

**Physiotherapy-related Knowledge, Attitude, and Healthcare- Seeking Behavior among
Diabetic Patients in Dhaka City.**



Thesis submitted for the award of the degree of Master of Philosophy

Submitted by
Mohammad Nasir Uddin
MPhil Candidate
Registration no. 76
Session: 2015- 2016
Department of Population Sciences
University of Dhaka

Submitted to
Dr. Md. Rabiul Haque
Professor
Department of Population Sciences
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UNIVERSITY OF DHAKA

Certificate

This is to certify that the thesis submitted by Mohammad Nasir Uddin, entitled “Physiotherapy-related Knowledge, Attitude, and Healthcare- Seeking Behavior among Diabetic Patients in Dhaka City” for fulfilling the partial requirements for the degree of Master of Philosophy (MPhil) in the Department of Population Sciences at the University of Dhaka, Dhaka, Bangladesh. To my knowledge, this thesis has not been submitted anywhere else for any degree. The study represents a combined effort of both review and original works.

I wish him every success in his life.

Dr. Md. Rabiul Haque
Professor
Department of Population Sciences
University of Dhaka

Declaration of the candidate

I am truly pleased to share and acknowledge the truth that this thesis, submitted in partial fulfilment of the requirements for the award of my MPhil degree, is entitled “Physiotherapy-related Knowledge, Attitude, and Healthcare- Seeking Behavior among Diabetic Patients in Dhaka City” This is an effort from my research, with primary data/information. To date, I am aware that this type of thesis has not been previously written or composed to qualify for any degree/ award.

I further declare that the University of Dhaka reserves the right to revoke the degree or award if any of the above declarations or statements prove false, whether before or after the degree has been awarded.

Mohammad Nasir Uddin

Candidate for the degree of MPhil

Registration - 76

Session - 2015-2016

Department of Population Sciences

University of Dhaka

Date: 14 August, 2025

Abstract

Introduction: Diabetes is a chronic metabolic disorder characterized by elevated blood glucose levels due to insulin deficiency or resistance. Uncontrolled diabetes can cause severe damage to the nervous and vascular systems, potentially leading to retinopathy, nephropathy, neuropathy, and various musculoskeletal issues such as arthritis and movement disorders, which may worsen with age. Physiotherapy is an effective non-pharmacological treatment that employs various therapeutic techniques to help manage diabetes, prevent secondary complications, and provide therapy for those complications. **Methods:** A cross-sectional study assessed the knowledge, attitudes, and healthcare-seeking behaviour related to physiotherapy among diabetic patients in Dhaka City, Bangladesh. A total of 405 diabetic patients were interviewed at different healthcare centers. A purposive sampling technique was used, and data were collected through face-to-face interviews using a structured, closed-ended questionnaire. **Results:** Among the respondents, 93.8% reported they had Type II diabetes, while only 6.2% had Type I diabetes. About two-thirds (66.7%) of respondents experienced complications related to diabetes, while one-third (33.3%) were free from complications. 54.6% of respondents demonstrated good knowledge of physiotherapy. However, only 51% showed a positive attitude toward it. Just 29% of respondents had ever utilized physiotherapy, typically upon the advice of physicians. Education, family income, and occupation influenced knowledge levels. Age, gender, education, family income, and occupation affected attitudes; with older, female, educated, higher-income, and currently employed individuals showing greater acceptance and utilization. Important barriers included cost, accessibility, and lack of referrals. **Conclusion:** The knowledge of physiotherapy among diabetic patients is somewhat positive; however, attitudes toward physiotherapy are not favorable, and healthcare-seeking behaviors remain alarmingly low. **Recommendations:** Large-scale initiatives should be implemented to promote physiotherapy utilization, including integrating physiotherapy facilities into public, private, and NGO healthcare service centers, introducing government incentives for low-income patients, and increasing awareness among patients about the benefits of physiotherapy. Further nationwide research is recommended to obtain results that are more precise.

Keywords: Physiotherapy, Knowledge, Attitude, Healthcare Seeking Behavior, Diabetes, Bangladesh.

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List of abbreviations

BMI = Body Mass Index

DM = Diabetes Mellitus

IDDM = Insulin-Dependent Diabetes Mellitus (Type I)

IFG = Impaired Fasting Glucose

IGT = Impaired Glucose Tolerance

KAP = Knowledge, Attitude, and Practice

MSK = Musculoskeletal

NIDDM = Non-Insulin-Dependent Diabetes Mellitus (Type II)

SPSS = Statistical Package for the Social Sciences

WHO = World Health Organization

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Chapter 1: Introduction

1.1: Background

Diabetes Mellitus (DM), commonly referred to simply as Diabetes, is a chronic metabolic disorder characterized by persistently elevated blood glucose levels over an extended period. This long-lasting condition arises when the pancreas fails to produce sufficient quantities of insulin or when the body cannot efficiently utilize the insulin it generates – a condition referred to as insulin resistance. Insulin, a vital hormone, plays a key role in regulating blood sugar levels by facilitating the uptake of glucose into cells for energy production. When insulin is deficient or ineffective, glucose accumulates in the bloodstream, resulting in hyperglycemia, which is characterized by persistently elevated blood sugar levels. Symptoms of hyperglycemia include frequent urination (Polyuria), excessive hunger (Polyphagia), and increased thirst (Polydipsia). Uncontrolled diabetes can result in severe damage to various organ systems, particularly the nervous system and vascular system, potentially causing retinopathy, nephropathy, neuropathy, and a range of musculoskeletal issues like arthritis. Chronic hyperglycemia also impacts the cardiovascular system, contributing to heart attacks, strokes, and tissue necrosis. If left unmanaged, secondary infections such as gangrene can arise, leading to amputations, especially in the feet. Diabetes-related complications significantly contribute to morbidity and mortality, particularly through macrovascular diseases affecting larger blood vessels, leading to angina, heart failure, intermittent claudication, and other cardiovascular conditions (Penman et al., 2022).

In 2021, approximately 537 million individuals worldwide were living with diabetes, and this figure is projected to increase to 643 million by 2030 and a staggering 783 million by 2045. Additionally, an estimated 541 million people in 2021 had impaired glucose tolerance (IGT), which predisposes them to developing diabetes in the future. Diabetes-related deaths reached over 6.7 million individuals aged 20–79 years in 2021, with this number expected to rise in parallel with the increasing prevalence of the disease. The burden of diabetes on children and adolescents is also growing, with over 1.2 million under the age of 20 diagnosed with type 1 diabetes in 2021. Diabetes-related health spending per person is observed globally, with the highest expenditures in countries such as Switzerland, while lower-income countries include the Democratic Republic of the Congo, Pakistan, and Bangladesh (Sun et al., 2022).

Bangladesh currently has around 13.1 million people living with diabetes, with a prevalence rate of 14.2% among adults aged 20 to 79 years. Most of these cases are type 2 diabetes mellitus (T2DM). The country ranks eighth globally in terms of the number of people with diabetes, and by 2045, it is expected to rise to the seventh position, with an estimated 22.3 million cases of T2DM. The prevalence rate of diabetes is increasing, rising from 10.95% to 13.75% between 2011 and 2018 among adults aged ≥ 35 years (Chowdhury et al., 2022). Impaired Glucose Tolerance (IGT) and Impaired Fasting Glucose (IFG) are also prevalent and alarming. With early interventions, around 40% of IFG cases and 30% of IGT cases can return to normal glucose levels, emphasizing the importance of timely diagnosis and management. T2DM is associated with various mild to severe complications, both acute and chronic, affecting multiple systems, including cardiovascular, renal, and musculoskeletal. Addressing these complications early is critical to improving the quality of life for individuals with diabetes (Mahtab et al., 2023).

Approximately three-quarters of individuals with diabetes experience musculoskeletal complications, particularly affecting the upper limbs. Common issues include shoulder joint inflammation, carpal tunnel syndrome, tendon sheath inflammation, limited joint mobility, and a hand deformity known as Dupuytren's contracture. These complications are linked to diabetic neuropathy and retinopathy, and they tend to occur more frequently in individuals with poor glycemic control, as indicated by elevated HbA1c levels. Such musculoskeletal problems are observed in both type 1 and type 2 diabetes, and they tend to increase with age, posing significant challenges for elderly patients (Ramchurn et al., 2009).

Physiotherapy, a rising non-pharmacological treatment method, employs various therapeutic techniques delivered by professionals known as physical therapists or physiotherapists. They emphasize the importance of regular physical activity in the treatment of chronic conditions such as diabetes, cardiovascular disease, and osteoarthritis. Physical therapists are trained to assess and identify risk factors for diabetes-related complications, adjusting exercise regimens based on individual patient needs. They advocate for the incorporation of musculoskeletal exercises as a key component in managing diabetes to improve both physical health and glycemic control. Physical activity is not only a preventive measure but also an integral part of the therapeutic approach to chronic diseases (Harris-Hayes et al., 2020).

Awareness, a disciplined lifestyle, regular monitoring, and effective management of hyperglycemia, along with regular exercise, can greatly reduce the risk of complications associated with diabetes. Improved glycemic control significantly lowers the risk of developing microvascular complications such as retinopathy and nephropathy. Additionally, maintaining optimal blood pressure levels through regular monitoring helps mitigate both microvascular and macrovascular complications. Early diagnosis and prompt, appropriate care for individuals with diabetes are crucial for reducing disease burden and improving long-term outcomes (Penman et al., 2022).

Numerous studies have explored diabetes, focusing on medication adherence, lifestyle changes, and complementary treatments. A significant area of study includes secondary complications affecting the musculoskeletal and nervous systems, with physiotherapy recognized as a beneficial intervention. However, limited research exists on diabetic patients' understanding and perception of physiotherapy, particularly in Dhaka city. This gap highlights the need to investigate why patients engage or avoid physiotherapy, offering insights to enhance patient education and treatment strategies for better diabetes management.

1.2: Some key features of diabetes

1.2.1. Clinical Features

Diabetes mellitus presents with a range of symptoms, the most common of which include excessive thirst (polydipsia), increased hunger (polyphagia), and frequent urination (polyuria). Affected individuals often feel fatigued and may experience unusual or unexplained weight loss (Mahtab et al., 2023; Penman et al., 2022; Sun et al., 2022). Over time, chronic hyperglycemia associated with diabetes can cause damage to the blood vessels, leading to complications in various organs such as the heart, eyes (retinopathy), kidneys (nephropathy), and nerves (neuropathy). In particular, individuals with diabetes are at an elevated risk for cardiovascular diseases, including heart attacks and strokes. Diabetic nephropathy can progress to kidney failure, requiring dialysis or transplantation, while diabetic neuropathy can result in nerve damage, often manifesting in the feet, which can lead to ulcers, infections, and, in severe cases, amputation. (Penman et al., 2022; Sun et al., 2022; WHO, 2023).

1.2.2. Classification

Diabetes is classified into several types, with the most prominent being Type 1 and Type 2 diabetes. Type 1 diabetes, also known as insulin-dependent diabetes mellitus (IDDM), occurs when the body's immune system mistakenly destroys the insulin-producing beta cells in the pancreas. As a result, individuals with this form of diabetes require lifelong external insulin administration. Type 2 diabetes, on the other hand, is characterized by insulin resistance, where the body's cells do not respond properly to insulin. Over time, this leads to elevated blood sugar levels, or hyperglycemia, if left unmanaged. Gestational diabetes is a third significant category, which occurs during pregnancy when blood glucose levels rise above the normal range. Women with gestational diabetes are at a higher risk of developing Type 2 diabetes later in life. Additionally, pre-diabetic conditions such as Impaired Glucose Tolerance (IGT) and Impaired Fasting Glycaemia (IFG) are considered precursors to Type 2 diabetes. Individuals with IGT or IFG have a high risk of progressing to full-blown Type 2 diabetes if preventive measures are not taken, although in some cases, these conditions may be reversible with appropriate interventions (Penman et al., 2022; Sun et al., 2022; WHO, 2023).

1.2.3. Causes

Type 1 diabetes is primarily linked to genetic factors and autoimmune processes, where the body's immune system erroneously attacks the insulin-producing beta cells in the pancreas, leading to an absolute deficiency in insulin production. This autoimmune reaction is often triggered by genetic predispositions combined with environmental factors such as viral infections. In contrast, Type 2 diabetes is largely associated with modifiable lifestyle factors. A diet rich in refined sugars, processed foods, and unhealthy fats, combined with physical inactivity, can lead to obesity, which in turn contributes to insulin resistance. As insulin sensitivity decreases, the body struggles to maintain normal blood glucose levels, eventually leading to hyperglycemia and Type 2 diabetes. Gestational diabetes, which arises during pregnancy, is believed to be caused by hormonal changes that impair the body's ability to use insulin effectively. Women who experience gestational diabetes are at a higher risk of developing Type 2 diabetes postpartum (Penman et al., 2022; Sun et al., 2022; WHO, 2023).

1.2.4. Prevention

The onset of diabetes, particularly Type 2 diabetes, can often be prevented or delayed through proactive lifestyle changes. Preventive measures include achieving and maintaining a healthy body weight, especially for individuals who are overweight or obese. Engaging in regular physical activity is crucial, as sedentary lifestyles significantly contribute to the development of insulin resistance. Recommendations include at least 30 minutes of moderate exercise, such as brisk walking or cycling, on most days of the week. Additionally, adopting a balanced and nutritious diet that includes whole grains, lean proteins, fruits, and vegetables while avoiding excessive consumption of sugary foods and beverages can help prevent the onset of diabetes. Reducing the intake of foods high in saturated fats, quitting smoking, and limiting alcohol consumption are also important preventive strategies (Mahtab et al., 2023; Penman et al., 2022; WHO, 2023).

1.2.5. Treatment

For individuals with Type 1 diabetes, insulin therapy is indispensable for survival, as their bodies cannot produce insulin. Insulin can be administered through injections or an insulin pump. Along with insulin therapy, dietary management and regular monitoring of blood glucose levels are essential to prevent hypoglycemia or hyperglycemia. Type 2 diabetes and gestational diabetes can often be managed with oral hypoglycemic agents or other medications that help regulate blood sugar levels. In some cases, individuals with Type 2 diabetes may also require injectable insulin if oral medications are insufficient to control their blood glucose levels. Additionally, individuals with Type 2 diabetes and prediabetes benefit significantly from lifestyle modifications, including regular exercise, weight management, and a balanced diet, which may reduce or eliminate the need for medication (Mahtab et al., 2023; Penman et al., 2022; Sun et al., 2022; WHO, 2023).

1.3: Research Gap

Many studies have been done over the years on diabetes, covering different parts of this common long-term illness. Earlier research has mainly focused on understanding how people generally view diabetes. These studies looked into areas like how well patients follow their medicine schedules, changes in lifestyle, and the use of other treatment methods to help manage the disease (Lewis and Newell, 2014).

Also, a lot of attention has been given to learning about the knowledge, attitudes, and healthcare seeking habits of people with diabetes. These studies give us an idea of how patients handle the daily challenges of living with diabetes (Khan et al., 2022).

Furthermore, extensive research has been conducted on various health issues that can arise from long-term diabetes. These problems include complications with the bones, joints, and nervous system, along with methods to prevent or treat them. Managing these issues is a crucial aspect of diabetes care (Hofbauer et al., 2007). Numerous researchers have also examined the role of physiotherapy in preventing or treating these complications. Their findings indicate that physiotherapy can serve as an effective treatment to enhance the quality of life for individuals with diabetes (Akbari et al., 2020; Kaur et al., 2022).

Moreover, there is extensive research showing evidence that physiotherapy helps manage diabetes-related problems (Shanahan et al., 2014; Kaur et al., 2022; Jahantigh et al., 2020; and Akbari et al., 2020); unfortunately, only a few studies have examined how well diabetic patients understand physiotherapy. There is a clear lack of research on the process of understanding among diabetic patients about physiotherapy, their response to it, and the reasons why they choose—or decide not—to participate in physiotherapy treatment. As per my sincere longing, no research has been conducted in Dhaka city to explore this topic. Therefore, this reveals a significant research gap. Addressing this gap could help improve patient awareness and treatment outcomes in this area.

1.4: Research questions

This study was conducted to answer and describe mainly the Physiotherapy-related Knowledge, Attitudes and Healthcare- Seeking Behavior among Diabetic Patients in Dhaka City. However, there are some specific questions to answer in this study as follows-

- 1.3.1. What is the extent of knowledge among diabetic patients regarding physiotherapy in managing diabetes-related complications?
- 1.4.2. What are the current attitudes of diabetic patients towards physiotherapy treatment methods?
- 1.4.3. What are the practice and perceived barriers of the patients for taking and adhering to physiotherapy?

1.5: Operational definition

Knowledge

“Knowledge is an abstract concept without any reference to the tangible world.” (Bolisani et al., 2018).

Attitude

“A general feeling or evaluation—positive or negative—about some person, object, or issue.” (Hogg & Vaughan, 2018).

Treatment

“Treatment is the process or manner of managing someone's or something's problem” (Merriam-Webster, n.d.).

Treatment/Healthcare Seeking Behaviour

“Treatment or healthcare seeking behaviour is an action undertaken by individuals who perceive themselves to have a health problem and are seeking a remedy” (Haileamlak, 2018).

Diabetes

Diabetes or diabetes mellitus is a group of metabolic diseases in which a person has high blood sugar either because the pancreas does not produce enough insulin or because cells do not respond to the insulin that is produced. This high blood sugar produces the classic symptoms of polyuria (frequent urination), polydipsia (increased thirst), and polyphagia (increased hunger)” (MedlinePlus, 2023).

Type 1 DM results from the body's failure to produce insulin and currently requires the person to inject insulin or wear an insulin pump. This form was previously referred to as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes" (Brutsaert, 2023).

Type 2 results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. This form was previously referred to as non-insulin-dependent diabetes mellitus (NIDDM) or "adult-onset diabetes" (Brutsaert, 2023).

Diabetic Patient

“A diabetic patient is an individual diagnosed with diabetes mellitus, a chronic condition characterized by elevated blood glucose levels resulting from the body's inability to produce sufficient insulin, utilize insulin effectively, or both. This condition encompasses various forms, including type 1 diabetes, type 2 diabetes, and gestational diabetes, each with distinct pathophysiological mechanisms and management strategies” (National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK], 2023).

BMI

“Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. It is a simple index commonly used to classify underweight, overweight, and obesity in adults” (World Health Organization [WHO], 2020).

Complications

Complications are unintended and often adverse developments that arise during a disease, condition, or medical treatment, potentially making the original issue more severe or difficult to treat (Taber's Cyclopedic Medical Dictionary, 2021).

Pain

"An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage." (Raja et al., 2020).

Degeneration

“Degeneration is the progressive deterioration of cells, tissues, or organs, often associated with aging, disease, or lack of use, resulting in impaired structure or function” (Kumar et al., 2021).

Physiotherapy

“The treatment of diseases, injuries, or deformities with physical methods such as massage, heat treatment, and exercise rather than with drugs or surgery” (Oxford University Press, n.d.).

1.6: Justification of the study

Diabetes is a long-lasting disease that can cause many serious problems in the body over time, like damage to bones, joints, nerves, and the brain (Penman et al., 2022). If blood sugar stays high for a long time, it can hurt many parts of the body, leading to problems with movement and nerve function, which makes daily life harder and less enjoyable. Also, people with diabetes often have high blood pressure, which increases the risk of big health problems like strokes. Because of this, diabetic people with diabetes are more likely to become paralyzed after a stroke or have trouble moving (Fowler, 2008). These problems make life harder for the person and put more pressure on their families and the healthcare system. Sadly, in Bangladesh, many people do not know enough about diabetes and its possible problems, especially diabetic patients (Bhowmik et al., 2013). A lot of people do not understand how diabetes can cause damage to the muscles and nerves. This lack of knowledge makes the number of disabled diabetic patients go up, as they miss early signs and do not get help on time.

Physiotherapy has been shown to help stop or manage problems that come from tissue damage (Shanahan et al., 2014). It is beneficial in making people move better, feel less pain, and do daily activities on their own again. By using exercises, pain-relief methods, and rehab programs, physiotherapy helps diabetic people live better lives with less pain and more happiness and health (Kaur et al., 2022). These good effects are very important for diabetic patients who often suffer from nerve damage, stiff joints, and weak muscles. But in Bangladesh, many people still do not know much about physiotherapy or cannot access it easily, even diabetic patients (Khan et al. 2021). Not having enough trained physiotherapists, low awareness, social issues, and money problems stop people from using physiotherapy, and they miss chances to get early help and long-term care.

There is very little research on body damage in diabetic patients in Bangladesh, which makes things worse. Without enough studies, it is hard to make good health plans and clinical guidelines. This study wants to find out what diabetic people know, think, and do when it comes to physiotherapy. It wants to learn how these patients feel about physiotherapy, what makes them choose it or not, and when they think about using it in their treatment.

