
Impact of Chronic Illness on Academic and Co-curricular Performance: A Comparative Study of Diabetic and Nondiabetic Higher Secondary Students in Dewas and Ujjain

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ABSTRACT

This comparative study investigates academic and co-curricular performance among students with and without diabetes among diabetic and nondiabetic higher secondary students in Dewas and Ujjain districts. This study aims to investigate the comparative academic and co-curricular performance of diabetic and non-diabetic higher secondary students in the districts of Dewas and Ujjain in Madhya Pradesh, India. The research adopts a comparative and descriptive survey design, incorporating both qualitative and quantitative methods to analyze the influence of diabetes on students aged 16–18 years. A total sample of 200 students (100 diabetic and 100 non-diabetic) from selected schools in Dewas and Ujjain was included. Academic performance was assessed using recent examination results, attendance records, and teacher evaluations, while co-curricular engagement was measured through participation in sports, cultural events, clubs, and other extracurricular activities. A structured questionnaire and interview schedule were used to collect data from students, parents, and school staff. Standardized tools were also employed to measure psychological well-being, concentration levels, fatigue, and self-

esteem. Preliminary findings suggest that diabetic students, particularly those with poor glycaemic control or frequent health-related absences, face notable challenges in maintaining consistent academic performance. These students often report reduced classroom engagement, difficulty concentrating during long study hours, and emotional stress related to disease management. Participation in physically demanding co-curricular activities was significantly lower among diabetic students, especially in sports and field activities. On the other hand, non-diabetic students demonstrated relatively higher academic consistency and broader engagement in extracurricular pursuits and also explores socio-economic, psychological, and institutional factors that mediate the impact of chronic illness. It was found that students with supportive family environments, regular medical care, and empathetic school policies were better able to manage their condition without significant academic compromise. Conversely, stigma, lack of awareness, and insufficient institutional support further widened the performance gap.

INTRODUCTION

It analyzes academic achievement, co-curricular participation, and psychological adjustment. Data collected from 200 students provides a robust basis for statistical and thematic analysis. The impact of chronic disease on children and families is related to less a specific diagnosis such as diabetes, than to illness and disability profile. Prognosis, predictability, the threat to life or cognitive, social and physical development, the need of medical and surgical inventions, and the functional limitations have a major impact. Chronic illness disturbs the lives of children limiting their role in school, recreation and vocational pursuit. Parents and siblings often experience social, economic and personal disadvantage. In the present study an attempt will be made to find out the effect of Diabetes in terms of Adjustment, Academic Achievement and Co-Curricular Achievement.

In the early part of 20th century, nutritional deficiencies and infectious disorders were the most prevalent health problems of the economically underprivileged and developing countries. It was

generally believed that chronic degenerative disorders were virtually non-existent. Observations by astute clinicians in earlier years followed by school surveys by research teams proved that rheumatic diseases are one of the most common chronic disorders of childhood in India. The story of childhood diabetes is not different either. Many physicians and paediatricians still believe and teach that childhood diabetes is rare. Childhood diabetes does not form part of undergraduate medical curriculum in many medical colleges, probably due to this apparent "rarity". The diagnosis in childhood is usually made in an emergency or often on a routine evaluation of blood sugar for an associated disease. There is also reason to believe that most diabetic children in India probably die before a diagnosis is established or soon after diagnosis.

Diabetics: Diabetes is a chronic (long-lasting) health condition that affects how your body turns food into energy. Your body breaks down most of the food you eat into sugar (glucose) and releases it into your bloodstream. When your blood sugar goes up, it signals your pancreas to release insulin.

Focus: Influence of chronic illness (diabetes) on academic and co-curricular outcomes.

Adjustment: Adjustment is the behavioral process by which humans and other animals maintain equilibrium among their various needs or between their needs and the obstacles of their environments. A sequence of adjustment begins when a need is felt and ends when it is satisfied.

1.1. Some common Chronic Diseases of Children:

Chronic medical conditions, as defined by the Centers for Disease Control and Prevention (CDC; [2021a](#)), are conditions that persist for one year or more and require ongoing medical attention or limit activities of daily living. Chronic medical conditions that present in youth include but are not limited to asthma, diabetes, epilepsy/seizures, obesity, cystic fibrosis, allergies, sickle cell anemia, irritable bowel diseases (e.g., ulcerative colitis, Crohn's disease), migraines/headaches, juvenile arthritis, congenital heart defect, traumatic brain injury/spinal injury, and organ transplant (Roberts & Steele, [2017](#)). It is estimated that 10-30% of youth have a chronic health condition. Rates of chronic medical conditions in youth are increasing, which is theorized to be the result of advances in pediatric medicine, which have increased survival rates of conditions that were once fatal in childhood (e.g., cystic fibrosis).

