetic peripheral neuropathy in a diabetics cohort: Register initiative “diabetes and nerves”." Endocrine and Metabolic Science 1(1-2): 100053.
32. Sobhani, S., et al. (2014). "Prevalence of diabetic peripheral neuropathy in Iran: a systematic review and meta-analysis." Journal of Diabetnes & Metabolic Disorders 13(1): 97.
33. Sun, J., et al. (2020). "Prevalence of peripheral neuropathy in patients with diabetes: A systematic review and meta-analysis." Primary care diabetes 14(5): 435–444.
34. Soheilykhah, S., et al. (2013). "Prevalence of peripheral neuropathy in diabetic patients." Iranian Journal of diabetes and Obesity 5(3): 107–113
35. Zhu, J., et al. (2024). "Diabetic peripheral neuropathy: pathogenetic mechanisms and treatment." Frontiers in endocrinology 14: 1265372.
36. Zhu, J., et al. (2024). "Diabetic peripheral neuropathy: pathogenetic mechanisms and treatment." Frontiers in endocrinology 14: 1265372.