These answers will help us understand how diabetic patients decide what is most important for their health, and where physiotherapy fits in their treatment plan. By learning what patients believe and prefer, this study will show the problems and supports that affect how physiotherapy is used in treating diabetes. This study is important because it can help improve patient-centered care, help people make better choices, and shape physiotherapy in a way that suits diabetic patients. By fixing the lack of knowledge and wrong ideas about physiotherapy among diabetic people in Dhaka city, this study will give useful ideas to doctors, health leaders, and physiotherapists. These results can help create better awareness programs, training courses, and health services. In the end, this research will help make better programs, public messages, and health plans to make physiotherapy a key part of diabetes treatment.

The main goal of this research is to build a better, more complete, and patient-friendly way to manage diabetes and its problems. It wants physiotherapy to be a regular part of the health system in Bangladesh. This would make diabetes treatment work better and help many patients in the country live longer and better lives.

Chapter 2: Literature Review

2.1. Basics of Diabetes Mellitus

The chapter on Diabetes mellitus in Davidson's Principles and Practice of Medicine book mentioned that Diabetes mellitus is a chronic, metabolic disease characterized by elevated levels of blood glucose (hyperglycemia), which over time leads to serious damage to the heart, blood vessels, eyes, kidneys, and nerves. It is one of the most prevalent non-communicable diseases globally. According to Penman et al. (2022), diabetes is primarily categorized into two major types: Type 1 and Type 2. Type 1 diabetes mellitus (T1DM) results from autoimmune destruction of insulin-producing beta cells in the pancreas, leading to absolute insulin deficiency. This form often presents in childhood or adolescence, although it can occur at any age. In contrast, Type 2 diabetes mellitus (T2DM) is characterized by insulin resistance and relative insulin deficiency. It is more prevalent in adults and is strongly associated with obesity, physical inactivity, and genetic predisposition.

Symptoms such as excessive thirst (polydipsia), frequent urination (polyuria), fatigue, and recurrent infections are common in newly diagnosed individuals. In severe cases, patients may develop diabetic ketoacidosis (DKA), a potentially life-threatening condition resulting from the accumulation of ketone bodies. Chronic hyperglycemia is the major contributor to long-term complications. It affects both microvascular and macrovascular systems. Microvascular complications include diabetic retinopathy, which can lead to blindness; diabetic nephropathy, a leading cause of end-stage renal disease; and diabetic neuropathy, which can result in limb amputation. Macrovascular complications include coronary artery disease, cerebrovascular disease (stroke), and peripheral artery disease, all contributing to increased mortality in diabetic patients (Penman et al., 2022).

According to the 10th edition of the IDF Diabetes Atlas, an estimated 537 million adults were living with diabetes in 2021, with projections indicating an increase to 643 million by 2030 and 783 million by 2045 (Sun et al., 2022). A particularly worrying trend is the increasing incidence of type 1 diabetes in children and adolescents, with more than 1.2 million children and adolescents diagnosed in 2021. In addition to the diagnosed cases, 541 million people globally were found to have impaired glucose tolerance, highlighting the vast population at risk of developing diabetes.

A significant concern is that nearly half of the individuals with type 2 diabetes remain undiagnosed, meaning they are not receiving the necessary treatment to prevent complications. The burden of diabetes is reflected in its mortality statistics: in 2021, more than 6.7 million deaths among individuals aged 20 to 79 were attributed to diabetes-related causes, emphasizing the urgency of improving global diabetes screening and management programs (Sun et al., 2022).

The World Health Organization (2023) underscores the gravity of this public health challenge, reporting that in 2014, 422 million adults had diabetes, equating to 8.5% of the global population. Among these, approximately 5% were diagnosed with type 1 diabetes, and the vast majority—more than 95%—had type 2 diabetes. The burden is disproportionately high in low- and middle-income countries, where the prevalence is rising more rapidly than in high-income nations due to urbanization, changing dietary patterns, and sedentary lifestyles. From 2000 to 2019, global mortality attributable to diabetes rose by 3%, with lower-middle-income countries seeing a 13% increase. Diabetes was responsible for 1.5 million deaths in 2019, with nearly half of those deaths occurring before age 70. Additionally, diabetes and kidney disease caused by diabetes contributed to approximately 2 million deaths. The disease also significantly contributes to cardiovascular-related deaths, with about 20% attributable to elevated blood glucose levels. Preventive strategies such as promoting a healthy diet, regular physical activity, maintaining a normal body weight, and avoiding tobacco use are crucial. Effective diabetes management relies on a combination of lifestyle interventions, medications, and regular monitoring to reduce the risk of complications (WHO, 2023).

2.2. Diabetes in Bangladesh

Bangladesh is experiencing a diabetes epidemic of considerable magnitude, exacerbated by rapid urbanization, lifestyle changes, and limited access to healthcare services. According to Mahtab et al. (2023), there are approximately 13.1 million people with diabetes in Bangladesh, with a national prevalence of 14.2% among adults aged 20 to 79 years. The overwhelming majority of these cases are type 2 diabetes. Bangladesh ranks eighth globally in the number of people living with diabetes and is projected to rise to seventh by 2045, with an estimated 22.3 million cases of T2DM. This significant burden poses a serious challenge to the healthcare system, which is already under-resourced.

An alarming trend is the increasing prevalence of prediabetes, specifically, impaired glucose tolerance (IGT) and impaired fasting glucose (IFG). These conditions indicate a high risk of progression to full-blown diabetes, with approximately 25% of IFG cases and 30% of IGT cases developing into diabetes if not managed appropriately. Early identification and intervention in prediabetic individuals through lifestyle changes such as weight loss, physical activity, and dietary modification are essential strategies to curb the diabetes epidemic in Bangladesh (Mahtab et al., 2023).

A meta-analysis conducted by Akhtar et al. (2020) analyzed 26 population-based studies covering 80,775 individuals in Bangladesh to determine the prevalence and risk factors of diabetes and prediabetes. The findings revealed an overall diabetes prevalence of 7.8% and a prediabetes prevalence of 10.1%. The study found that diabetes prevalence varied depending on the study year, participant age, and presence of comorbidities such as hypertension. The prevalence was higher in urban areas, reflecting the effects of lifestyle changes, including sedentary behavior and unhealthy diets. Surprisingly, the study did not find a significant gender difference in diabetes prevalence, indicating that the disease affects both men and women relatively equally in the Bangladeshi context (Akhtar et al., 2020).

Another study by Baidya et al. (2020) examined healthcare seeking behavior among rural type 2 diabetic patients in Chattogram. The study, which involved 250 participants, found that the average patient age was 52 years, with most participants being female, married, and having received only primary education. A majority of these patients had no family history of diabetes and did not follow a calorie-based diet. Most were diagnosed by physicians and received care from government health facilities due to lower costs and better accessibility. The study concluded that factors such as age and income significantly influenced treatment-seeking behavior, highlighting the impact of socioeconomic determinants on healthcare access and adherence in rural Bangladesh (Baidya et al., 2020).

2.3. Complications of Diabetes Mellitus

Diabetes mellitus is associated with a broad spectrum of complications that affect nearly every organ system. Hofbauer et al. (2007) highlighted that the prevalence of both diabetes and osteoporosis is increasing, due in part to sedentary lifestyles and high-calorie diets. Type 1 diabetes impairs bone formation due to insulin and amylin deficiencies, while long-standing type 2 diabetes can lead to vascular complications that lower bone density and increase fracture risk. Paradoxically, individuals with type 2 diabetes often have higher bone mineral density but are more susceptible to fractures due to increased fall risk. Heydari et al. (2010) conducted a study to assess the frequency of common diabetes-related complications in newly diagnosed individuals. Among 200 patients, hyperlipidaemia was the most prevalent complication (73.5%), followed by hypertension (58.5%), neuropathy (52%), nephropathy (10%), and retinopathy (6%). These findings underscore the importance of early screening and comprehensive management of diabetes from the point of diagnosis.

De Araújo et al. (2021) emphasized the role of physiotherapists in identifying and managing complications among diabetic patients. Their literature review revealed the importance of multidisciplinary care in preventing complications such as neuropathy, foot ulcers, and musculoskeletal impairments. Similarly, Attar (2012) found that musculoskeletal (MSK) disorders were common among diabetic patients, especially those with type 2 diabetes. Carpal tunnel syndrome, shoulder adhesive capsulitis, and diabetic amyotrophy were among the most frequently observed MSK issues. The study identified strong associations between these complications and factors like manual labor, obesity, and vascular complications.

2.4. Knowledge, Attitudes, and Healthcare Seeking Behavior

Knowledge and attitudes about diabetes significantly influence patients' ability to manage their condition effectively. Bukhsh et al. (2019) demonstrated that higher disease knowledge among adults with type 2 diabetes in Pakistan was associated with improved glycemic control and self-care behaviors. Key predictors of higher knowledge included education level, employment, and the use of both oral hypoglycemic agents and insulin.

In Ethiopia, Belsti et al. (2020) conducted a study at Addis Zemen District Hospital to assess attitudes and practices regarding diabetes complications. Among 402 type 2 diabetic patients, 65.2% held positive attitudes toward preventing complications, but only 48.8% demonstrated good preventive practices. Education level and urban residence were significantly associated with better attitudes and behaviors.

In Bangladesh, Khan et al. (2021) used data from the Bangladesh Demographic and Health Survey 2017–18 to assess diabetes awareness, treatment, and control. Of the 1,174 adult participants, only 31% were aware of their condition, 28% were receiving treatment, and a mere 25% of those treated had their diabetes under control. Awareness and treatment were higher among older individuals and those with hypertension, while lower among men and individuals with less education. Lewis et al. (2014) found that limited knowledge and accessibility to care were major barriers to effective diabetes management in Bangladesh. Patients often lacked proper understanding of the disease and struggled with the cost and availability of diagnosis and treatment services. Alqahtani et al. (2020) reported similar findings in Saudi Arabia, where, despite moderate awareness of diabetes, many individuals held misconceptions about medications and rarely engaged in regular glucose monitoring. Reid et al. (2019) assessed the knowledge, attitudes, and practices (KAP) of adults with type 2 diabetes in South Africa's Free State province. While many participants understood the benefits of physical activity, fewer than half exercised daily. A significant portion lacked basic knowledge of normal blood glucose levels. Educational interventions were deemed necessary to enhance diabetes-related KAP and reduce complications.

2.5. Role of Physiotherapy in Managing Diabetes Complications

Physiotherapy has emerged as a critical component in the multidisciplinary management of diabetes. Shanahan et al. (2014) highlighted the role of physiotherapists in managing complications such as adhesive capsulitis and carpal tunnel syndrome. Techniques including exercise therapy, electrotherapy, joint mobilization, and hydrotherapy can alleviate pain, restore function, and enhance quality of life. Mulla et al. (1880) assessed awareness of physiotherapy among patients with diabetic polyneuropathy (DPN). Their findings revealed that a majority of participants lacked adequate knowledge about the causes and management of DPN. Furthermore, two-thirds of patients were unaware of physiotherapy's role in treating the condition.

Kaur et al. (2022) conducted a systematic review of 34 randomized controlled trials on physiotherapy interventions in diabetes. The interventions included exercise therapy, electrotherapy, Pilates, and whole-body vibration, all of which demonstrated positive effects on managing T2DM and its complications. Jahantigh et al. (2020) and Akbari et al. (2020) also confirmed the effectiveness of physiotherapy in improving muscle strength, balance, and mobility in patients with DPN. The benefits of exercise-based rehabilitation were further supported by Özdirenç et al. (2004), who found that a low-intensity rehabilitation program improved resting heart rate, blood pressure, VO2 max, and functional capacity in type 2 diabetic patients. Fabiola et al. (2021) reinforced the positive impact of exercise on walking ability, muscular strength, balance, and overall well-being.

Despite these benefits, public awareness remains limited. Goyal et al. (2022) found that Indian diabetic patients had minimal knowledge about how physiotherapy could aid in improving mobility, reducing pain, and enhancing quality of life. Similarly, Keakile (2015) reported that while diabetic patients in Botswana had a positive attitude toward exercise, actual participation in physical activity was low, with most individuals unaware of exercise's full benefits. Harris et al. (2020) emphasized that physical therapists, as front-line providers, play a key role in prescribing physical activity for diabetes management and identifying patients at risk of complications. Early physiotherapy intervention can prevent cardiovascular and musculoskeletal complications, improve patient outcomes, and reduce healthcare costs.

Chapter 3: Methodology

3.1. Study Design

This investigation followed a descriptive cross-sectional study design, which is commonly used in epidemiological research to assess the prevalence of health conditions, behaviors, or other variables of interest within a specified population at a single point in time. This design allowed for the analysis of the socio-demographic characteristics, treatment patterns, and health outcomes of diabetic patients in Dhaka, without making any temporal assumptions.

3.2. Study Method

The study was conducted using quantitative approach, emphasizing the collection and analysis of numerical data derived from primary data sources. Data collection tools included a self-developed structured questionnaires. The use of a quantitative approach ensured that the study could statistically assess and interpret the health trends, treatment adherence, and other relevant factors affecting the diabetic patients.

3.3. Sample size calculation

The following formula was used for calculating the sample size.

$$n = \frac{Z^2pq}{d^2}$$

Here,

n = required sample size
Z = Standard normal deviate
p = Prevalence limit
q = 1- p
d = Acceptable standard error

In this study-

Z = 1.96
p = 50% or 0.5 (as there is no specific value in previous study literature)
q = 1- p or (1 - 0.5) = 0.5
d = 0.05 (5%)

So, the sample size was-

$$n = \frac{Z^2pq}{d^2} = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = \frac{0.9604}{.0025} = 384.16$$

However, the sample size was increased from 384 to 405 to accommodate a 5% non-response adjustment to minimize the error.

3.4. Sampling Technique

In this study, a purposive sampling technique was used to ensure the selection of participants who met the criteria relevant to the research objectives. Purposive sampling, also known as judgmental or selective sampling, is a non-probability sampling method in which participants are intentionally chosen based on characteristics that align with the study's purpose. This approach is particularly useful when the research focuses on a specific population and aims to collect in-depth, relevant information rather than achieve broad generalizability. Given the study's focus on diabetic patients, it was essential to recruit individuals with a confirmed diagnosis of diabetes and other characteristics outlined in the inclusion and exclusion criteria. Factors such as accessibility to the research site, willingness to participate, and ability to provide reliable information were also considered during the selection process.

Data collection was conducted through face-to-face interviews at various healthcare centers using a structured questionnaire containing both closed-ended and open-ended items. The purposive sampling method allowed for the recruitment of information-rich participants, thereby enhancing the depth and quality of the findings. This approach was appropriate in light of the constraints related to time, resources, and logistical feasibility. By targeting respondents who could provide the most relevant information, the study minimized irrelevant data, improved clarity, and supported the achievement of its research objectives.

3.5. Inclusion and Exclusion Criteria

3.5.1. Inclusion Criteria

- I. Individuals diagnosed with any form of diabetes, irrespective of age.
- II. Diabetic patients of all genders and age groups were considered eligible for participation.
- III. Individuals who provided informed consent and expressed a willingness to participate in the interview process were included in the study.

3.5.2. Exclusion Criteria

- I. Individuals who were found to be psychologically unstable were excluded from the study to avoid compromising the validity of the responses and to safeguard their well-being.
- II. Diabetic patients who were critically ill at the time of data collection were excluded to prevent additional strain or discomfort during the interview process.
- III. Patients who declined to provide informed consent or expressed unwillingness to participate were also excluded from the study, respecting their autonomy and decision-making rights.

3.6. Study Area

The research was geographically confined to Dhaka city, the administrative and commercial capital of Bangladesh. As indicated in the title, the study focused specifically on diabetic patients residing within Dhaka. The data collection process involved gathering information from diabetic patients who regularly visit various diabetic centers and the diabetic care departments of different hospitals throughout Dhaka. These healthcare facilities provided a comprehensive representation of the diabetic population in urban areas of the city.

3.7. Study Population

The target population for this study comprised diabetic patients from diverse neighborhoods across Dhaka city. The study included patients diagnosed with any form of diabetes mellitus, whether Type 1, Type 2, or gestational diabetes, with no restriction on the duration of their illness. The inclusion criteria encompassed all patients actively managing their diabetes and engaging with healthcare systems for regular check-ups or treatments.

3.8. Study Period

The research activities spanned two years, divided into six distinct phases. These phases included: (1) Background study, where foundational information was gathered to guide the research; (2) Reviewing previous literature to establish context and identify gaps in existing knowledge; (3) Preparation, which involved the design of data collection tools and protocols; (4) Data collection, where primary data was gathered from participants; (5) Data analysis and interpret the findings; and (6) Report writing, comprehensively for dissemination. The data was collected over the period from January 2024 to March 2024.

3.9. Ethical Considerations

The research proposal for this study was reviewed and was duly approved by the Academic Committee of the Department of Population Sciences at the University of Dhaka. Formal permissions were obtained from the relevant authorities of all participating study centers and hospitals before the beginning of data collection. Before initiating the interviews, the research team provided a clear explanation of the study's purpose to each respondent to ensure that they understood the data would solely be utilized for research purposes. Additionally, throughout the interview process, the dignity and respect of all participants were maintained ensuring strict privacy and adherence to ethical guidelines. The confidentiality of all collected data was maintained strictly throughout the entire course of the study, in line with the ethical principles of research involving human subjects (Annexure – 3).

3.10. Data Collection Tools

Primary data were gathered from patients attending various diabetic centers and hospitals using a self-administered, structured, closed questionnaire. The questionnaire included both closed-ended and open-ended questions, allowing for the collection of more detailed qualitative responses (Annexure – 4).

3.11. Data Collection Procedure

The questionnaire was translated into Bangla, the participants' native language, to ensure accessibility and comprehension. Data were collected through face-to-face interviews to encourage personal engagement and accurate responses. In addition to the interview data, supplementary information was collected from diabetic guidebooks and the personal medical records of individual patients (Annexure 6).

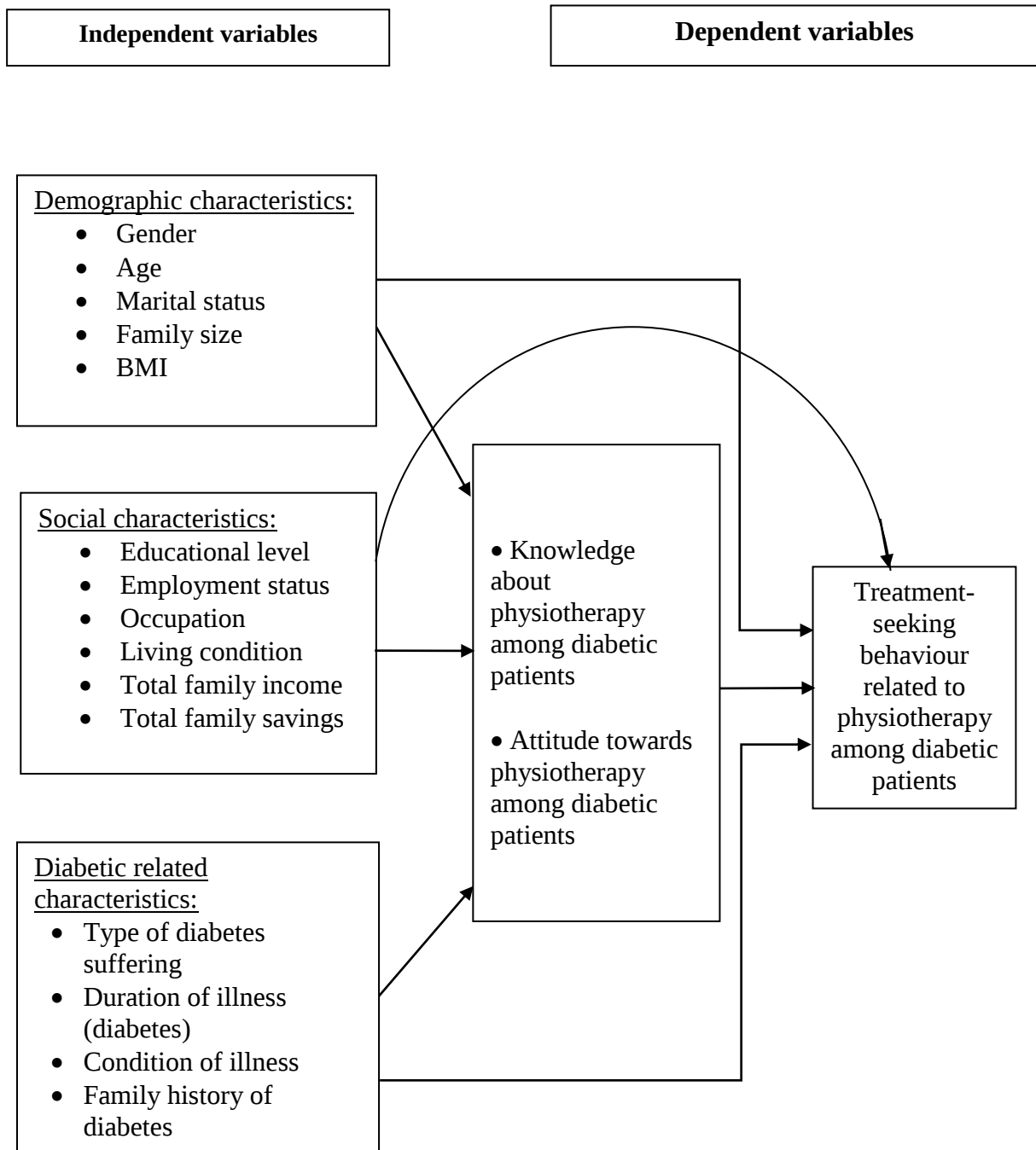
3.12. Data Management and Analysis

Following data collection, the information was rigorously checked for errors or missing values to ensure the validity and reliability of the dataset. Once verified, the data were coded for analysis and entered into a computer system. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) software, version 25, which facilitated both descriptive and inferential statistical analysis. Frequency distributions were calculated to summarize the data, and both parametric and non-parametric tests were applied as appropriate.