Type I Diabetes

T1DM is one of the most common chronic medical conditions of childhood and adolescence. T1DM is an autoimmune disease that occurs when the pancreas produces little or no insulin, a hormone that regulates the amount of glucose (sugar) in the bloodstream. As a result, glucose builds up in the bloodstream, which can cause dangerous consequences such as high blood sugar, diabetic ketoacidosis (i.e., high levels of ketones), neuropathy, retinopathy, stroke, and mortality. There is no cure for T1DM; rather, it requires constant management. Individuals with T1DM must adhere to daily basal (long-acting) and bolus (short-acting) insulin therapy while monitoring food intake (e.g., counting carbohydrates/fat/protein), performing frequent blood sugar checks, and incorporating regular exercise. Assistive technologies such as continuous glucose monitors, which monitor glucose on a continuous basis, and insulin pumps, which are small, computerized devices that deliver insulin on a pre-programmed schedule, are often recommended. Rates of T1DM among youth are increasing. For youth 19 years or younger, the estimated prevalence of T1DM per 1,000 youths increased from 1.48 in 2001 to 2.15 in 2017 (Lawrence et al., [2021](#)).

1.2. Diabetes:

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past 3 decades the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. Type 1 diabetes, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself. For people living with diabetes, access to affordable treatment, including insulin, is critical to their survival. There is a globally agreed target to halt the rise in diabetes and obesity by 2025.

1.4. Effect on Psychiatric Disorders:

One prospective research study found that 10 years after initial diagnosis of T1DM, 47.6% of the sample had developed a psychiatric disorder (Kovacs et al., 1997). This is 3 times higher than a normal control group, but similar to other chronic illnesses.

These psychiatric disorders have been found to decrease adherence and impacts the long-term outcomes of T1DM symptoms (Dabadghao et al, 2001)

OBJECTIVES:

1. To compare the academic achievement of diabetic and nondiabetic students.
2. To examine co-curricular involvement in both groups.
3. To study the emotional, social, and school adjustment levels of diabetic versus nondiabetic students.
4. To provide educational and psychological recommendations based on findings.

HYPOTHESIS:

H1: There is a significant difference in academic achievement between diabetic and nondiabetic students.

H2: Diabetic students participate less in co-curricular activities compared to nondiabetic peers.

H3: Diabetic students exhibit lower emotional and social adjustment.

REVIEW OF LITERATURE:

Previous research shows chronic illnesses can impact a student's psychosocial development. Studies by WHO (2020), Sharma (2018), and Mahajan & Verma (2017) note decreased school involvement and increased anxiety among chronically ill adolescents. This study contributes by providing region-specific evidence.

4.1 Global Perspective:

According to the *World Health Organization (2020)*, adolescents with chronic illnesses are at increased risk of emotional distress, absenteeism, social isolation, and academic underperformance. The WHO's global adolescent health report underlines those chronic diseases such as diabetes, asthma, and epilepsy adversely influence a student's participation in both academic and co-curricular domains.

4.2 Indian Context and Psychosocial Impact:

Sharma (2018) conducted a qualitative study on school-going children with Type 1 diabetes in urban India and found that frequent hospital visits, dietary restrictions, and parental overprotection often lead to poor peer interactions and lowered self-esteem. These factors contribute to anxiety and withdrawal

from social and group-based school activities. Sharma emphasized the need for awareness among school staff to provide appropriate psychological and academic support to these students.

Mahajan & Verma (2017) explored the psychosocial outcomes among chronically ill adolescents in North India and noted a pattern of increased behavioural issues, lower motivation levels, and poor concentration in class. Their findings suggest that students with chronic illnesses frequently experience academic underachievement due to both internal factors (like fatigue, anxiety) and external factors (like lack of flexibility in curriculum and peer discrimination).

4.3 Academic Performance and Illness:

Rao and Menon (2016) found that academic performance of diabetic adolescents was significantly influenced by the frequency of hypoglycaemic episodes and absenteeism due to medical appointments. The study found that students with better disease management and family support exhibited resilience and were able to perform at par with their non-diabetic peers, while others lagged behind due to fatigue, stress, and time missed from class.

4.4 Co-curricular Engagement:

Research by *Banerjee (2019)* highlighted that student with chronic conditions like diabetes or asthma participated less in sports and physical co-curricular activities, largely due to fear of medical complications or restrictions imposed by parents and teachers. However, creative or intellectual co-curricular activities such as debates and arts saw moderate involvement among such students, provided they received encouragement and adjustments.

4.5 Gaps in Existing Literature:

Although several national and international studies have established a strong correlation between chronic illnesses and academic or psychosocial difficulties, there is limited region-specific data from semi-urban or Tier-2 city settings like Dewas and Ujjain. Existing literature tends to focus on metropolitan areas or broad national statistics, often overlooking the localized sociocultural and educational dynamics of smaller districts.

4.6 Contribution of Present Study:

The current study addresses this gap by exploring how chronic illness—specifically diabetes—affects higher secondary students in Dewas and Ujjain. It compares the academic performance, school involvement, and co-curricular participation of diabetic and non-diabetic students, thereby providing evidence-based insights for health-inclusive educational policies and school-level interventions.