One of the key statistical tests used was the chi-square test, which was employed to examine relationships between categorical variables and assess the statistical significance of the findings. Binary logistic regression was performed to assess the impact of several factors on knowledge, attitude, and healthcare seeking behavior regarding diabetes-related physiotherapy.

Likert scales were used to rate each knowledge (1= Strongly agree, 2= Agree, 3 = Neutral, 4= Disagree, 5= strongly disagree) and attitude (1= always, 2= most of the time, 3= sometimes, 4= rarely and 5= never) question. The values were then added together to get a composite knowledge and attitude score for each participant. Based on the scores, the participants were grouped into 2 categories such as “Poor knowledge,” “Good knowledge,” “Poor attitude,” and “Good attitude”. The average scores were considered as the benchmark to identify the knowledge and attitude as Poor or good, where below-average scores were recognized as “poor” and average and above scores were recognized as “good” knowledge and attitude. On the other hand, regarding healthcare seeking behavior, the question, “Have you ever taken Physiotherapy? 1= Yes, 2= No” was included in the analysis.

3.13. Conceptual framework



Chapter 4: Results

4.1. Background characteristics of the study participants

Table 1 shows that the highest number of respondents (26.9%) belongs to the 40-54 age groups, and the second highest (25.9%) are from the 55-64 age group, while 24.7% are in the 45-54 age range, and 22.5% of respondents are from the 65 and above age category. Among the respondents, 57.5% are male and 42.5% are female. The majority of respondents (87.4%) are married, while only 2% are unmarried, and 10.6% are separated, divorced, widowed, or widowers. Regarding educational status, 29.6% have primary education or less, 39.8% have completed higher secondary education or below, and 30.6% have completed graduation or higher.

Among all -the respondents, the highest monthly income of the respondents (31.9%) ranged from 36000-55999 and the second highest monthly income (24.7%) ranged from 96000 and above category whereas 23% of the respondents had a monthly income from 56000-95999 range and 20.5% of the respondent had a monthly income from 15000-35999. More than half of the respondents (53.3%) had 1-4 family members, while 46.7% had more than 5 members in their families. In terms of living arrangements, most respondents (93.6%) lived with their families, whereas only 6.4% lived with others. Among the respondents, 74.4% were currently employed. Of these, 31.9% were running a business, 20% were involved in teaching and services, 30.1% had other jobs, and 18% were housewives. The majority of respondents (59.5%) fall within the category of having a BMI of 25 and above. On the other hand, 40.5% of the respondents had a BMI less than 25.

Table 1: Socio-demographic characteristics of the participants

Variable	Total	
	Number	%
Age		
≥45	100	24.7
46-54	109	26.9
55-64	105	25.9
65 and above	91	22.5
Sex		
Male	233	57.5
Female	172	42.5
Marital status		
Unmarried	8	2.0
Married	354	87.4
Separated/divorced/widowed/widower	43	10.6
Educational status		
Primary and below	120	29.6
Higher Secondary	161	39.8
Graduation and above	124	30.6
Monthly family income		
15000-35999	83	20.5
36000-55999	129	31.9
56000-95999	93	23.0
96000 and Above	100	24.7
Family members		
1-4	218	53.3
5+	189	46.7
Living status		
Living with family	379	93.6
Living with others	26	6.4
Current employment status		
Yes	300	74.4
No	103	25.6
Occupation		
Housewife	73	18.0
Teacher and service	81	20.0
Business	129	31.9
Others	122	30.1
BMI		
Less than 25	164	40.5
25 and above	241	59.5

4.2. Clinical characteristics of the participants

Table 2 shows the diabetes-related information of the respondents. Among the respondents, 35.6% suffered from diabetes for less than 5 years, and 64.4% for 5 years and above. The maximum number of respondents (93.8%) reported that they were suffering from Type II diabetes, while only 6.2% had Type I. Nearly half of the respondents (42%) reported their parents' history of diabetes. Among the respondents, only 25.4% were taking insulin and 73.6% were monitoring their diabetes status regularly. Most of the respondents (66.7%) reported that they were having complications related to diabetes; mostly having musculoskeletal complications, while 33.3% of them were free from complications. Moreover, 28.4% of respondents reported having circulatory complications.

Table 2: Clinical Characteristics of the participants regarding diabetes

Variable	Total	
	Number	(%)
Duration of suffering		
Less than 5 years	144	35.6
5 years and above	261	64.4
Type of Diabetes		
Type-I	25	6.2
Type-II	380	93.8
Parent's having diabetes		
Yes	170	42.0
No	235	58.0
Taking insulin		
Yes	103	25.4
No	302	74.6
Regular monitoring		
Yes	298	73.6
No	107	26.4
Having complications		
Yes	270	66.7
No	135	33.3
Having circulatory complications		
Yes	115	28.4
No	290	71.6

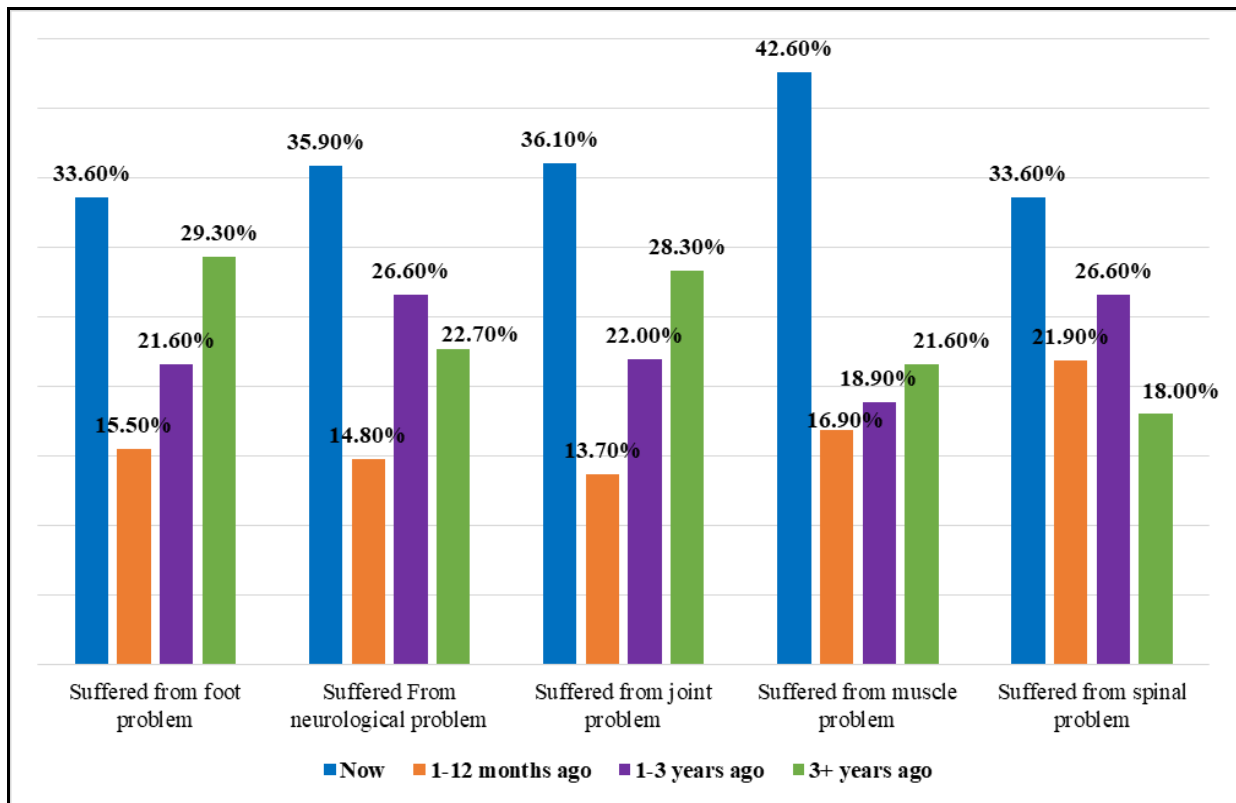


Figure 1: Diabetes-related different complications

Figure 1 presents different types of complications related to diabetes faced by the respondents over different periods. Among the respondents who suffered foot problems, 33.6% were suffering presently, 29.3% suffered 3+ years ago, 21.6% suffered 1-3 years ago, and 15.5% suffered 1-12 months ago. Regarding neurological problems, many of the respondents (35.9%) reported that they were suffering from neurological problems at the time of the survey, whereas 26.6%, 22.7%, and 14.8% suffered from 1-3 years ago, 3+ years ago, and 1-12 months ago, respectively. According to 36.1% of the respondents, they were suffering from joint problems, then, 28.3% suffered 3+ years ago, 22% suffered 1-3 years ago, and 13.7% suffered 1-12 months ago. In the case of muscle problems, 42.6% were suffering at the time of the survey, 21.6% suffered 3+ years ago, while 18.9% and 16.9% suffered 1-3 years ago and 1-12 months ago, respectively. Around 33.6% of respondents were suffering from spinal problems at that time; on the other hand, 26.65% suffered 1-3 years ago, 21.95% suffered 1-12 months ago, and 18% suffered 3+ years ago.

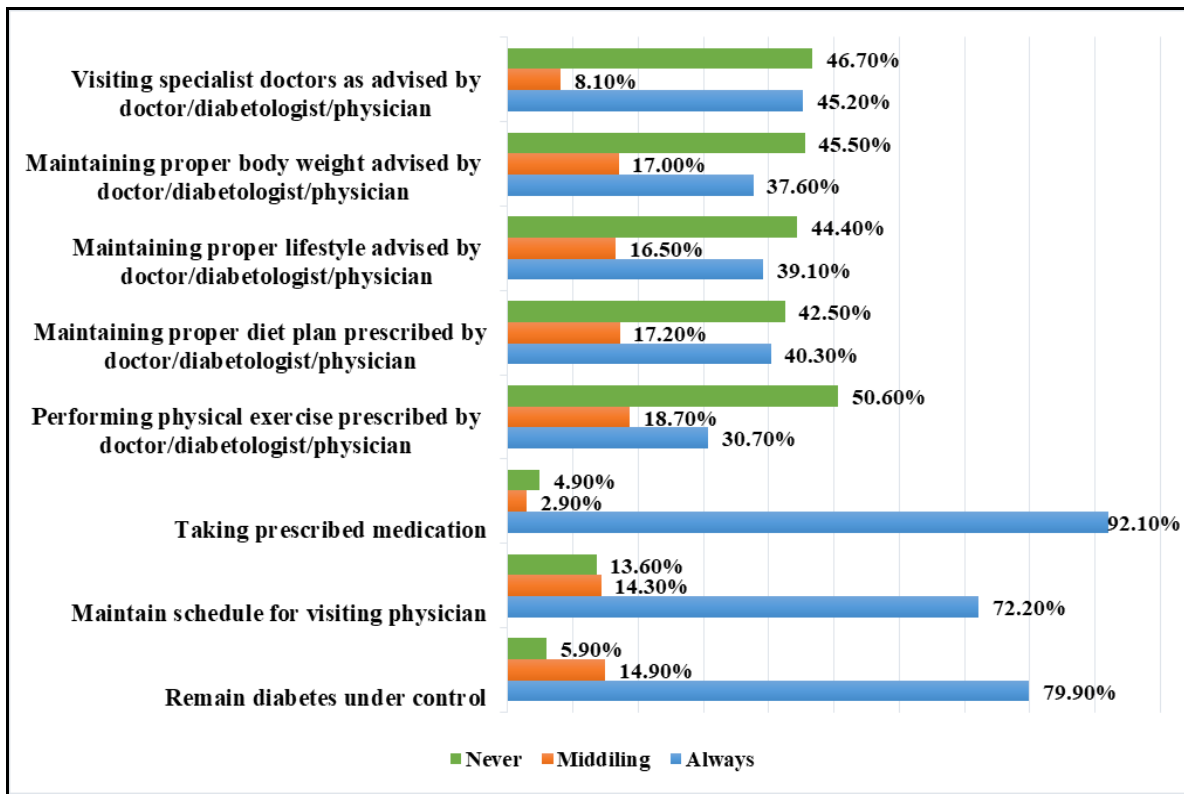


Figure 2: Patient behavior in managing diabetes

Figure 2 depicts the respondent's behavior in managing diabetes. According to 79.9% of respondents, their diabetes always remains under control, whereas only 5.9% reported that their diabetes never remains under control. Most of the respondents (72.2%) maintained a schedule for visiting physicians, while 13.6% never maintained the schedule, and 14.3% remained controlled sometimes and uncontrolled sometimes. Almost all the respondents (92.1%) were taking prescribed medication, while 4.9% reported that they had never taken prescribed medication. Half of the respondents (50.6%) reported that they had never performed physical exercise, whereas 30.7% always performed physical exercise. In terms of maintaining the proper diet plan, 40.3% reported that they followed a proper diet, while 42.5% stated that they never maintained a proper diet; on the other hand, 17.2% maintain a diet plan sometimes. Nearly half of the respondents (44.4%) reported that they never maintained a proper lifestyle, whereas 39% of them always maintained a proper lifestyle. Similar to the previous statement, many of the respondents (45.5%) stated that they never maintained proper body weight as advised by a doctor/diabetologist/physician, while only 37.6% maintained proper body weight as advised. Regarding visiting specialist doctors as advised, 45.3% followed the advice, whereas 46.7% never followed the advice, and 8.1% remained meddling.

4.3. Findings about knowledge regarding physiotherapy

Table 3 shows the frequency distribution of information about knowledge regarding physiotherapy of the respondents. According to 66.5% of the respondents, qualified physiotherapists can assess, diagnose, and prescribe physiotherapy independently, while only 3.4% of them disagreed with it, and the rest of them remain neutral. Most of the respondents (64.9%) stated that physiotherapy is a very effective treatment method; only a small portion of them denied it, and 32.2% remained neutral. Similar to the previous statement, 64.9% of respondents thought that in some cases physiotherapy is an essential treatment method, while only 1.7% disagreed with it. About half of the respondents agreed that physiotherapy needs a long duration to cure, whereas 15% did not think so. Among the respondents, 58.5% disagreed with the statement that if physiotherapy is taken once, the patient should continue it throughout life, whereas only 7.2% agreed with it. About 64.7% of respondents denied that if physiotherapy is taken once, no other treatment method would work, while 32.9% remained neutral. Regarding physiotherapy being an expensive treatment method, 50% agreed with it, but 18.2% did not find it expensive.

Nearly half of the respondents (41.2%) stated that physiotherapy reduces pain but does not cure it at all, while another 41.3% remained neutral, and 17.4% denied it. Physiotherapy has no adverse/side effects according to 62.4% of respondents, but 21.4% of respondents disagreed with it. Most of the respondents (42.5%) remained neutral regarding the statement that no pain or discomfort was felt during applying Physiotherapy, while 37% of them agreed with it. Thirty-seven percent of respondents stated that physiotherapy could not be taken without physicians' advice or prescription, whereas 26.8% denied it, and others remained neutral.

Table 3: Information to measure the knowledge regarding physiotherapy

Variable	Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)
Qualified physiotherapists can assess, diagnose, and prescribe physiotherapy independently.	181 (44.5)	90 (22.1)	122 (30.0)	13 (3.2)	1 (0.2)
Physiotherapy is a very effective treatment method.	137 (33.7)	127 (31.2)	131 (32.2)	10 (2.5)	2 (0.5)
In some cases, physiotherapy is an essential treatment method.	137 (33.7)	125 (30.7)	138 (33.9)	7 (1.7)	0 (0.0)
Physiotherapy takes a long time to cure.	69 (17.0)	137 (33.7)	140 (34.4)	54 (13.3)	7 (1.7)
If physiotherapy taken once, the patient should continue it throughout their life.	6 (1.5)	23 (5.7)	140 (34.4)	188 (46.2)	50 (12.3)
If physiotherapy taken once, no other treatment method would work.	3 (0.7)	7 (1.7)	134 (32.9)	185 (45.5)	78 (19.2)
It is an expensive treatment method.	58 (14.3)	128 (31.5)	146 (35.9)	60 (14.8)	14 (3.4)
Physiotherapy reduces pain but does not cure at all.	18 (4.4)	53 (13.0)	168 (41.3)	132 (32.4)	36 (8.8)
Physiotherapy has no adverse effects.	66 (16.2)	99 (24.3)	155 (38.1)	65 (16.0)	22 (5.4)
No pain or discomfort felt during physiotherapy.	51 (12.5)	100 (24.6)	173 (42.5)	66 (16.2)	17 (4.2)
Physiotherapy cannot be taken without a physician's advice or prescription.	51 (12.5)	101 (24.8)	146 (35.9)	66 (16.2)	43 (10.6)

*Note- In the narration part, percentages for the scales “agree” and “strongly agree” have been presented together, and the same action has been taken in presenting scales for “disagree” and “strongly disagree.” However, all 5 scales have been kept in “tables”.

Table 4 shows the frequency distribution of knowledge about physiotherapy. Among all respondents, 77.4% had heard of physiotherapy, while 22.6% had not. Most respondents (27.5%) learned about physiotherapy from a doctor, whereas 23.3% and 22.5% learned about it from a friend, neighbor, relative, or colleague, respectively. Conversely, only 9.9% heard about it from radio TV/newspapers, 9.7% from social media, and 5.8% from another healthcare professional. 42.7% of respondents believe physiotherapy provides treatment, while 38.8% think it offers massage, and 12.9% believe it is only for players and athletes. When the respondents were asked about the activity of physiotherapy, 32.2% responded that it provides massage only, 32.1% said it offers exercise only, while 25.1% stated it provides heat only. Only 6.3% answered that it involves treatment with Heat, Light, Sound, Magnet, Electricity, Exercise, etc. Most respondents (74.2%) felt they do not need to know more about physiotherapy, while only 25.8% said yes.

Table 4: Information about physiotherapy-related knowledge

Variable	Total	
	N	%
Hearing about physiotherapy		
Yes	315	77.4
No	92	22.6
Sources of hearing		
Doctor	153	27.5
Another health professional	32	5.8
Radio/TV/Newspaper	55	9.9
Social media like YouTube, Facebook, Google, etc.	54	9.7
Family member	125	22.5
Friend/Neighbor/Relative/Colleague	129	23.2
Cannot remember	6	1.1
The usual role of physiotherapy		
Provide treatment	196	42.7
Deliver Massage	178	38.8
Work for Players/Athletes	59	12.9
Not known	19	4.1
Others	7	1.5
Usual activity of physiotherapy		
Provide heat only	151	25.1
Provide Massage only	194	32.2
Provide Exercise only	193	32.1
Treat with Heat, Light, Electricity, Exercise	38	6.3
Not known	22	3.7
Willing to know more about physiotherapy		
Yes	82	25.8
No	236	74.2

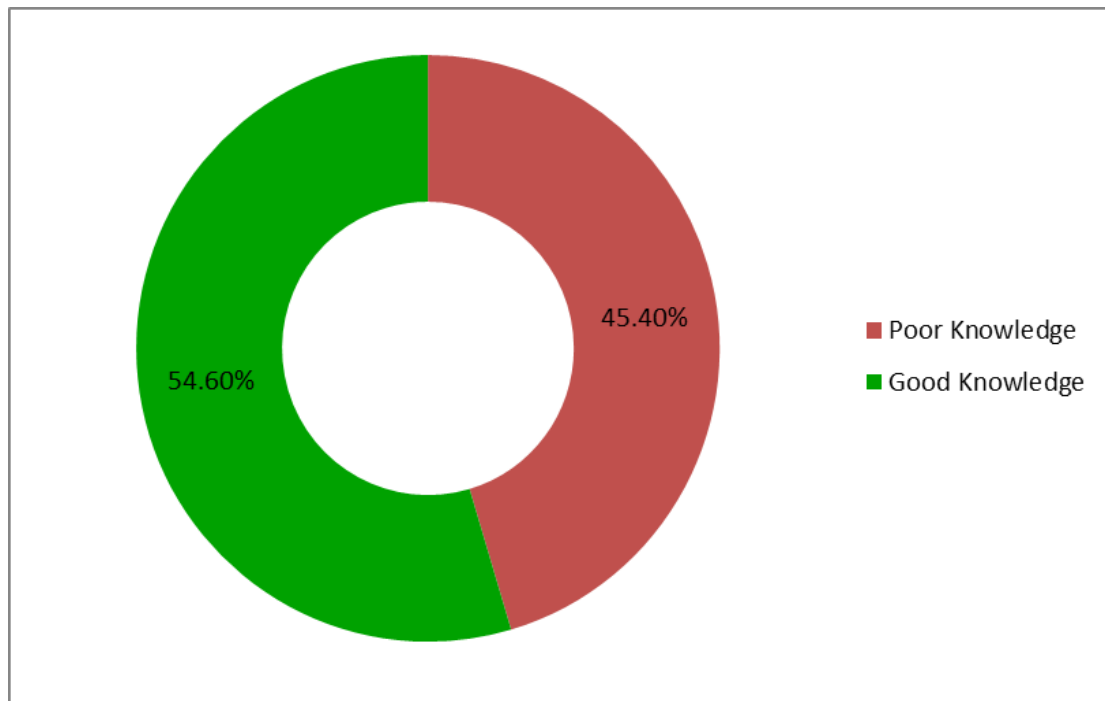


Figure 3: Knowledge level regarding physiotherapy

Figure 3 presents the knowledge level among the respondents regarding physiotherapy. Among the respondents, 54.6% had good knowledge regarding diabetes-related physiotherapy, while 45.4% had poor knowledge.

Knowledge of physiotherapy by socio-demographic and health characteristics

Table 5 shows that only three variables had a significant association with knowledge level regarding physiotherapy. With a p-value equal to or less than 0.05, which are the educational status of the respondent, monthly family income, and occupation. On the other hand, age, sex, number of family members, currently employed, BMI, and duration of suffering from diabetes were not significant as they have a p-value greater than 0.05.

Among all the respondents, those with higher education (Graduation and above) showed a higher proportion of good knowledge (68.5%) compared to those with lower education levels. As family income increased, the proportion of people with good knowledge also increased significantly. Those earning 96,000 and above had the highest proportion of good knowledge (70.0%), compared to those with lower incomes. Respondents with occupations such as teacher and services (74.1%) were more likely to have good knowledge regarding diabetes related physiotherapy compared to other occupations.

Table 5: Knowledge level regarding physiotherapy by sociodemographic and health characteristics

Variable	Poor knowledge N (%)	Good knowledge N (%)	P value
Age			
≤ 45	41 (41.0)	59 (59.0)	.692
46-54	49 (45.0)	60 (55.0)	
55-64	49 (46.7)	56 (53.3)	
65 and above	45 (49.5)	46 (50.5)	
Sex			
Male	113 (48.5)	120 (51.5)	.149
Female	71 (41.3)	101 (58.7)	
Educational status			
Primary and below	73 (60.8)	47 (39.2)	.000
Higher secondary	72 (44.7)	89 (55.3)	
Graduation and above	39 (31.5)	85 (68.5)	
Monthly family income			
15000-35999	43 (51.8)	40 (48.2)	.002
36000-55999	69 (53.5)	60 (46.5)	
56000-95999	42 (45.2)	51 (54.8)	
96000 and above	30 (30.0)	70 (70.0)	
Family member			
1-4	93 (43.1)	123 (56.9)	.304
5+	91 (48.1)	98 (51.9)	
Currently employed			
No	46 (44.7)	57 (55.3)	.906
Yes	136 (45.3)	164 (54.7)	
Occupation			
Housewife	38 (52.1)	35 (47.9)	.001
Teacher and service	21 (25.9)	60 (74.1)	
Business	68 (52.7)	61 (47.3)	
Others	57 (46.7)	65 (53.3)	
BMI			
Less than 25	76 (46.3)	88 (53.7)	.762
25 and above	108 (44.8)	133 (55.2)	
Duration of suffering			
Less than 5 years	58 (40.3)	86 (59.7)	.122
5 years and above	126 (48.3)	135 (51.7)	

Factors associated with knowledge regarding physiotherapy with socio-demographic characteristics.

Table 6 shows respondents whose monthly income was 96000 and above (AOR=2.270; CI=1.088-4.739) had a higher likelihood of having good knowledge compared to those with 15000-35999 income range. Similarly, respondents who were teachers and service holders had higher odds (AOR=4.079; CI=1.733-9.599) of having good knowledge.

Compared to those aged less than or equal to 45, individuals in the age groups 46-54 and 65 and above showed lower odds of having good knowledge regarding physiotherapy. Specifically, those aged 46-54 had an adjusted OR of 0.986 (CI=0.541-1.797), and individuals aged 65 and above had an OR of 0.832 (CI=0.382-1.815), whereas those aged 55-64 had higher odds compared to those aged less than or equal to 45 (AOR=1.065, CI=0.561-2.022). The confidence intervals for these estimates suggest that the results were not statistically significant. Women were more likely to have good knowledge (AOR= 1.822; CI=0.991-3.349) than men. Regarding education, those with a higher education level (graduation and above) were more likely to have good knowledge (AOR= 1.721; CI=0.874-3.387) compared to those with primary education and below. Those with a BMI of 25 and above had 1.1 times higher odds of having good knowledge (OR = 1.068; CI=0.687-1.660) compared to those with a BMI less than 25. The odds of having good knowledge were lower among those with more than 5 family members (AOR= 0.792; CI=0.509-1.231) as well as with a duration of suffering from diabetes for 5 years and above (AOR= 0.751; CI=0.472-1.195).

Among all these variables, only monthly family income and occupation of the respondents were statistically significant. Other variables such as age, sex, and educational status, number of family members, being currently employed, BMI, and duration of suffering from diabetes were not found as statistically significant.

Table 6: Factors associated with knowledge level regarding physiotherapy

Variable	Adjusted OR	CI (95%)
Age		
≤ 45	1	
46-54	0.986	0.541-1.797
55-64	1.065	0.561-2.022
65 and above	0.832	0.382-1.815
Sex		
Male	1	
Female	1.822	0.991-3.349
Educational status		
Primary and below	1	
Higher secondary	1.514	0.899-2.550
Graduation and above	1.721	0.874-3.387
Monthly family income		
15000-35999	1	
36000-55999	0.880	0.485-1.598
56000-95999	1.238	0.638-2.402
96000 and above	2.270***	1.088-4.739
Family member		
1-4	1	
5+	0.792	0.509-1.231
Currently employed		
No	1	
Yes	0.884	0.269-2.906
Occupation		
Housewife	1	
Teacher and service	4.079***	1.733-9.599
Business	1.844	0.812-4.187
Others	1.578	0.478-5.209
BMI		
Less than 25	1	
25 and above	1.068	0.687-1.660
Duration of suffering		
Less than 5 years	1	
5 years and above	0.751	0.472-1.195
<i>Model $\chi^2(df)$ with significance level</i>	44.411(16), p< .000	
<i>Overall predicted percentage</i>	61.3	
<i>-2log likelihood and (Nagelkerke score)</i>	510.485 (0.140)	

4.4. Findings about attitudes regarding physiotherapy

Information about attitudes regarding physiotherapy

The frequency distribution of information about attitudes regarding physiotherapy is presented in Table 7. Half of the respondents never assumed that pain/weakness would heal by itself, but 30% of them always thought that it would heal by itself. The majority of them (61.9%) always assumed that the pain/weakness would heal with medication only, while 19.2% never assumed it. According to 75.4% of the respondents, they never assumed that pain/weakness would heal by physiotherapy only, whereas only 7.9% assumed physiotherapy could heal pain/weakness. In terms of both physiotherapy and medication to heal pain/weakness, only 12.9% always assumed it, but the majority never assumed that both physiotherapy and medication are needed to heal. In 87% of cases, the respondent had not taken physiotherapy without a physician's advice, while only 6.9% had taken it even if a physician was not consulted.

Table 7: Information about attitude regarding physiotherapy

Variable	Always n (%)	Most of the time n (%)	Sometime s n (%)	Rarely n (%)	Never n (%)
When you feel any pain/weakness, you assume that it will heal by itself.	29(7.1)	94(23.1)	79(19.4)	86(21.1)	119(29.2)
When you feel any pain/weakness, you assume that it is healed by medication only.	134(32.9)	118(29.0)	77 (18.9)	45(11.1)	33(8.1)
When you feel any pain/weakness, you assume that it is healed by physiotherapy only.	9(2.2)	23(5.7)	68(16.7)	99(24.3)	208(51.1)
When you feel any pain/weakness, you assume that it needs both physiotherapy and medication to heal.	18 (4.4)	42(10.3)	79(19.4)	98 (24.1)	170(41.8)
You had not taken Physiotherapy, even though a physician advised it.	11(2.7)	13(3.2)	20(4.9)	61(15.0)	302(74.2)
You had taken Physiotherapy, even a physician was not advised for it.	10(2.5)	18(4.4)	25(6.1)	45 (11.1)	309(75.9)

*Note- In the narration part, percentages for the scales “always” and “most of the time” have been presented together, and the same action has been taken in presenting scales for “rarely” and “never”; however, all 5 scales have been kept in “tables”.

Table 8 presents the Frequency distribution of willingness to do physiotherapy among the respondents. Ninety-seven percent of the respondents stated that they would never be unwilling to do anything if they felt any pain/weakness. According to 55.3% of respondents, they would always be willing to take medication only if they felt any pain/weakness, whereas 33% of them would never be willing to take medication. The majority of the respondents stated that they would never be willing to use both Medication and Physiotherapy, but 19.9% of them would always be willing to take them both. Only 14% of the respondents would always be willing to take physiotherapy only if they felt any pain/weakness.

About 36.2% of the respondents would always be willing to take physiotherapy only when a physician advises it, while 39.4% would never be willing to take physiotherapy if a physician advises it. In the case of taking physiotherapy without a physician's advice, 77.9% would never be willing to do so, whereas only 11.8% would always be willing to take physiotherapy without a physician's advice. Most of the respondents (87.7%) would never be willing to take physiotherapy even if a physician advised it, but only 5.9% of them would do so. Among the respondents, 21.9% would advise their family member, friend, neighbor, relative, or colleague to seek physiotherapy if they feel any problem, whereas 58.5% would never advise anyone to seek physiotherapy to anyone.

Table 8: Willingness to take physiotherapy

Variable	Always n (%)	Most of the time n (%)	Sometimes n (%)	Rarely n (%)	Never n (%)
If you feel any pain/weakness, you are willing to do nothing.	0(0.0)	9(2.2)	3(0.7)	18(4.4)	377(92.6)
If you feel any pain/weakness, you are willing to take medication only.	63 (15.5)	162(39.8)	47 (11.5)	74(18.2)	61 (15.0)
If you feel any pain/weakness, you are willing to take both medication and physiotherapy.	27(6.6)	54 (13.3)	78(19.2)	120(29.5)	128(31.4)
If you feel any pain/weakness, you are willing to take physiotherapy only.	19(4.7)	38(9.3)	58(14.3)	104(25.6)	188(46.2)
You are willing to take physiotherapy only when a physician advises it.	91 (22.4)	56 (13.8)	100(24.6)	69(17.0)	91(22.4)
If you feel any pain/weakness, you are willing to take physiotherapy; even physicians will not advise it.	23(5.7)	25(6.1)	42(10.3)	57(14.0)	260(63.9)
You are not willing to take physiotherapy, even though a physician will advise it.	10(2.5)	14(3.4)	26(6.4)	84 (20.6)	273(67.1)
You will advise your family member, friend, neighbor, relative, or colleague to seek physiotherapy if they feel any problems.	48(11.8)	41(10.1)	80(19.7)	94(23.1)	144(35.4)

*Note- In the narration part, percentages for the scales “always” and “most of the time” have been presented together, and the same action has been taken in presenting scales for “rarely” and “never”; however, all 5 scales have been kept in “tables”.

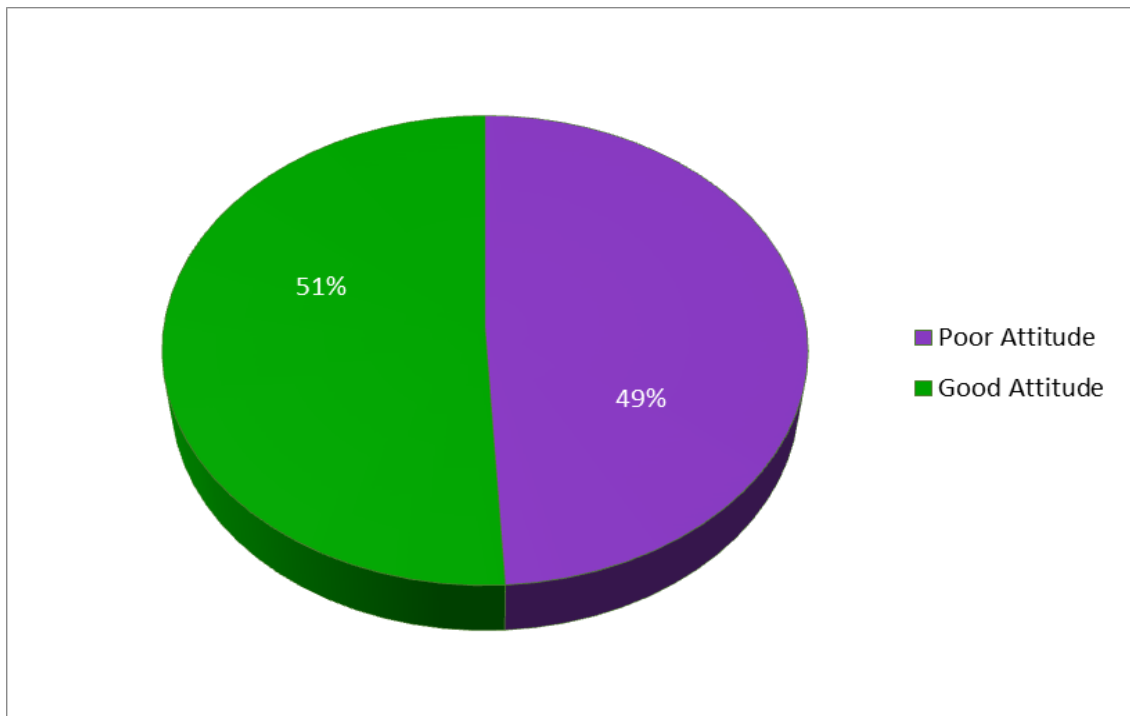


Figure 4: Attitude regarding physiotherapy

Figure 4 shows the attitude level regarding physiotherapy. The good and poor attitude levels are almost equal. However, among more than half of the respondents have a good attitude. Among the respondents, 51% had a good attitude regarding physiotherapy, whereas 49% had a poor attitude.

Attitude regarding physiotherapy by socio-demographic and health characteristics

Table 9 shows an association between attitudes regarding physiotherapy with different background characteristics. There seems to be a significant association in attitudes based on age. People aged 65 and above had a higher proportion of good attitudes (64.8%) compared to those in younger age groups. Whereas 56% of the respondents aged ≤ 45 had poor attitudes regarding diabetes-related physiotherapy, the percentage of good attitudes increases as the age increases. Education level appeared to have a significant effect on attitude. People with higher education (Graduation and above) showed a higher proportion of good attitudes (62.9%) compared to those with lower education levels (37.5%). As family income increases, the proportion of people with good attitudes also increases gradually. Those earning 96,000 and above had the highest proportion of good attitudes (65.0%), compared to those in the 15,000-35,999 range (43.4%).

Regarding currently employed respondents, 65.0% who had not been employed at that time had a good attitude, while 46.3% of the respondents who were not employed at the time of the survey had a good attitude. Other variables such as sex, number of family members, BMI, occupation, and duration of suffering from diabetes were not significantly related to attitude regarding physiotherapy.

Table 9: Attitude regarding physiotherapy by socio-demographic and health characteristics

Variable	Poor attitude N (%)	Good attitude N (%)	P value
Age			
≤ 45	56 (56.0)	44 (44.0)	.015
46-54	60 (55.0)	49 (45.0)	
55-64	51 (48.6)	54 (51.4)	
65 and above	32 (35.2)	59 (64.8)	
Sex			
Male	119 (51.1)	114 (48.9)	.364
Female	80 (46.5)	92 (53.5)	
Educational status			
Primary and below	75 (62.5)	45 (37.5)	.000
Higher secondary	78 (48.4)	83 (51.6)	
Graduation and above	46 (37.1)	78 (62.9)	
Monthly family income			
15000-35999	47 (56.6)	36 (43.4)	.005
36000-55999	73 (56.6)	56 (43.4)	
56000-95999	44 (47.3)	49 (52.7)	
96000 and above	35 (35.0)	65 (65.0)	
Family member			
1-4	109 (50.5)	107 (49.5)	.568
5+	90 (47.6)	99 (52.4)	
Currently employed			
No	36 (35.0)	67 (65.0)	.001
Yes	161 (53.7)	139 (46.3)	
Occupation			
Housewife	38 (52.1)	35 (47.9)	.232
Teacher and service	45 (55.6)	36 (44.4)	
Business	65 (50.4)	64 (49.6)	
Others	51 (41.8)	71 (58.2)	
BMI			
Less than 25	78 (47.6)	86 (52.4)	.601
25 and above	121 (50.2)	120 (49.8)	
Duration of suffering			
Less than 5 years	71 (49.3)	73 (50.7)	.960
5 years and above	128 (49.0)	133 (51.0)	

Factors associated with attitude level regarding physiotherapy

Table 10, showing only educational status, was found to be a significant contributor to a good attitude regarding physiotherapy. Compared to those with primary and below education, individuals with higher secondary and below education (AOR = 1.801; CI=1.062-3.053) and graduation and above (AOR = 2.938; CI=1.470-5.873) had higher odds of having a good attitude.

The odds of a good attitude regarding physiotherapy were 1.9 times and 1.4 times higher in the age groups of 65 and above (AOR= 1.924; CI= 0.887-4.175) and 55-64 (AOR= 1.924; CI= 0.887-4.175), respectively, compared to the age group of ≤ 45 . Whereas the odds were lower in the age group of 46-54 (AOR= 0.969; CI= 0.542-1.734), but they were not statistically significant. On the other hand, the female respondent had 1.4 times higher (AOR= 1.361; CI= 0.758-2.444) likelihood of good attitude regarding physiotherapy compared to the male respondent. Among the respondents, those who had a BMI of 25 or above had a higher odds (AOR= 1.042; CI= 0.673-1.613) of having a good attitude regarding physiotherapy compared to those who had a BMI less than 25. Those with a monthly income of 96000 and above (AOR=1.326; CI=0.643-2.738) had 1.3 times higher odds of having a good attitude compared to the 15000-35999 income category, but no statistical significance had been found in this regard. Individuals with 5 years or above of suffering from diabetes had lower odds (AOR= 0.751; CI=0.472-1.195) of having a good attitude regarding physiotherapy. The odds of having a good attitude were 1 times higher among respondents with more than 5 family members (AOR= 1.034; CI=0.668-1.600), whereas 1.4 times higher for those with business (AOR= 1.399; CI=0.626-3.126), although these results were not statistically significant.