Rovet, Joanne F., Ehrlich et al. (2010) examined neurocognitive functions in 63 newly diagnosed pediatric patients with insulin-dependent diabetes mellitus (DM) at onset of illness (TO) and 1 year post diagnosis (T1). Siblings (S) serving as controls were assessed at TO only. Subjects were given age-appropriate tests of verbal and visuospatial abilities. In addition, DM were interviewed regularly during diabetes clinic to determine current diabetic control and different intervening glycemic-related events. Results revealed no differences between DM and S at TO, nor any specific impairment in DM predating illness. Also, DM did not demonstrate any acquired impairment after 1 year of illness. Children with early onset DM (< 5 years) scored lower in spatial ability at TO and T1 than children with later onset DM, who scored lower in verbal ability. Episodes of asymptomatic and mild chronic hypoglycemia correlated positively, not negatively, with improved outcome over time. There were no adverse effects of severe hypoglycemia. Ketonuria and hospitalizations were associated with lower performance IQs 1 year after onset, as was diabetic ketoacidosis at onset.

Children often have acute, short-term illness of upper respiratory tract infection, of ear infection, gastrointestinal illness with vomiting and diarrhoea, or injury-related problems. However, some children develop chronic illness (lasting for years or even lifelong) as a result of genetic (inherited) conditions, environmental factors, or a combination of both.

4.7 Effect on Psychiatric Disorders:

One prospective research study found that 10 years after initial diagnosis of Type-1 Diabetes Mellitus (T1DM), 47.6% of the sample had developed a psychiatric disorder (Kovacs et al., 1997). This is 3 times higher than a normal control group, but similar to other chronic illnesses

Diabetes is one of the most serious of all chronic childhood diseases, but due to lack of work done on its effect on educational achievement, more and more work in this field is required. Diabetes is a rare disease. This has been proved from medical studies that severe and long-lasting glucose level

fluctuations affect the functioning of central and peripheral nervous system. Hence the problems faced by children suffering from Diabetes like memorizing, learning retention, attention span and absence from school need to be studied. The studies can help them to know the causes, the possible effects, the precautions, the remedies and cures etc. It will also help the teachers to know about their academic issues and adjustment problems and to find out and apply some appropriate teaching strategies to help the students bring out their inherent potential.

DATA ANALYSIS:

Academic performance between the groups was relatively close. However, involvement in sports, debates, and cultural events was significantly lower in diabetic students. ANOVA test results ($F = 4.72$, $p < 0.01$) confirmed group differences in co-curricular activity levels. Emotional stress index scores also showed higher anxiety in diabetic students (mean = 71.3) versus nondiabetic (mean = 58.4).

FINDINGS:

The study validates existing research on chronic illness and student performance. Diabetic students showed lower adjustment scores across emotional and social domains, indicating the need for targeted interventions. Academic performance, however, was not drastically different, suggesting strong compensatory efforts from affected students.

1. Diabetic students performed slightly lower in academics (mean score: 66.4) than nondiabetic peers (mean score: 69.8).
2. Co-curricular participation was notably lower among diabetic students.
3. Emotional and social adjustment scores were significantly lower for diabetic students.
4. Support structures in school (counseling, peer support) positively impacted diabetic student outcomes.

SUGGESTIONS:

1. Establish wellness and peer-support groups in schools.
2. Include teachers and parents in chronic illness awareness programs.
3. Schedule flexible activity routines for students with health limitations.

4. Provide specialized counseling and mentoring services.

CONCLUSION:

Chronic illness impacts more than just health—it influences social participation and emotional well-being. Schools must proactively support diabetic students to ensure equitable development across all domains. Chronic illness impacts more than just physical health—it extends deeply into the educational, social, and emotional fabric of a student's life. This study has shown that diabetic students often face significant challenges in maintaining consistent academic performance and participating fully in co-curricular activities. These challenges stem not only from the medical nature of the illness itself but also from systemic and social barriers, such as frequent absenteeism, lack of awareness among educators, stigma from peers, and limited institutional flexibility.

Diabetic students may struggle with concentration, fatigue, and emotional distress, all of which can adversely affect their school experience. Moreover, their participation in physical or energy-intensive activities tends to be lower, often due to health concerns or overprotection from family and school authorities. This reduced involvement not only hampers their physical development but also limits opportunities for social interaction, team-building, and creative expression—essential components of holistic education.

Ultimately, educational institutions must recognize chronic illness as a diversity factor—one that requires thoughtful accommodation, not pity. Creating supportive environments where all students, regardless of health status, can thrive academically, socially, and emotionally is essential for achieving the broader goals of inclusive education and equitable development. This study contributes to that vision by offering region-specific insights and calling for multi-stakeholder collaboration involving educators, healthcare professionals, families, and policy makers.

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