Table 10: Factors associated with attitude level regarding physiotherapy

Variable	Adjusted OR	CI (95%)
Age		
≤ 45	1	
46-54	0.969	0.542-1.734
55-64	1.441	0.769-2.702
65 and above	1.924	0.887-4.175
Sex		
Male	1	
Female	1.361	0.758-2.444
Educational status		
Primary and below	1	
Higher secondary	1.801***	1.062-3.053
Graduation and above	2.938***	1.470-5.873
Monthly family income		
15000-35999	1	
36000-55999	0.892	0.488-1.629
56000-95999	0.976	0.504-1.891
96000 and above	1.326	0.643-2.738
Family members		
1-4	1	
5+	1.034	0.668-1.600
Currently employed		
No	1	
Yes	0.279	0.075-1.038
Occupation		
Housewife	1	
Teacher and service	0.698	0.315-1.548
Business	1.399	0.626-3.126
Others	0.358	0.096-1.341
BMI		
Less than 25	1	
25 and above	1.042	0.673-1.613
Duration of sufferings		
Less than 5 years	1	
5 years and above	0.812	0.513-1.284
<i>Model $\chi^2(df)$ with significance level</i>		<i>39.507(16), $p < .001$</i>
<i>Overall predicted percentage</i>		<i>60.5</i>
<i>-2log likelihood and (Nagelkerke score)</i>		<i>518.969 (0.125)</i>

4.5. Findings about healthcare seeking behavior

Frequency distribution of healthcare seeking behavior regarding physiotherapy

The frequency distribution of information about healthcare seeking behavior regarding physiotherapy is presented in Table 11. Among all respondents, 32.7% discussed their problem with a physiotherapist; on the other hand, 67.3% had not. Respondents had taken physiotherapy from a physiotherapy center, while 11%, 12.4%, 17.9%, and 6.2% of them had taken physiotherapy from a doctor, private hospital, their own home, and government hospital, respectively. However, most of the respondents (77.3%) had taken a full course of physiotherapy, which was suggested by the Physiotherapist, whereas 22.7% had not taken it. As for discontinuation, 28.6% of them stated that it was costly, another 28.6% stated that it took much time, 17.1% said that the center was far away from home, and 14.3% it was not so effective.

Table 11: Information about healthcare seeking behavior regarding physiotherapy

Variable	Total	
	Number	%
Discussed with a physiotherapist		
Yes	133	32.7
No	274	67.3
Taken physiotherapy		
Yes	119	29.5
No	287	70.5
From where physiotherapy taken		
Diabetic center	16	11.0
Physiotherapy center	76	52.4
Private hospital	18	12.4
Government hospital	9	6.2
Own Home	26	17.9
Reasons for discontinuation		
The center was far away from home	6	17.1
It was not so effective	5	14.3
It was costly	10	28.6
It took much time	10	28.6
Others	4	11.4

Perceived barrier affecting treatment-seeking behavior for physiotherapy

Table 12 shows the frequency distribution of perceived barriers affecting treatment-seeking behavior for physiotherapy (N=319, Missing=88). According to 56.5% of respondents, no physician advised physiotherapy, while 41% of them disagreed with it. The majority of the respondents (66.8%) denied the statement that family members opposed them, but 29.2% of them stated that family members opposed them. For 28.2% of the respondents, friends, neighbors, relatives, and colleagues demotivated them, while a large portion of them disagreed with it. About 38% of respondents stated that the center was far away from their home/office, whereas 41.5% opposed the statement. Nearly half of the respondents (45.2%) said that it took a lot of time.

A significant portion (71%) of the respondents disagreed with the statement that they fear misbehaving providers, while 5.3% agreed with it. In the case of fear of wrong intervention, the majority (66.4%) had no fear in this regard, whereas 26.6% remained neutral. Like the previous one, about 67% of them had no fear of losing confidentiality, but 5.3% of them agreed with it. As for 66.4% of the respondents, they disagreed with the statement of fear of side effects, while 25.7% remained neutral. About 22.9% of the respondents didn't seek physiotherapy for fear of high cost, whereas 50.4% of them opposed the statement. In terms of fear of absenteeism from job attendance, 8.4% of respondents agreed with it, while many of them disagreed, and 20.7% remained neutral.

Table 12: Perceived barriers affecting healthcare seeking behavior for physiotherapy

Variable	Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)
No physician advised	116 (36.4)	64 (20.1)	8 (2.5)	92 (28.8)	39 (12.2)
Family members opposed me	66 (20.7)	27 (8.5)	13 (4.1)	117 (36.7)	96 (30.1)
Known people demotivated me	62 (19.4)	28 (8.8)	16 (5.0)	117 (36.7)	96 (30.1)
The center was far away	38 (11.9)	82 (25.8)	66 (20.8)	74 (23.3)	58 (18.2)
It took a lot of time	35 (11.0)	109 (34.2)	70 (21.9)	67 (21.0)	38 (11.9)
Fear of misbehaving by providers	3 (0.9)	14 (4.4)	77 (24.1)	118 (37.0)	107 (33.5)
Fear of wrong intervention	6 (1.9)	14 (4.4)	85 (26.6)	115 (36.1)	99 (31.0)
Fear of losing confidentiality	7 (2.2)	10 (3.1)	88 (27.6)	106 (33.2)	108 (33.9)
Fear of side effects	6 (1.9)	19 (6.0)	82 (25.7)	122 (38.2)	90 (28.2)
Fear of High cost	21 (6.6)	52 (16.3)	85 (26.6)	92 (28.8)	69 (21.6)
Fear of absenteeism from job	9 (2.8)	18 (5.6)	66 (20.7)	119 (37.3)	107 (33.5)

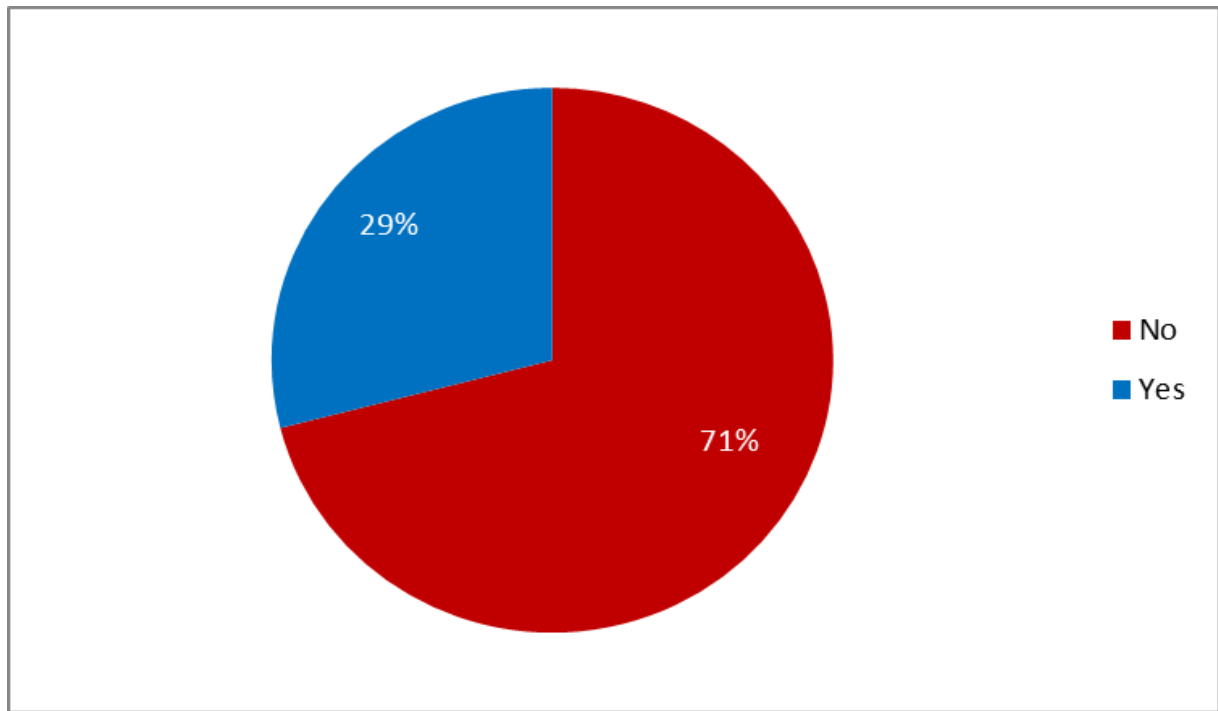


Figure 5: Healthcare-seeking behavior regarding physiotherapy

Figure 5 presents the healthcare seeking behavior regarding physiotherapy of the respondent. The respondents were asked if they had ever taken physiotherapy to obtain the desired outcome. According to 29% of the respondents, they had taken physiotherapy, while the majority of them (71%) had not taken physiotherapy.

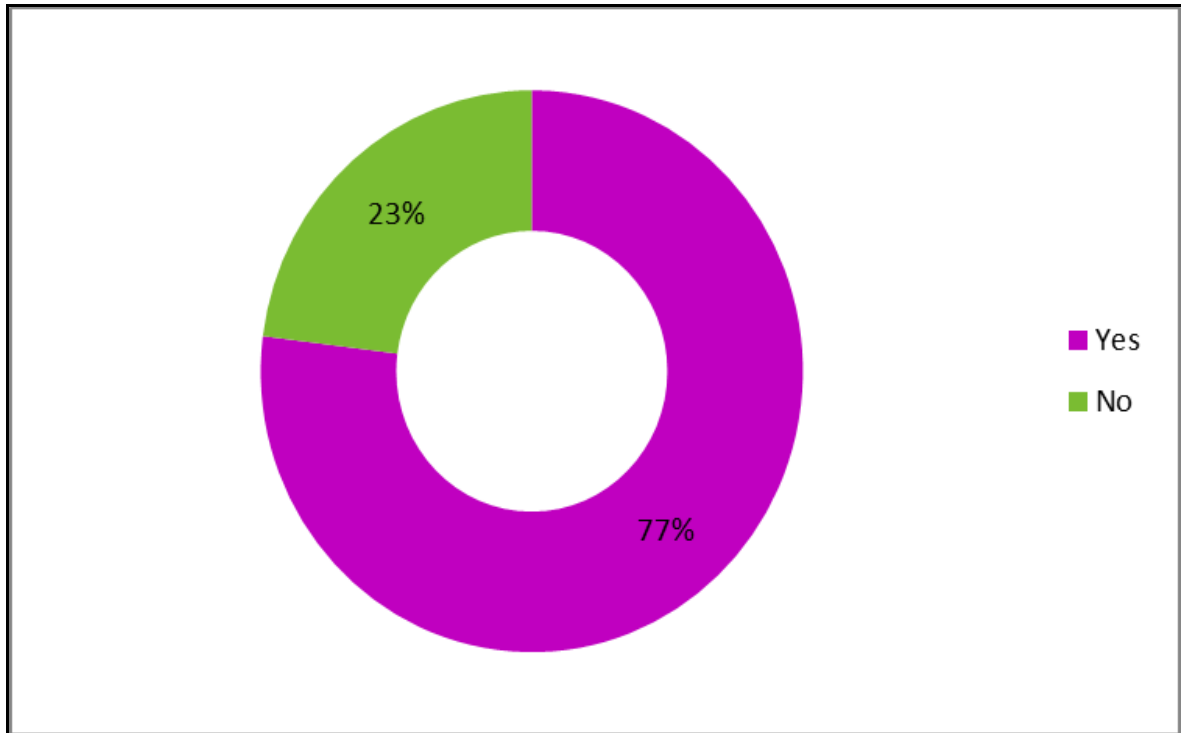


Figure 6: Taking full course of physiotherapy in percent

Figure 6 presents the healthcare seeking behavior regarding physiotherapy of the respondent (N= 118). The respondents were asked if they had taken a full course of physiotherapy to obtain the desired outcome. According to 23% of the respondents, they had not taken a full course of physiotherapy, while the majority of them (77%) had taken a full course of physiotherapy.

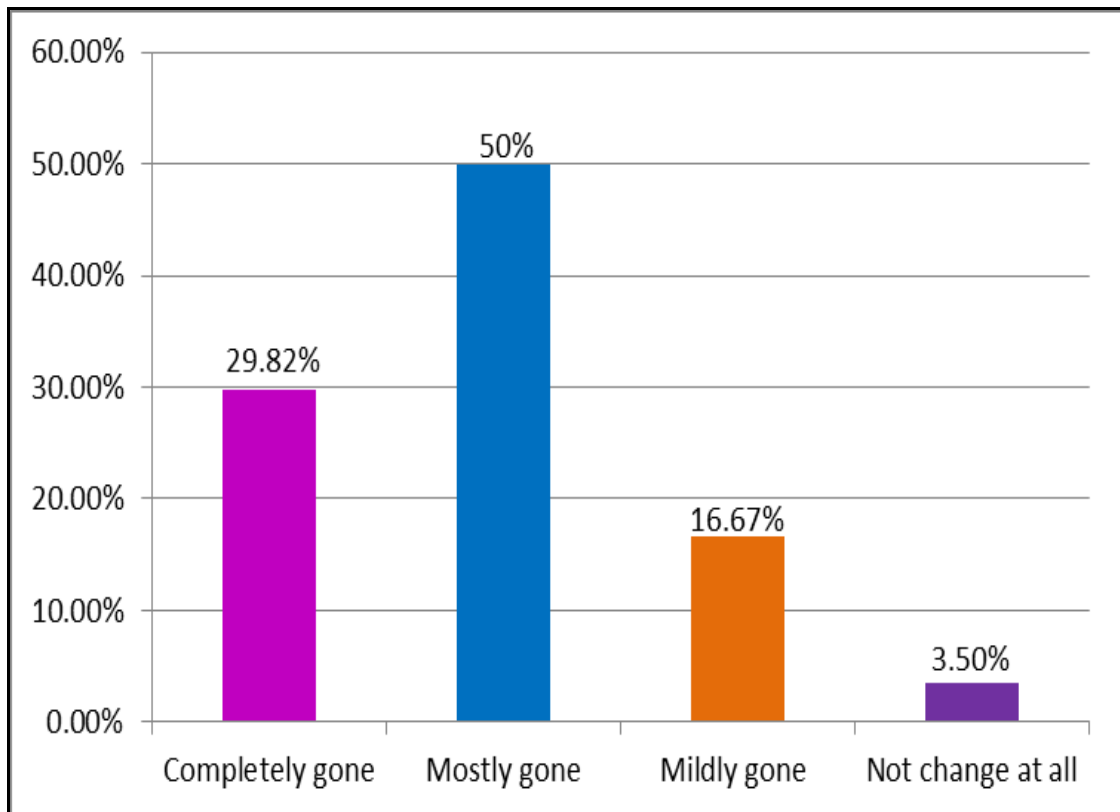


Figure 7: Outcome of the respondent's pain/problem after taking the full course of physiotherapy

Figure 7 presents the outcome of the respondent's pain/problem after taking the full course of physiotherapy of the respondent. The respondents who had taken a full course of physiotherapy (N= 118) asked for the result of their pain/problem. Among the entire respondents, 29.82% of respondents' pain/problems were completely gone, 50% of respondents' pain/problems were mostly gone, 16.67% of respondents' pain/problems were mildly gone, and 3.5% respondents' pain/problems had not changed at all.

Healthcare seeking behavior regarding physiotherapy by socio-demographic and health characteristics

Table 13 shows several significant factors that influenced individuals who had ever taken physiotherapy. Age was a strong determinant, where respondents aged 65 and above were more likely to have taken physiotherapy (49.5%) compared to younger groups, such as those aged 45 or below (15%), age group 46 to 54 (27.5%) and age group 55 to 64 (26.7%). Among the respondents, a notably higher proportion of females (39%) had used physiotherapy, compared to males (22%). Educational status was another significant factor, where respondents with higher education (Graduation and above) were more likely to have taken physiotherapy (51.5%) than those with lower education (8.3% for primary and below), whereas higher secondary and below (27.3%).

Similarly, monthly family income had a higher association with physiotherapy usage; with those in higher income ranges (96,000 and above) showing the highest proportion (56%) compared to those in lower income ranges (21.7% for 15,000-35,999), the percentage of taking physiotherapy goes higher when monthly family income gradually increases. Employment status significantly influences physiotherapy usage as well, with employed respondents more likely to have taken physiotherapy (20.4%) than those who were not employed (54.4%). Respondents in certain occupations, particularly those categorized as other (48.4%), were more likely to use physiotherapy compared to housewives and teachers/service workers. While variables like BMI and number of family members were not significantly associated with physiotherapy usage, duration of suffering from diabetes was notable, with those living with diabetes for over 5 years showing the highest proportion of physiotherapy usage (31.8%) compared to those living with diabetes for less than 5 years (24.3%).

Table 13: Healthcare seeking behavior related to physiotherapy by socio-demographic and health characteristics

Variable	No N (%)	Yes N (%)	P value
Age			
≤ 45	85 (85.0)	15 (15.0)	.000
46-54	79 (72.5)	30 (27.5)	
55-64	77 (73.3)	28 (26.7)	
65 and above	46 (50.5)	45 (49.5)	
Sex			
Male	182 (78.1)	51 (21.9)	.000
Female	105 (61.0)	67 (39.0)	
Educational status			
Primary and below	110 (91.7)	10 (8.3)	.000
Higher secondary	117 (72.7)	44 (27.3)	
Graduation and above	60 (48.4)	64 (51.6)	
Monthly family income			
15000-35999	65 (78.3)	18 (21.7)	.000
36000-55999	112 (86.8)	17 (13.2)	
56000-95999	66 (71.0)	27 (29.0)	
96000 and above	44 (44.0)	56 (56.0)	
Family member			
1-4	158 (73.1)	58 (26.9)	.280
5+	129 (68.3)	60 (31.7)	
Currently Employed			
No	47 (45.6)	56 (54.4)	.000
Yes	239 (79.7)	61 (20.3)	
Occupation			
Housewife	51 (69.9)	22 (30.1)	.000
Teacher and service	61 (75.3)	20 (24.7)	
Business	112 (86.8)	17 (13.2)	
Others	63 (51.6)	59 (48.4)	
BMI			
Less than 25	113 (68.9)	51 (31.1)	.474
25 and above	174 (72.2)	67 (27.8)	
Duration of suffering			
Less than 5 years	109 (75.7)	35 (24.3)	.112
5 years and above	178 (68.2)	83 (31.8)	

4.6. Factors associated with healthcare seeking behavior regarding physiotherapy

Table 14 shows that among the respondents, 29.1% had taken physiotherapy. Factors such as age, sex, and education were significantly associated with healthcare seeking behavior regarding physiotherapy. The odds of taking physiotherapy were 2.3 times higher in the age group of 46-54 (AOR=2.335; CI=1.046-5.212) compared to the age group of ≤ 45 . Similarly, the odds were 2.4 times higher and 4 times higher in the age group of 55-64 (AOR=2.405; CI=1.011-5.719) and 65 and above (AOR=4.029; CI=1.485-10.933), respectively. The odds of the female respondent taking physiotherapy were 2 times higher (AOR=2.013; CI=1.023-3.960) compared to the male respondent. Respondents with higher secondary and below (AOR=3.326; CI=1.465-7.551) education had 3.3 times higher likelihood of taking physiotherapy. Furthermore, respondents who had graduated and above a level of education had 9.8 times higher (AOR=9.807; CI=3.839-25.054) odds of taking physiotherapy compared to those with primary and below education.

Respondents with BMI 25 and above (AOR=1.172; CI=0.673-2.042) had higher odds of taking physiotherapy compared to those with BMI less than 25, but this result was not statistically significant. Regarding the duration of suffering from diabetes, those who suffered from diabetes for 5 years or above (AOR = 1.035; CI=0.568-1.886) had higher odds of taking physiotherapy. The odds of having taken physiotherapy were 2 times higher (AOR = 2.032; CI=0.861-4.798) among those with 96000 or above monthly income. Whereas the odds were lower among those with more than 5 family members (AOR = 0.917; CI=0.529-1.591), currently employed (AOR = 0.192; CI=0.030-1.236). But these results were not statistically significant.

Table 14: Factors associated with healthcare seeking behavior regarding physiotherapy

Variable	Model 1		Model 2	
	AORs	CI (95%)	AORs	CI (95%)
Age				
≤ 45	1		1	
46-54	2.335***	1.046-5.212	2.297***	0.999-5.279
55-64	2.405***	1.011-5.719	2.227	0.901-5.506
65 and above	4.029***	1.485-10.933	3.985***	1.356-11.708
Sex				
Male	1		1	
Female	2.013***	1.023-3.960	1.840	0.902-3.755
Educational status				
Primary and below	1		1	
Higher secondary	3.326***	1.465-7.551	3.128***	1.300-7.525
Graduation and above	9.807***	3.839-25.054	9.389***	3.390-26.005
Monthly family income				
15000-35999	1		1	
36000-55999	0.484	0.205-1.142	0.472	0.187-1.193
56000-95999	0.936	0.403-2.173	0.805	0.324-2.000
96000 and above	2.032	0.861-4.798	1.464	0.575-3.727
Family member				
1-4	1		1	
5+	0.917	0.529-1.591	1.026	0.572-1.838
Currently employed				
No	1		1	
Yes	0.192	0.030-1.236	0.248	0.038-1.629
Occupation				
Housewife	1		1	
Teacher and service	0.532	0.208-1.362	0.347***	0.126-0.961
Business	0.519	0.191-1.409	0.434	0.150-1.255
Others	0.295	0.044-1.971		
BMI				
Less than 25	1		1	
25 and above	1.172	0.673-2.042	1.257	0.695-2.274
Duration of suffering				
Less than 5 years	1		1	
5 years and above	1.035	0.568-1.886	1.107	0.585-2.098
Knowledge				
Poor	-		1	
Good			4.100***	2.180-7.710
Attitude				
Poor			1	
Good			2.802***	1.569-5.005
<i>Model $\chi^2(df)$ with significance level</i>	133.202 (16), $p < .000$		169.539 (18), $p < .000$	
<i>Overall predicted percentage</i>	78.4		81.1	
<i>-2log likelihood and (Nagelkerke score)</i>	352.365 (0.402)		316.028 (0.490)	

Table 15 shows that, among the respondents, 29.1% had taken physiotherapy. Factors such as age, education, occupation, knowledge level, and attitude level were significantly associated with healthcare seeking behavior regarding physiotherapy. The odds of taking physiotherapy were 2 times higher with borderline significance in the age group of 65 and above (AOR=2.297; CI=0.999-5.279) compared to the age group of ≤ 45 . On the other hand, the odds were 4 times higher in the age group of 65 and above (AOR=3.985; CI=1.356-11.708). Respondents with higher secondary and below (AOR=3.128; CI=1.300-7.525) education had 3 times higher likelihood of taking physiotherapy. Furthermore, respondents who had graduated and above an education level had 9 times higher (AOR=9.389; CI=3.390-26.005) odds of taking physiotherapy compared to those with primary and below education.

Among the respondents, those with occupations as teachers and service had lower odds (AOR=0.347; CI=0.126-0.961) of taking physiotherapy compared to those who were housewives. Respondents with good knowledge and good attitude level about physiotherapy had 4 times higher likelihood (AOR=4.100; CI=2.180-7.710) and 2.8 times higher odds (AOR=2.802; CI=1.569-5.005) of taking physiotherapy compared to poor knowledge and attitude level, respectively.

The odds of the female respondent taking physiotherapy were 1.8 times higher (AOR=1.840; CI=0.902-3.755) compared to the male respondent. Respondents with a BMI of 25 and above (AOR=1.257; CI=0.695-2.274) had higher odds of taking physiotherapy compared to those with a BMI less than 25; however, this result was not statistically significant. Regarding the duration of suffering from diabetes, those who suffered from diabetes for 5 years or above (AOR = 1.107; 0.585-2.098) had higher odds of taking physiotherapy. The odds of having taken physiotherapy were 1.4 times higher (AOR = 1.464; 0.572-1.838) among those with 96000 or above monthly income whereas the odds were lower among respondents belonging to other income categories. Those with more than 5 family members (AOR = 1.026; 0.572-1.838) had a higher likelihood of taking physiotherapy compared to those with 1-4 members. On the other hand, respondents who were currently employed (AOR = 0.248; 0.038-1.629) had lower odds of taking physiotherapy. However, these results were not statistically significant.

Table 15: Healthcare seeking behavior according to demographic, social, diabetic, knowledge and attitude related characteristics

Variable	Adjusted OR	CI (95%)
Age		
≤ 45	1	
46-54	2.297***	0.999-5.279
55-64	2.227	0.901-5.506
65 and above	3.985***	1.356-11.708
Sex		
Male	1	
Female	1.840	0.902-3.755
Educational status		
Primary and below	1	
Higher secondary	3.128***	1.300-7.525
Graduation and above	9.389***	3.390-26.005
Monthly family income		
15000-35999	1	
36000-55999	0.472	0.187-1.193
56000-95999	0.805	0.324-2.000
96000 and above	1.464	0.575-3.727
Family member		
1-4	1	
5+	1.026	0.572-1.838
Currently Employed		
No	1	
Yes	0.248	0.038-1.629
Occupation		
Housewife	1	
Teacher and Service	0.347***	0.126-0.961
Business	0.434	0.150-1.255
Others		
BMI		
Less than 25	1	
25 and above	1.257	0.695-2.274
Duration of suffering		
Less than 5 years	1	
5 years and above	1.107	0.585-2.098
Knowledge Level		
Poor	1	
Good	4.100***	2.180-7.710
Attitude Level		
Poor	1	
Good	2.802***	1.569-5.005
<i>Model $\chi^2(df)$ with significance level</i>	169.539 (18), p< .000	
<i>Overall predicted percentage</i>	81.1	
<i>-2log likelihood and (Nagelkerke score)</i>	316.028 (0.490)	

Chapter 5: Discussion and Limitation

5.1. Discussion

Socio-demographic characteristics

Background characteristics of the respondents of the current study reveal that the majority of respondents were middle-aged (46–64 years), overweight (59.5%), and predominantly male (57.5%), with most being employed and married. These findings align with existing literature that identifies increasing age, overweight status, and urban employment as significant risk factors for developing type 2 diabetes mellitus (T2DM) (Akhtar et al., 2020; WHO, 2023). The higher prevalence of overweight individuals in this sample resonates with the documented association between elevated BMI and insulin resistance, a hallmark of T2DM (Penman et al., 2022). Moreover, the employment pattern, especially the high proportion of business-related occupations, may suggest sedentary lifestyles and dietary habits contributing to metabolic risks, consistent with urbanization trends described in previous studies (Baidya et al., 2020). Additionally, the age and income distribution observed supports the assertion that middle-aged individuals with moderate to high income are more likely to be affected, potentially due to reduced physical activity.

Clinical characteristics

Most respondents (64.4%) had been suffering from diabetes for over 5 years, and 93.8% were diagnosed with type 2 diabetes, aligning with global data, which shows that over 95% of diabetes cases are type 2 (WHO, 2023). This finding also mirrors the national statistics of Bangladesh, where nearly all diagnosed cases fall under type 2 diabetes, and the country is projected to rank seventh globally by 2045 with over 22 million cases (Mahtab et al., 2023). A family history of diabetes in 42% of participants supports the genetic predisposition observed in diabetes pathogenesis, especially type 2 (Davidson's, Penman et al., 2022). Despite 73.6% of patients regularly monitoring their diabetic status, only 25.4% were on insulin therapy. Additionally, a high proportion (66.7%) reported diabetes-related complications, particularly musculoskeletal and circulatory issues, consistent with literature identifying musculoskeletal disorders and vascular complications as common in chronic hyperglycemia (Penman et al., 2022). The 28.4% prevalence of circulatory complications is a warning sign of the macrovascular damage frequently associated with prolonged uncontrolled diabetes, which contributes to morbidity and mortality (WHO, 2023; IDF, Sun et al., 2022).

Patient behavior and compliance in managing diabetes

This study shows that 92.1% of respondents took prescribed medication. However, only 30.7% performed physical exercise, 42.5% maintained a proper diet, and only 45.50% maintained proper body weight. This pattern reflects the findings (Bukhsh et al., 2019) that identified a correlation between disease knowledge and self-care practices. Poor adherence to lifestyle modifications remains a significant challenge in diabetes management despite the high rate of medication adherence. A study in Riyadh by Alqahtani et al. (2020) also reported that while knowledge about diabetes was moderate, lifestyle practices, including exercise and dietary control, were lacking. This indicates that medication adherence alone is not sufficient to achieve optimal glycemic control, and a holistic approach incorporating lifestyle modifications is necessary.

Complications of diabetes mellitus

This study shows that 66.7% of respondents reported complications related to diabetes, including neurological (35.9%), foot problems (33.6%), joint problems (36.1%), muscle issues (42.6%), and spine problems (33.6%). These findings align with research by Hofbauer et al. (2007), which highlighted the connection between diabetes and musculoskeletal disorders, such as osteoporosis. The link between diabetes and these complications can be attributed to prolonged hyperglycemia, which affects collagen metabolism, tendon stiffness, and bone density, increasing the risk of fractures, joint stiffness, and reduced mobility. The high occurrence of muscle and joint problems among respondents further supports studies by Attar (2012), who identified an increased risk of musculoskeletal issues in diabetic patients. Additionally, this study found that 28.4% of participants experienced circulatory complications. A study reported that newly diagnosed diabetic patients often develop complications like neuropathy and nephropathy, emphasizing the importance of early screening and intervention (Heydari et al. 2010). Neuropathy, in particular, can cause significant disability by reducing sensation in the extremities, which increases the risk of injuries and ulcers that may lead to severe complications, including amputations.

Knowledge of physiotherapy

This study shows a slightly higher level of knowledge about physiotherapy among respondents, with 54.6% demonstrating a good understanding on average. The majority (77.4%) had heard of physiotherapy, mostly through physicians and social networks like friends, family, and neighbors. However, misconceptions still exist, as many respondents mostly associate physiotherapy with massage (32%) or exercise (32%), and only 6.3% correctly recognized it as a multifaceted treatment involving modalities like heat, light, and electricity. These findings are consistent with broader health literacy research, where awareness does not always lead to an accurate or complete understanding. For example, a study found that while disease knowledge among diabetic patients was significantly linked to better self-care and glycemic control, education level was a strong predictor of that knowledge (Bukhsh et al. 2019). Similar findings were reported by Belsti et al. (2020) and Reid et al. (2019), who observed that increased awareness and positive attitudes were related to higher education and living in urban areas. In this study, despite the higher knowledge scores, only 25.8% of respondents felt they needed to learn more about physiotherapy, indicating possible overestimation of their understanding. This overconfidence echoes findings from Alqahtani et al. (2020), where participants expressed willingness to treat diabetes but held notable misconceptions about medications.

Attitude towards physiotherapy

This study indicates a slightly positive attitude toward physiotherapy among diabetic patients, with 51% exhibiting good attitudes and only 49% demonstrating poor views. Most participants either never or rarely believed in the effectiveness of physiotherapy for managing pain or weakness, and a substantial portion (75.9%) were unwilling to take physiotherapy when not advised by a physician. Similar trends were reported in previous studies, Bukhsh et al. (2019) and Reid et al. (2019). In Bangladesh, Lewis et al. (2014) found that limited understanding of diabetes and its management, due to inadequate information, contributes to poor healthcare practices. The present study aligns these conclusions, suggesting that negative attitudes toward physiotherapy may stem from low levels of awareness and education about its benefits. Furthermore, Belsti et al. (2020) found that higher educational levels are correlated with more positive attitudes toward diabetes complications, which may also influence openness to supportive therapies like physiotherapy.

Healthcare seeking behavior for physiotherapy

In this study, it is revealed that suboptimal healthcare seeking behavior among respondents regarding physiotherapy. Only 29% had ever taken physiotherapy treatment, although 32.7% of the participants discussed their condition with a physiotherapist, highlighting a notable gap between recognition of the need and actual service utilization. This pattern is observed in similar health contexts where limited awareness, accessibility, and affordability hinder proactive care-seeking behavior (Lewis et al., 2014; Khan et al., 2021). Among those who received physiotherapy, the majority (77%) completed the full course as prescribed, indicating compliance when treatment is initiated. However, barriers such as cost (23%), time (45%), and distance (38%) were key reasons for discontinuation. These findings mirror trends seen in diabetes management studies, where knowledge and accessibility are closely linked to health outcomes (Bukhsh et al., 2019; Reid et al., 2019).

Role of physiotherapy in managing diabetes complications

This study found that 79.82% of respondents who completed a full physiotherapy course reported either complete or significant improvement in their pain or problems. This aligns with existing literature that consistently supports the effectiveness of physiotherapy interventions—particularly exercise therapy, electrotherapy, and mobilization techniques—in addressing musculoskeletal, neurological, and vascular complications in diabetic patients (Shanahan et al., 2014; Jahantigh et al., 2020; Akbari et al., 2020). For instance, Shanahan et al. (2014) emphasized the importance of physiotherapy in treating diabetic musculoskeletal conditions like adhesive capsulitis and carpal tunnel syndrome, while studies by Kaur et al. (2022) and Özdirenç et al. (2004) highlighted improved cardiovascular and functional outcomes through exercise-based rehabilitation. Furthermore, reviews by Harris et al. (2020) and Fabiola et al. (2021) affirm that physical therapists serve as frontline agents in chronic disease management, improving patients' quality of life and reducing morbidity.

5.2. Limitations

Like many other research studies, this research has some limitations that the researcher faces. The limitations are mentioned below.

One major issue was the lack of studies on similar topics, which made it hard to review literature from past research, set up the right methodology, determine the perfect sample size, and write the thesis paper properly. Without enough background information, it was tough to build a strong base for the research. Another problem was the responses from the participants during face-to-face interviews. Since they are human, some did not answer all the questions properly, especially about how their family, friends, or coworkers influenced their health decisions. Some people even refused to participate or share enough information, which affected the quality of the data. It was also difficult to get permission from the authorities at the diabetic centers and hospitals, even though official documents were provided.

The study also faced issues like limited time and money. Political problems in the country made it hard to collect data and finish background research on time. The diabetic centers were far apart across Dhaka, and traveling between them took a lot of time and money, especially with the city's traffic congestion. In terms of research design, this study used a cross-sectional design, which only provides a snapshot of data and does not help establish cause-and-effect relationships. Moreover, the sampling method used was purposive, which means that the results may not accurately represent the entire population. Finally, the small sample size also limits the extent to which the findings can be applied, making it more challenging to generalize the results to the entire country.

Chapter 6: Conclusion and Recommendations

6.1: Conclusion

The study examined the knowledge, attitudes, and healthcare seeking behavior regarding physiotherapy among diabetic patients in Dhaka city, along with barriers to accessing these services. The findings reveal a notable gap between awareness and practical utilization of physiotherapy. Despite of more than half of the respondents exhibited good knowledge of physiotherapy, only half of them demonstrated a positive attitude towards its use. However, near about one-fourth respondents considered physiotherapy as a treatment option for reliving pain or Weakness. Age, gender, education, and BMI were significant factors influencing attitudes, with older individuals, females, and those with higher education levels displaying views that are more favorable. Among those who received treatment, more than three fourth followed the prescribed course, and most of the respondents reported significant relief. Barriers to utilization of physiotherapy, the key reasons for not seeking physiotherapy, included the absence of physician referrals told more than half of the participants, one fourth told financial constraints, about one-third reports accessibility issues, and about half of them about time constraints.

Education and socio-economic factors played a crucial role in physiotherapy utilization. Those with higher education levels and greater income were more likely to seek physiotherapy services. Additionally, older individuals and females had higher utilization rates compared to younger and male respondents. To bridge the gap between awareness and practice, targeted educational campaigns should implement to remove barriers and promote physiotherapy as an essential aspect of diabetes management. Enhancing accessibility through cost-effective services, better facility distribution, and increased physician recommendations is vital. Future research should focus on personalized strategies to overcome barriers and assess the effectiveness of interventions designed to promote physiotherapy among diabetic populations.

6.2: Recommendations

The following recommendations are based on the findings of this study, aiming to enhance the quality of life for individuals living with diabetes. Moreover, the development and implementation of physiotherapy programs could play a vital role in increasing the utilization of physiotherapy, which will solve mobility issues and musculoskeletal problems of diabetic patients.

1. **Comprehensive Care Framework:** The government should adopt a holistic, patient-centered approach to deliver high-quality, integrated healthcare services for all individuals diagnosed with diabetes. This would involve not only medical treatment but also interventions of physiotherapy and rehabilitation.
2. **Awareness and Prevention Programs:** Non-governmental organizations (NGOs), healthcare providers, and other stakeholders should actively implement programs aimed at raising awareness about the role of physiotherapy, so that patients may feel more courage to take physiotherapy in managing musculoskeletal complications and improving mobility, degeneration, arthritis, and functional activities in diabetic patients.
3. **Financial Support for Low-Income Patients:** The government should strengthen social safety net programs to provide financial assistance to low-income diabetic patients. This support would help them access necessary medical care, including physiotherapy.
4. **Public Health Campaigns:** A large-scale public health initiative focused on awareness about the importance of physiotherapy and about willingness to utilization of physiotherapy should be launched.
5. **Further Research Initiatives:** Future research should be expanded to encompass a broader population, across all regions of Bangladesh, utilizing larger sample sizes to ensure the reliability, validity, and generalizability of findings. Such studies will facilitate the design of targeted interventions, including the integration of physiotherapy, to address region-specific challenges in diabetes care.

References

- Abbasi, Y. F., See, O. G., Ping, N. Y., Balasubramanian, G. P., Hoon, Y. C., & Paruchuri, S. (2018). Diabetes knowledge, attitude, and practice among type 2 diabetes mellitus patients in Kuala Muda District, Malaysia—A cross-sectional study. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 12(6), 1057-1063.
- Akbari, N. J., Hosseinifar, M., Naimi, S. S., Mikaili, S., & Rahbar, S. (2020). The efficacy of physiotherapy interventions in mitigating the symptoms and complications of diabetic peripheral neuropathy: A systematic review. *Journal of Diabetes & Metabolic Disorders*, 19, 1995-2004.
- Akhtar, S., Nasir, J. A., Sarwar, A., Nasr, N., Javed, A., Majeed, R., ... & Billah, B. (2020). Prevalence of diabetes and pre-diabetes in Bangladesh: a systematic review and meta-analysis. *BMJ open*, 10(9), e036086.
- Alqahtani, M., Almutairi, F. E., Albasseet, A. O., & Almutairi, K. E. (2020). Knowledge, attitude, and practice of diabetes mellitus among the Saudi population in Riyadh, Saudi Arabia: a quantitative study. *Cureus*, 12(1).
- Attar, S. M. (2012). Musculoskeletal manifestations in diabetic patients at a tertiary center. *Libyan Journal of Medicine*, 7(1).
- Baidya, C., Sharmi, B. K. C. M. H., & Das, S. F. S. S. (2020). Health Care Seeking Pattern of Diabetic Patients in A Selected Rural Community. *Journal of Army Medical College Chattogram*, 3(2), 19-23.
- Belsti, Y., Akalu, Y., & Animut, Y. (2020). Attitude, practice, and their associated factors towards Diabetes complications among type 2 diabetic patients at Addis Zemen District Hospital, Northwest Ethiopia. *BMC Public Health*, 20, 1-11.
- Bhowmik, B., Afsana, F., Ahmed, T., Munir, S. B., & Ibrahim, M. (2013). Increasing prevalence of type 2 diabetes in a rural Bangladeshi population: A population based study for 10 years. *Diabetes & Metabolism Journal*, 37(1), 46–53.

Bolisani, E., Bratianu, C., Bolisani, E., & Bratianu, C. (2018). The elusive definition of knowledge. *Emergent knowledge strategies: Strategic thinking in knowledge management*, 1-22.

Brutsaert, E. F. (2023, October). Diabetes Mellitus (DM). MSD Manual Consumer Version. <https://www.msdmanuals.com/home/hormonal-and-metabolic-disorders/diabetes-mellitus-dm-and-disorders-of-blood-sugar-metabolism/diabetes-mellitus-dm>

Bukhsh, A., Khan, T. M., Sarfraz Nawaz, M., Sajjad Ahmed, H., Chan, K. G., & Goh, B. H. (2019). Association of diabetes knowledge with glycemic control and self-care practices among Pakistani people with type 2 diabetes mellitus. *Diabetes, metabolic syndrome, and obesity: targets and therapy*, 1409-1417.

Chowdhury, M. A. B., Islam, M., Rahman, J., Uddin, M. J., & Haque, M. R. (2022). Diabetes among adults in Bangladesh: changes in prevalence and risk factors between two cross-sectional surveys. *BMJ Open*, 12(8), e055044.

de Araújo, L. B., Ribeiro, M. H. S., dos Santos, M. M. G., de Lacerda, S. D. L., & de Sousa Pereira, T. N. (2021). Contributions of physiotherapy in primary care for the reduction of diabetic comorbidities.

Fabiola, M., Sharmila, G., Thirumagal, J., Vennila, S., Aruna, S., & Ahamed, M. I. (2021). Review Of Physiotherapy and Rehabilitation In Diabetes Mellitus Management. *Turkish Online Journal of Qualitative Inquiry*, 12(10).

Fowler, M. J. (2008). Microvascular and macrovascular complications of diabetes. *Clinical Diabetes*, 26(2), 77–82.

Goyal, R., Chakraverty, S., & Zafar, S. (2022). Awareness about physiotherapy in patients with diabetes: A population-based study.

Haileamlak, A. (2018). What factors affect health seeking behavior? *Ethiopian Journal of Health Sciences*, 28(2), 110. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6016338/>

Hap, K., Biernat, K., & Konieczny, G. (2021). Patients with diabetes complicated by peripheral artery disease: the current state of knowledge on physiotherapy interventions. *Journal of Diabetes Research*, 2021.

Harris-Hayes, M., Schootman, M., Schootman, J. C., & Hastings, M. K. (2020). The role of physical therapists in fighting the type 2 diabetes epidemic. *Journal of orthopedic & sports physical therapy*, 50(1), 5-16.

Heydari, I., Radi, V., Razmjou, S., & Amiri, A. (2010). Chronic complications of diabetes mellitus in newly diagnosed patients. *International Journal of Diabetes Mellitus*, 2(1), 61-63.

Hofbauer, L. C., Brueck, C. C., Singh, S. K., & Dobnig, H. (2007). Osteoporosis in patients with diabetes mellitus. *Journal of Bone and Mineral Research*, 22(9), 1317-1328.

Hogg, M. A., & Vaughan, G. M. (2018). *Social psychology: An introduction*. Harvester Wheatsheaf.

Jahantigh Akbari, N., Hosseinifar, M., Naimi, S. S., Mikaili, S., & Rahbar, S. (2020). The efficacy of physiotherapy interventions in mitigating the symptoms and complications of diabetic peripheral neuropathy: A systematic review. *Journal of Diabetes & Metabolic Disorders*, 19, 1995-2004.

Kaur, H., Kaur, S., & Singh, S. (2022). Role of Physiotherapy in Managing Complications of Diabetes Mellitus: A Systematic Review. *International Journal of Physiotherapy and Research*, 10(3), 4283–4291.

Kaur, J., Singh, S. K., & Singhvij, J. (2015). Physiotherapy and rehabilitation in the management of diabetes mellitus: a review. *Indian Journal of Scientific Research*, 6(2), 171-181.

Kaur, N., & Singh, S. (2022). Role of Physiotherapy in managing type 2 diabetes mellitus: A systematic review. *Journal of Diabetology*, 13(3), 210-226.

Keakile, S. B. (2015). Knowledge, attitudes, and practices amongst diabetes mellitus patients about exercise at a primary health center in Gaborone, Botswana (Doctoral dissertation, University of Limpopo).

Khan, N., Oldroyd, J. C., Hossain, M. B., & Islam, R. M. (2021). Awareness, treatment, and control of diabetes in Bangladesh: evidence from the Bangladesh Demographic and Health Survey 2017/18. *International Journal of Clinical Practice*, 2022.

Kumar, V., Abbas, A. K., Aster, J. C., & Perkins, J. A. (2021). Robbins and Cotran's pathologic basis of disease (10th ed.). Elsevier.

Lewis, C. P., & Newell, J. N. (2014). Patients' perspectives of care for type 2 diabetes in Bangladesh—a qualitative study. *BMC Public Health*, 14(1), 1-7.

Mahtab, H., Zaman, M., & Ullah, A. K. (2023). National Guidelines for Diabetes in Bangladesh.

McKee, D. (n.d.). Occupation | Definition. Sociology Glossary. <https://docmckee.com/oer/soc/sociology-glossary/occupation-definition/>

MedlinePlus. (2023, October). Diabetes. U.S. National Library of Medicine. <https://medlineplus.gov/ency/article/001214.htm>

Merriam-Webster. (n.d.). Treatment. In Merriam-Webster.com dictionary. Retrieved May 9, 2025, from <https://www.merriam-webster.com/dictionary/treatment>

Mulla, S., Shetkar, S., Sanap, A., & Upadhyaya, N. (1880). A questionnaire-based survey on patients' interpretation and physiotherapy awareness in diabetic neuropathy. *Journal of medical pharmaceutical and allied sciences*, 11(3).

National Institute of Diabetes and Digestive and Kidney Diseases. (2023). What is diabetes? <https://www.niddk.nih.gov/health-information/diabetes/overview/what-is-diabetes>

Oxford University Press. (n.d.). Physiotherapy. In the Oxford English Dictionary. Retrieved May 9, 2025, from <https://www.oed.com/>

Özdirenç, M., Koçak, G., & Güntekin, R. (2004). The acute effects of an inpatient physiotherapy program on functional capacity in type II diabetes mellitus. *Diabetes research and clinical practice*, 64(3), 167-172.

Penman, I. D., Ralston, S. H., Strachan, M. W., & Hobson, R. (Eds.). (2022). *Davidson's Principles and Practice of Medicine E-Book*. Elsevier Health Sciences.

Raja, S. N., Carr, D. B., Cohen, M., Finnerup, N. B., Flor, H., Gibson, S., et al. (2020). The revised International Association for the Study of Pain definition of pain: Concepts, challenges, and compromises. *Pain*, 161(9), 1976–1982.

Ramchurn, N., Mashamba, C., Leitch, E., Arutchelvam, V., Narayanan, K., Weaver, J. & Kelly, C. (2009). Upper limb musculoskeletal abnormalities and poor metabolic control in diabetes. *European journal of internal medicine*, 20(7), 718-721.

Reid, M., Roux, M. L., Raubenheimer, J., & Walsh, C. (2019). Diabetes-related knowledge, attitude, and practices (KAP) of adult patients with type 2 diabetes mellitus in the Free State province, South Africa. *South African Journal of Clinical Nutrition*, 32(4), 20-27.

RxList. (n.d.). Complication: Medical definition. <https://www.rxlist.com/complication/definition.htm>

Shanahan, H. (2014). An overview of the role of physiotherapy in managing diabetes and diabetes-associated conditions. *South African Journal of Diabetes and Vascular Disease*, 11(3), 104-107.

Sun, H., Saeedi, P., Karuranga, S., Pinkepank, M., Ogurtsova, K., Duncan, B. B. & Magliano, D. J. (2022). IDF Diabetes Atlas: Global, regional, and country-level diabetes prevalence estimates for 2021 and projections for 2045. *Diabetes research and clinical practice*, 183, 109119.

Taber's Cyclopedic Medical Dictionary. (2021). Complication. F.A. Davis Company.

World Health Organization (2023), fact sheet – Diabetes, retrieved on 08.01.2024 from <https://www.who.int/news-room/fact-sheets/detail/diabetes>

World Health Organization. (2020). Body mass index – BMI. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>

Annexures

List of Annexure

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Annexure – 1*List of areas from which data collected*

No.	Name of the area	Dhaka City Corporation area
1	Mitford Hospital	Dhaka South
2	Jatrabari	Dhaka South
3	Shantinagar	Dhaka South
4	Basabo	Dhaka North
5	Mogbazar	Dhaka North
6	Gulshan	Dhaka North
7	Uttara	Dhaka North
8	Kalabagan	Dhaka North
9	Mohammadpur	Dhaka North

Annexure - 2

পেশা কোড

পেশার নাম	কোড
গৃহিণী	১
শিক্ষক	২
চিকিৎসক	৩
প্রকৌশলী	৪
চাকরিজীবী	৫
ব্যবসায়ী	৬
সেবিকা/স্বাস্থ্যকর্মী	৭
শ্রমিক/দিনমজুর	৮
পুলিশ/সেনা/নৌ/বিমান/আনসার সদস্য	৯
কৃষক	১০
মিস্ত্রি	১১
ড্রাইভার	১২
দর্জি	১৩
দোকানদার	১৪
জেলে	১৫
রিভ্রা/ভ্যান চালক	১৬
রাজনীতিবিদ	১৭
কেয়ারটেকার/সিকিউরিটি গার্ড/দারোয়ান	১৮
অভিনেতা/ অভিনেত্রী	১৯
পরিচালক	২০
গায়ক/ গায়িকা	২১
উপস্থাপক/ উপস্থাপিকা/মডেল	২২
উকিল	২৩
কেরানি	২৪
দপ্তরি	২৫
জাদুকর	২৬
খেলেয়ার	২৭
আম্পায়ার/রেফারি	২৮
কোচ	২৯
মাঝি/সারেং/লঞ্চ চালক	৩০
গৃহকর্মী	৩১
ডবমানবালা	৩২
ব্যাংকার	৩৩
লেখক/কবি	৩৪
সাংবাদিক	৩৫
ছাত্র/ছাত্রী	৩৬
কৃষিবিদ	৩৭
কুক/শেফ/বারুচি	৩৮
আয়া	৩৯
বিক্রয়কর্মী	৪০
হোম ডেলিভারী কর্মী	৪১

Annexure – 3**Informed Consent Form**Code no.

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DEPARTMENT OF POPULATION SCIENCES
UNIVERSITY OF DHAKA

Assalamu-alikum, I am Mohammad Nasir Uddin. I am a student of MPhil, University of Dhaka. At present, I am conducting a research study on **“Physiotherapy-related Knowledge, Attitude, and Healthcare- Seeking Behavior among Diabetic Patients in Dhaka City.”** This research will help me get my MPhil's degree, as well as it will also contribute to treatment for Diabetic patients.

I would appreciate very much your participation in this study. I would like to ask you some questions about your Socio - Economic - Demographic and physical conditions. All of this information will be used for research purposes. This interview will take between 15 to 20 minutes to complete. Whatever information you provide, will be kept strictly confidential and will not be shown to other persons.

Participation in this study is voluntary, and you can choose not to answer any individual question or the entire questionnaire.

At this time, do you want to ask me anything about the study?

Do you agree to provide an interview?

May I begin the interview now?

Name of the interviewer.....

Signature of interviewer _____ Date...../ 02 / 2024

I understand that all information will be kept strictly confidential. I am willing to participate in the study.

Participant's Name.....

Participant's contact no.....

Name of Diabetic center.....

Diabetic Registration no.....

Participant's Signature..... Date...../ 02 / 2024

Code no.

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Annexure – 4**QUESTIONNAIRE**

DEPARTMENT OF POPULATION SCIENCES
UNIVERSITY OF DHAKA

“Physiotherapy-related Knowledge, Attitude, and Healthcare- Seeking Behavior among Diabetic Patients in Dhaka City.”

Section—01

Socio-Economic – Demographics- General health characteristics

Please encircle the right answer(s) or response properly- [Question no. 101 to 116]

NO.	QUESTION	RESPONS	SKIP TO
101	What is your Gender?	1= Male 2= Female 3= Other	
102	How old are you?	years	
103	What is your marital status?	1= Unmarried 2= Married 3= Widowed/ Widower 4= Divorced/ Separated	
104	How many family members do you have?	persons	
105	What is your highest educational level?		
106	Are you employed currently?	1= Yes 2= No	If No, skip Q. no. 107, if Yes skip 108, 109
107	If the answer to question no. 106 is yes. What is your current occupation? (write code no. from occupation list)		
108	If the answer to question no. 106 is no, Were you employed previously?	1= Yes 2= No	If No, skip Q. no. 109
109	What was your previous occupation? (write code no. from occupation list)		
110	What is your living status?	1= Living with family 2= Living alone 3= Living in a mess 4= Living with relatives 5= Living in an old home 6= Others.....	
111	What is your monthly family income?	Taka	
112	What is your total monthly family expenditure?	Taka	
113	Total monthly family savings (No need to write, will be calculated)		
114	Height of the respondent		
115	Weight of the respondent		
116	BMI (Will be calculated)		

Section---2

Diabetes and its complications-related information

Please encircle the right answer(s) [Question no. 201 to 215]

NO.	QUESTION	RESPONS	SKIP TO
201	How long have you been suffering from diabetes?	Months	
202	In what type of diabetes are you suffering?	1= Type I 2= Type II 3= Gestational 4= Pre-Diabetic 5= Others.....	
203	Is/Was your parent(s) have a history of diabetes?	1= Yes 2= No	
204	Do you take Insulin currently?	1= Yes 2= No	
205	Do you monitor your diabetic status (Blood glucose level) regularly?	1= Yes 2= No	
206	Have you ever suffered from any circulatory/Foot problems?	1= Yes 2= No	If No, skip Q. No. 207
207	If you ever suffered from any circulatory/Foot problem, tell me, when?	1= Now 2= 1-12 months ago 3= 1-3 years ago 4= 3+ years ago	
208	Have you ever suffered from any neurological problem?	1= Yes 2= No	If No, skip Q. no. 209
209	If you ever suffered from any neurological problem, tell me, when?	1= Now 2= 1-12 months ago 3= 1-3 years ago 4= 3+ years ago	
210	Have you ever suffered from any joint problem?	1= Yes 2= No	If No, skip Q. no. 211
211	If you ever suffered from any joint problem, tell me, when?	1= Now 2= 1-12 months ago 3= 1-3 years ago 4= 3+ years ago	
212	Have you ever suffered from any muscle problem?	1= Yes 2= No	If No, skip Q. no. 213
213	If you ever suffered from any muscle problem, tell me, when?	1= Now 2= 1-12 months ago 3= 1-3 years ago 4= 3+ years ago	
214	Have you ever suffered from any spinal problem?	1= Yes 2= No	If No, skip Q. no. 215
215	If you ever suffered from any spinal problem, tell me, when?	1= Now 2= 1-12 months ago 3= 1-3 years ago 4= 3+ years ago	

How often are you performing the following activities? Please give tick mark at right answer(s) [Question no. 216 to 223]

NO.	QUESTION	1= Always	2= Most of the time	3= middling	4= Rarely	5= Never
216	You keep your diabetes under control					
217	You maintain a schedule for visiting Physicians; advised by a Doctor/Diabetologist/ Physician			.		
218	You take the prescribed medication					
219	You perform physical exercises; prescribed by a Doctor/Diabetologist/ Physician					
220	You must have a proper diet plan; prescribed by a Doctor/Diabetologist/ Physician.					
221	You maintain a proper lifestyle; advised by a Doctor/Diabetologist/ Physician					
222	You maintain proper body weight; advised by a Doctor/Diabetologist/ Physician.					
223	You visit specialist doctors as advised by a general physician or Diabetologist.					

Section--- 03

Information about Knowledge regarding Physiotherapy

Please encircle over right answer(s) [Question no. 301 to 305]

NO.	QUESTION	RESPONS	SKIP TO
301	Have you ever heard the name of Physiotherapy?	1= Yes 2= No	If No, skip Q 302-305
302	From where have you heard the name of Physiotherapy? (Multiple answers acceptable)	1= Doctor 2= Other Health professional 3= Radio/TV/Newspaper 4= Social media like YouTube, Facebook, Google, etc. 5= Family member 6= Friend/Neighbor/Relative/Colleague 7= Cannot remember 8= Others.....	
303	In your knowledge, what does Physiotherapy doing usually do? (Multiple answers acceptable)	1= Provide treatment 2= Deliver Massage 3= Work for Players/Athletes 4= Not known 5= Others.....	
304	In your knowledge, how does Physiotherapy work usually? (Multiple answers acceptable)	1= Provide heat only 2= Provide Massage only 3= Provide Exercise only 4= Provide treatment with Heat, Light, Sound, Magnet, Electricity, Exercise etc. 5= Not known 6= Others.....	
305	Do you think, you have to know more about Physiotherapy?	1= Yes 2= No	

How much agree you are with the following statements?*Please give tick mark at right answer(s) [Question no. 306 to 316]*

NO.	QUESTION	1= Strongly agree	2= Agree	3= Neutral	4= Disagree	5= Strongly disagree
306	Qualified Physiotherapist can Assess, Diagnose and prescribe Physiotherapy independently.					
307	Physiotherapy is a very effective treatment method.					
308	In some cases, Physiotherapy is an essential treatment method.					
309	Physiotherapy needs a long duration to cure.					
310	If physiotherapy taken once, the patient should continue it throughout their life.					
311	If physiotherapy taken once, no other treatment method would not work.					
312	Physiotherapy is an expensive treatment method.					
313	Physiotherapy reduces pain but does not cure at all.					
314	Physiotherapy has no adverse/side effects.					
315	No pain or discomfort felt during Physiotherapy.					
316	Physiotherapy cannot be taken without a physician's advice or prescription.					

Section--- 4**Information about Attitudes regarding Physiotherapy**

In the past, how frequently did you follow these activities?

Please encircle over right answer(s) [Question no. 401 to 406]

NO.	QUESTION	1= Always	2= Most of the time	3= Middling	4= Rarely	5= Never
401	When you feel any pain/weakness, you assume that it will heal by itself.					
402	When you feel any pain/weakness, you assume that it is healed by medication only.					
403	When you feel any pain/weakness, you assume that it is healed by physiotherapy only.					
404	When you feel any pain/weakness, you assume that it needs both physiotherapy and medication to heal.					
405	You had not taken Physiotherapy, even a physician advised for it.					
406	You had taken Physiotherapy, even a physician was not advised for it.					

In the future, how frequently you are willing to do the following activities?

Please encircle over right answer(s) [Question no. 407 to 414]

NO.	QUESTION	1= Always	2= Most of the time	3= Middlin g	4= Rarely	5= Never
407	If you will feel any pain/weakness, you are willing to do nothing.					
408	If you will feel any pain/weakness, you are willing to take medication only.					
409	If you will feel any pain/weakness, you are willing to take both Medication and Physiotherapy.					
410	If you will feel any pain/weakness, you are willing to take Physiotherapy only.					
411	You are willing to take Physiotherapy only; when a physician will advise for it.					
412	If you feel any pain/weakness, you are willing to take Physiotherapy; even physicians will not advise for it.					
413	You are not willing to take Physiotherapy; even a physician will advise for it.					
414	You will advise your Family member, Friend, Neighbor, elative, Colleague for Physiotherapy if they will feel any problem.					

Section--- 05

Information about Healthcare Seeking Behavior

Please encircle over right answer(s) [Question no. 501 to 506]

NO.	QUESTION	RESPONS	SKIP TO
501	Have you ever discussed your problem with any Physiotherapist?	1= Yes 2= No	
502	Have you ever taken Physiotherapy?	1= Yes 2= No	If No, skip Q 503-506
503	From where do you take Physiotherapy? (Multiple answers acceptable)	1= Diabetic center 2= Physiotherapy center 3= Private hospital 4= Government hospital 5= Own Home 6= Others.....	
504	Have you taken a full course of Physiotherapy, which was suggested by the Physiotherapist?	1= Yes 2= No	If yes, skip Q no. 505
505	If not, Why? Or What were the reasons for discontinuation? (Multiple answers acceptable)	1= Center was far away from home 2= It was not so effective 3= It was costly 4= It took much time 5= Others.....	
506	What was the result of your pain/problem after taking the full course of Physiotherapy?	1= Completely gone 2= Mostly gone 3= Mildly gone 4= No change at all 5= Mildly increased 6= Markedly increased 7= Cannot remember	

Perceived barrier affecting treatment seeking behavior for physiotherapy

How much do you agree with the following statements about not taking Physiotherapy?

Please give tick mark at right answer(s) [Question no. 507 to 517]

NO.	QUESTION	1= Strongly agree	2= Agree	3= Neutral	4= Disagree	5= Strongly disagree
507	No Physician advised Physiotherapy.					
508	Family members opposed me.					
509	Friend, Neighbor, relative, and Colleagues demotivated me.					
510	The Center was far away from home/Office.					
511	It took a lot of time.					
512	Fear of misbehaving of the provider.					
513	Fear of wrong intervention.					
514	Fear of losing confidentiality.					
515	Fear of side effect.					
516	Fear of High cost.					
517	Fear of absenteeism from job attendance.					

Anexure- 5**উত্তরদাতার সম্মতিপত্র**

বিস্মিল্লাহ-হির-রাহমানির রাহীম

পপুলেশন সায়েন্সেস বিভাগ, ঢাকা বিশ্ববিদ্যালয়

আসসালামু আলাইকুম, আমি মোঃ নাসির উদ্দিন, ঢাকা বিশ্ববিদ্যালয়ের পপুলেশন সায়েন্সেস বিভাগের এম. ফিল. প্রোগ্রামের একজন ছাত্র। বর্তমানে আমি ঢাকা শহরের ডায়াবেটিক রোগীদের নিয়ে একটি গবেষণা করছি। আমার গবেষণার শিরোনাম হলো "ঢাকা শহরের ডায়াবেটিক রোগীদের মধ্যে ফিজিওথেরাপি সম্পর্কে জ্ঞান, মনোভাব এবং স্বাস্থ্যসেবা নেয়ার প্রবণতা"। এই গবেষণা একদিকে যেমন আমার এম. ফিল. ডিগ্রী অর্জনে সাহায্য করবে তেমনি অন্যদিকে বাংলাদেশের ডায়াবেটিক রোগীদের চিকিৎসা ক্ষেত্রেও ভূমিকা রাখবে।

আপনি এই গবেষণায় অংশগ্রহণ করলে আমি খুবই কৃতজ্ঞ থাকবো। আমি/আমার প্রতিনিধি আপনার সামাজিক, আর্থিক, পারিবারিক, শারীরিক অবস্থা এবং রোগ সম্পর্কে কিছু প্রশ্ন করতে চাই। আপনার সাক্ষাৎকারটি গ্রহণ করতে ১৫ থেকে ২০ মিনিট সময় লাগবে। আপনার দেয়া সকল তথ্য শুধুমাত্র গবেষণার কাজে ব্যবহৃত হবে এবং সম্পূর্ণ গোপন থাকবে।

এই গবেষণায় অংশগ্রহণ সম্পূর্ণ ঐচ্ছিক। আপনি ইচ্ছা করলে অংশগ্রহণ করতেও পারেন আবার নাও পারেন। আবার ইচ্ছা করলে কোন প্রশ্নের উত্তর নাও দিতে পারেন।

আপনি কি এই গবেষণা সম্পর্কে আর কোন কিছু জানতে চান?

আপনি কি এই গবেষণায় অংশগ্রহণ করতে ইচ্ছুক? আমি কি এখন শুরু করতে পারি?

সাক্ষাৎকার গ্রহণকারীর নাম.....

সাক্ষাৎকার গ্রহণকারীর স্বাক্ষর..... তারিখ...../০২/ ২০২৪

আমি বুঝতে পেরেছি যে, আমার দেয়া সকল তথ্য গবেষণার কাজে ব্যবহৃত হবে এবং সম্পূর্ণ গোপন থাকবে। আমি এই গবেষণায় অংশগ্রহণ করতে রাজি আছি।	
অংশগ্রহণকারীর নাম.....	
অংশগ্রহণকারীর ফোন নম্বর.....	
ডায়াবেটিক সেন্টারের নাম.....	
রেজিস্ট্রেশন নম্বর.....	
অংশগ্রহণকারীর স্বাক্ষর..... তারিখ...../০২/ ২০২৪	
কোড নং	

Annexure- 6

প্রশ্নমালা

পপুলেশন সায়েন্সেস বিভাগ
ঢাকা বিশ্ববিদ্যালয়

Code no.

“Physiotherapy-related Knowledge, Attitude, and Healthcare- Seeking Behavior among Diabetic Patients in Dhaka City.”

সেকশন —০১

Socio-Economic – Demographics- General health characteristics

সঠিক উত্তরে টিক চিহ্ন দিন অথবা সঠিক উত্তরটি লিখুন [প্রশ্ন নং ১০১ থেকে ১১৬]

নং	প্রশ্ন	উত্তর	এড়িয়ে যান
১০১	আপনি কোন লিঙ্গের?	১= পুরুষ ২= মহিলা ৩= অন্যান্য	
১০২	আপনার বয়স কত?	বছর	
১০৩	আপনার বৈবাহিক অবস্থা কি?	১=অবিবাহিত ২= বিবশবহফ ৩= বিধাব/ বিপত্নীক ৪= তালাকপ্রাপ্ত /আলাদা	
১০৪	আপনার পরিবারের সদস্য সংখ্যা কত?	জন	
১০৫	আপনার সর্বোচ্চ শিক্ষাগত যোগ্যতা কি?		
১০৬	আপনি কি বর্তমানে কোথাও কর্মরত আছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ১০৭ এড়িয়ে যান, উত্তর হ্যা হলে প্রশ্ন নং ১০৮, ১০৯ এড়িয়ে যান
১০৭	উত্তর হ্যা হলে, আপনি বর্তমানে কি কাজ করছেন? (পেশার তালিকা দেখে কোড লিখুন)		
১০৮	১০৬ নং প্রশ্নের উত্তর না হলে, আপনি পূর্বে কি কোথাও কর্মরত ছিলেন?	১= হ্যা ২= না	
১০৯	আপনি পূর্বে কি কাজ করতেন? (পেশার তালিকা দেখে কোড লিখুন)		
১১০	আপনি কার সাথে বসবাস করেন?	১= পরিবারের সাথে ২= একাকী ৩= অনেকের সাথে মেসে ৪= আত্মীয়র সাথে ৫= বৃদ্ধাশ্রমে ৬= অন্যান্য	
১১১	আপনার পরিবারের মাসিক মোট আয় কত?	টাকা	
১১২	আপনার পরিবারের মাসিক মোট ব্যয় কত?	টাকা	
১১৩	আপনার পরিবারের মাসিক মোট সঞ্চয় কত?		
১১৪	উত্তরদাতার উচ্চতা (উত্তরদাতার ডায়াবেটিক গাইড বই দেখে লিখতে হবে)		
১১৫	উত্তরদাতার ওজন (উত্তরদাতার ডায়াবেটিক গাইড বই দেখে লিখতে হবে)		
১১৬	BMI (লিখার দরকার নেই, পরে হিসাব করতে হবে)		

সেকশন ---০২

Diabetes and its complications related information

সঠিক উত্তরে টিক চিহ্ন দিন অথবা সঠিক উত্তরটি লিখুন [প্রশ্ন নং ২০১ থেকে ২১৫]

নং	প্রশ্ন	উত্তর	এড়িয়ে যান
২০১	আপনি কতদিন ধরে ডায়াবেটিসে ভুগছেন?	 মাস	
২০২	আপনি কোন ধরনের ডায়াবেটিসে ভুগছেন?	১ = টাইপ ১ ২ = টাইপ ২ ৩ = গর্ভকালীন ৪ = প্রি-ডায়াবেটিক ৫ = অন্যান্য	
২০৩	আপনার বাবা-মা কারো ডায়াবেটিস আছে/ছিলো?	১= হ্যা ২= না	
২০৪	আপনি কি বর্তমানে ইনসুলিন নিচ্ছেন?	১= হ্যা ২= না	
২০৫	আপনি কি নিয়মিত আপনার ডায়াবেটিস চেক/পর্যবেক্ষণ করেন?	১= হ্যা ২= না	
২০৬	আপনি কি কখনো পায়ের বা রক্তচলাচলের কোন সমস্যায় ভুগেছেন/ভুগছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ২০৭ এড়িয়ে যান
২০৭	পায়ের বা রক্তচলাচলের সমস্যায় ভুগে থাকলে; কখন?	১= এখন/বর্তমানে ২= ১ থেকে ১২ মাস আগে ৩= ১৩ থেকে ২৪ মাস আগে ৪= ২৫ থেকে ৩৬ মাস আগে ৫= ৩৭ মাস বা তার আগে	
২০৮	আপনি কি কখনো নিউরো বা স্নায়ুর কোন সমস্যায় ভুগেছেন/ভুগছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ২০৯ এড়িয়ে যান
২০৯	নিউরো বা স্নায়ুর কোন সমস্যায় ভুগে থাকলে; কখন?	১= এখন/বর্তমানে ২= ১ থেকে ১২ মাস আগে ৩= ১৩ থেকে ২৪ মাস আগে ৪= ২৫ থেকে ৩৬ মাস আগে ৫= ৩৭ মাস বা তার আগে	
২১০	আপনি কি কখনো জয়েন্ট বা অস্থিসন্ধির কোন সমস্যায় ভুগেছেন/ভুগছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ২১১ এড়িয়ে যান
২১১	জয়েন্ট বা অস্থিসন্ধির কোন সমস্যায় ভুগে থাকলে; কখন?	১= এখন/বর্তমানে ২= ১ থেকে ১২ মাস আগে ৩= ১৩ থেকে ২৪ মাস আগে ৪= ২৫ থেকে ৩৬ মাস আগে ৫= ৩৭ মাস বা তার আগে	
২১২	আপনি কি কখনো মাসল বা মাংসপেশীর কোন সমস্যায় ভুগেছেন/ভুগছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ২১৩ এড়িয়ে যান
২১৩	মাসল বা মাংসপেশীর কোন সমস্যায় ভুগে থাকলে; কখন?	১= এখন/বর্তমানে ২= ১ থেকে ১২ মাস আগে ৩= ১৩ থেকে ২৪ মাস আগে ৪= ২৫ থেকে ৩৬ মাস আগে ৫= ৩৭ মাস বা তার আগে	
২১৪	আপনি কি কখনো মেরুদন্ডের কোন সমস্যায় ভুগেছেন/ভুগছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ২১৫ এড়িয়ে যান
২১৫	মেরুদন্ডের কোন সমস্যায় ভুগে থাকলে; কখন?	১= এখন/বর্তমানে ২= ১ থেকে ১২ মাস আগে ৩= ১৩ থেকে ২৪ মাস আগে ৪= ২৫ থেকে ৩৬ মাস আগে ৫= ৩৭ মাস বা তার আগে	

আপনি নিম্নলিখিত কাজগুলো কি পরিমাণে করেন? অনুগ্রহ করে সঠিক উত্তরে টিক চিহ্ন দিন [প্রশ্ন নং ২১৬ থেকে ২২৩]

নং	প্রশ্ন	১= সবসময়	২ = বেশিরভাগ সময়	৩= মাঝে মাঝে	৪= খুব কম	৫= কখনই না
২১৬	আপনার ডায়াবেটিস নিয়ন্ত্রণে রাখেন					
২১৭	আপনি ডায়াবেটিসের ডাক্তারের দেয়া তারিখ/সময়সূচি অনুযায়ী চিকিৎসককে দেখাতে যান					
২১৮	আপনি ডাক্তার (দের) নির্দেশমতো ঔষধ খান					
২১৯	আপনি ডায়াবেটিসের ডাক্তারের নির্দেশমতো শারীরিক ব্যায়াম করেন					
২২০	আপনি ডায়াবেটিসের ডাক্তারের/ নিউট্রিশনিস্ট এর নির্দেশমতো সঠিক খাদ্যাভ্যাস বজায় রাখেন					
২২১	আপনি ডাক্তারদের পরামর্শমতো সঠিক জীবনধারা বজায় রাখেন					
২২২	আপনি ডাক্তারদের পরামর্শমতো সঠিক ওজন বজায় রাখেন					
২২৩	আপনি বিশেষ ক্ষেত্রে প্রয়োজন হলে ডায়াবেটিসের ডাক্তারের দেয়া নির্দেশমতো বিশেষজ্ঞ চিকিৎসককে দেখাতে যান					

সেকশন --- ০৩

Information about Knowledge regarding Physiotherapy

সঠিক উত্তরে টিক চিহ্ন দিন [প্রশ্ন নং ৩০১ থেকে ৩০৫]

নং	প্রশ্ন	উত্তর	এড়িয়ে যান
৩০১	আপনি কি কখনো ফিজিওথেরাপির নাম শুনেছেন?	১= হ্যা ২= না	উত্তর না হলে পরবর্তী প্রশ্নগুলো এড়িয়ে যান
৩০২	আপনি ফিজিওথেরাপি সম্পর্কে কোথা থেকে জেনেছেন? (একাধিক উত্তর হতে পারে)	১= চিকিৎসক ২= অন্যান্য স্বাস্থ্যকর্মী ৩= রেডিও/টেলিভিশন/পত্রিকা ৪= সামাজিক যোগাযোগ মাধ্যম যেমন ফেসবুক, ইউটিউব ইত্যাদি ৫= পরিবারের কোন সদস্য ৬= বন্ধু/প্রতিবেশী/আত্মীয়/সহকর্মী ৭= মনে নেই ৮= অন্যান্য.....	
৩০৩	আপনার জানামতে, ফিজিওথেরাপি সাধারণতঃ কি করে থাকে? (একাধিক উত্তর হতে পারে)	১= চিকিৎসা করে ২= ম্যাসাজ করে ৩= খেলোয়াড়দের জন্য কাজ করে ৪= জানা নেই ৫= অন্যান্য.....	
৩০৪	আপনার জানামতে, ফিজিওথেরাপি কিভাবে কাজ করে থাকে? (একাধিক উত্তর হতে পারে)	১= হিট দেয় ২= ম্যাসাজ করে ৩= ব্যায়াম করায় ৪= তাপ,চাপ,আলো,বিদ্যুৎ ইত্যাদির মাধ্যমে চিকিৎসা করে ৫= জানা নেই ৬= অন্যান্য.....	
৩০৫	ফিজিওথেরাপি সম্পর্কে আপনার আরো জানা প্রয়োজন বলে আপনি মনে করেন কি?	১= হ্যা ২= না	

নীচের উক্তিগুলোর সাথে আপনি কতখানি একমত তা উল্লেখ করুন। সঠিক উত্তরে টিক চিহ্ন দিন [প্রশ্ন নং ৩০৬ থেকে ৩১৬]

নং	প্রশ্ন	১= সম্পূর্ণরূপে একমত	২= একমত	৩= নিরপেক্ষ	৪= অসম্মত	৫= সম্পূর্ণরূপে অসম্মত
৩০৬	ডিম্বধারী ফিজিওথেরাপিস্টগণ রোগী দেখা, রোগ নির্ণয়, চিকিৎসার ধরণ নির্ধারণ করতে পারেন					
৩০৭	ফিজিওথেরাপি খুবই কার্যকর চিকিৎসা পদ্ধতি					
৩০৮	কিছু কিছু রোগের ক্ষেত্রে ফিজিওথেরাপি অপরিহার্য					
৩০৯	ফিজিওথেরাপি চিকিৎসায় রোগ নিরাময়ের জন্য দীর্ঘ সময়ের প্রয়োজন					
৩১০	একবার ফিজিওথেরাপি নিলে রোগীকে সারা জীবন চালিয়ে যেতে হয়					
৩১১	একবার ফিজিওথেরাপি নিলে অন্য কোনো চিকিৎসা পদ্ধতি কাজ করে না					
৩১২	ফিজিওথেরাপি একটি ব্যয়বহুল চিকিৎসা পদ্ধতি					
৩১৩	ফিজিওথেরাপি ব্যথা কমাতে কিন্তু রোগ নিরাময় করে না					
৩১৪	ফিজিওথেরাপির কোনো ক্ষতিকর/পার্শ্বপ্রতিক্রিয়া নেই					
৩১৫	ফিজিওথেরাপি প্রয়োগ করার সময় কোন ব্যথা বা অস্বস্তি অনুভূত হয় না					
৩১৬	চিকিৎসক/ডাক্তার পরামর্শ না দিলে/প্রেসক্রাইব না করলে ফিজিওথেরাপি নেওয়া যায় না					

সেকশন --- ০৪

Information about Attitudes regarding Physiotherapy

আপনি অতীতে নিম্নলিখিত কাজগুলো কি মাত্রায় করেছেন? অনুগ্রহ করে সঠিক উত্তরে টিক চিহ্ন দিন [প্রশ্ন নং ৪০১ থেকে ৪০৬]

ইং	প্রশ্ন	১= সবসময়	২ = বেশিরভাগ সময়	৩= মারো মারো	৪= খুব কম	৫= কখনই না
৪০১	আপনি যখন ব্যথা/দুর্বলতা অনুভব করেন, তখন ধরে নেন যে এটি এমনি এমনি/নিজে থেকেই সেরে যাবে					
৪০২	আপনি যখন ব্যথা/দুর্বলতা অনুভব করেন, তখন ধরে নেন যে এটি শুধুমাত্র ঔষধ মাধ্যমেই সেরে যাবে					
৪০৩	আপনি যখন ব্যথা/দুর্বলতা অনুভব করেন, তখন ধরে নেন যে এটি শুধুমাত্র ফিজিওথেরাপি মাধ্যমেই সেরে যাবে					
৪০৪	আপনি যখন ব্যথা/দুর্বলতা অনুভব করেন, তখন ধরে নেন যে এটি ঔষধ এবং ফিজিওথেরাপি মাধ্যমে সেরে যাবে					
৪০৫	একজন চিকিৎসক পরামর্শ দেয়ার পরও আপনি ফিজিওথেরাপি নেননি					
৪০৬	একজন চিকিৎসক পরামর্শ না দেয়া সত্ত্বেও আপনি নিজে সিদ্ধান্ত নিয়ে ফিজিওথেরাপি নিয়েছেন					

ভবিষ্যতে আপনি নিম্নলিখিত কাজগুলো কি মাত্রায় করতে ইচ্ছুক? সঠিক উত্তরে টিক চিহ্ন দিন [প্রশ্ন নং ৪০৭ থেকে ৪১৪]

নং	প্রশ্ন	১= সবসময়	২ = বেশিরভাগ সময়	৩= মাঝে মাঝে	৪= খুব কম	৫= কখনই না
৪০৭	শরীরে কোন সমস্যা অনুভব করলে, আপনি কোনকিছু করতে ইচ্ছুক নন					
৪০৮	শরীরে কোন সমস্যা অনুভব করলে, আপনি শুধুমাত্র ঔষধ খেতে ইচ্ছুক					
৪০৯	শরীরে কোন সমস্যা অনুভব করলে, ঔষধ এবং ফিজিওথেরাপি দুটোই নিতে ইচ্ছুক					
৪১০	শরীরে কোন সমস্যা অনুভব করলে, আপনি শুধুমাত্র ফিজিওথেরাপি নিতে ইচ্ছুক					
৪১১	একজন চিকিৎসক পরামর্শ দিলে আপনি শুধুমাত্র তখনই ফিজিওথেরাপি নিতে ইচ্ছুক					
৪১২	শরীরে কোন সমস্যা অনুভব করলে, কোন চিকিৎসক পরামর্শ না দিলেও আপনি ফিজিওথেরাপি নিতে ইচ্ছুক					
৪১৩	একজন চিকিৎসক পরামর্শ দিলেও আপনি ফিজিওথেরাপি নিতে ইচ্ছুক নন					
৪১৪	আপনি আপনার বন্ধু, পরিবারের সদস্য বা প্রতিবেশীকে ফিজিওথেরাপি নেওয়ার পরামর্শ দেবেন					

সেকশন ---০৫

Information about Healthcare Seeking Behavior

অনুগ্রহ করে সঠিক উত্তরে (গুলিতে) টিক চিহ্ন দিন [প্রশ্ন নং ৫০১ থেকে ৫০৬]

নং	প্রশ্ন	উত্তর	এড়িয়ে যান
৫০১	আপনি কি কখনো কোনো ফিজিওথেরাপি পেশাদারের সাথে আপনার সমস্যা নিয়ে আলোচনা করেছেন?	১= হ্যা ২= না	
৫০২	আপনি কি কখনো ফিজিওথেরাপি চিকিৎসা নিয়েছেন?	১= হ্যা ২= না	উত্তর না হলে প্রশ্ন নং ৫০৩-৫০৬ এড়িয়ে যান
৫০৩	আপনি ফিজিওথেরাপি চিকিৎসা নিয়ে থাকলে কোথা থেকে নিয়েছিলেন? (একাধিক উত্তর হতে পারে)	১= ডায়াবেটিক সেন্টার থেকে ২= ফিজিওথেরাপি সেন্টার থেকে ৩= বেসরকারি হাসপাতাল থেকে ৪= সরকারি হাসপাতাল থেকে ৫= নিজ বাড়িতে/বাসস্থানে ৬= অন্যান্য.....	
৫০৪	আপনি কি চিকিৎসকের নির্দেশমতো সম্পূর্ণ কোর্স ফিজিওথেরাপি নিয়েছিলেন?	১= হ্যা ২= না	উত্তর হ্যা হলে প্রশ্ন নং ৫০৫ এড়িয়ে যান
৫০৫	যদি না নিয়ে থাকেন, তাহলে কারণ (গুলো) কি ছিলো? (একাধিক উত্তর হতে পারে)	১= বাসা থেকে সেন্টার দূরে ছিলো ২= এটি কার্যকর ছিলো না ৩= এটি ব্যয়বহুল ৪= এটিতে অনেক সময় লাগতো ৫= অন্যান্য.....	
৫০৬	সম্পূর্ণ কোর্স ফিজিওথেরাপির নেওয়ার পর আপনার ব্যথা/সমস্যার ফলাফল কী ছিল?	১= সমস্যা সম্পূর্ণভাবে চলে গেছে ২= সমস্যা বেশিরভাগই চলে গেছে ৩ = সমস্যা অল্প চলে গেছে ৪= সমস্যার কোন পরিবর্তন হয়নি ৫= সমস্যা হালকা বেড়েছে ৬= সমস্যা অনেক বেড়েছে ৭= মনে নেই	

Perceived barrier affecting Healthcare Seeking Behavior for physiotherapy

অনুগ্রহ করে সঠিক উত্তরে (গুলিতে) টিক চিহ্ন দিন [প্রশ্ন নং ৫০৭ থেকে ৫১৭]

আপনার ফিজিওথেরাপি নিতে অনীহা/অনাগ্রহের কারণগুলো সম্পর্কে নীচের উক্তিগুলোর সাথে আপনি কতখানি একমত তা উল্লেখ করুন

নং	প্রশ্ন	১= সম্পূর্ণরূপে একমত	২= একমত	৩= নিরপেক্ষ	৪= অসম্মত	৫= সম্পূর্ণরূপে অসম্মত
৫০৭	কোন চিকিৎসক ফিজিওথেরাপি নেওয়ার নির্দেশনা দেননি					
৫০৮	পরিবারের এক বা একাধিক সদস্য বাধা প্রদান করেছেন					
৫০৯	প্রতিবেশী/আত্মীয়/বন্ধু/সহকর্মী নিরুৎসাহিত করেছেন					
৫১০	ফিজিওথেরাপি সেন্টার বাসা/অফিস থেকে দূরে					
৫১১	ফিজিওথেরাপি নিতে দীর্ঘ সময় লাগে					
৫১২	কর্মীদের খারাপ আচরণের ভয়					
৫১৩	ভুল চিকিৎসার ভয়					
৫১৪	ব্যক্তিগত গোপনীয়তা নষ্ট হওয়ার ভয়					
৫১৫	পার্শ্বপ্রতিক্রিয়ার ভয়					
৫১৬	উচ্চ খরচের ভয়					
৫১৭	অফিসে/ কাজে অনুপস্থিতির ভয়					