**Original article:**

# Assessment of Diabetic Adolescent Children Visited in Hospital: A Retrospective Hospital Based Study

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**Abstract:**

**Background:** The incidence of diabetes mellitus is steadily increasing in adolescent children. The present retrospective hospital study was conducted to assess the prevalence of diabetes among adolesecent children visited in a hospital.

**Materials and Methods:** The study was conducted in a hospital over a period of 1 year among 40 adolescent children of age group 15-17 years. Ethical approval was obtained from the Ethical Committee of the institution. Informed verbal consent was gathered from each participant. Children who were taking any drug with possible impact on glucose metabolism (e.g., steroids, B-blockers, and thiazide diuretics) other than antidiabetes mellitus drugs were excluded to avoid false positive prediabetes or diabetes mellitus. The data was analyzed using the SPSS version 20.0 software package.

**Results:** In our study total participants were 40 in which 25 (62.5%) were boys whereas 5 (37.5%) were girls. 18(45%) were of age group 15-16 years whereas 22(55%) were of age group 16-17 years. Diabetes was more prevalent in boys (24%). It was more prevalent in age group 15-6 years (27.77%).

**Conclusion:** It was concluded that diabetes was more prevalent in boys. It was more prevalent in age group 15-6 years.

**Keywords:** Diabetes Mellitus, Adolescent.

## INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterized by chronic hyperglycemia resulting from defects in insulin secretion, insulin action, or both. Metabolic abnormalities in carbohydrates, lipids, and proteins result from the importance of insulin as an anabolic hormone. Low levels of insulin to achieve adequate response and/or insulin resistance of target tissues, mainly skeletal muscles, adipose tissue, and to a lesser extent, liver, at the level of insulin receptors, signal transduction system, and/or effector enzymes or genes are responsible for these metabolic abnormalities. The severity of symptoms is due to the type and duration of diabetes. Some of the diabetes patients are asymptomatic especially those with type 2 diabetes during the early years of the disease, others with marked hyperglycemia and especially in children with absolute insulin deficiency may suffer from polyuria, polydipsia, polyphagia, weight loss, and blurred vision. Uncontrolled diabetes may lead to stupor, coma and if not treated death, due to ketoacidosis or rare from nonketotic hyperosmolar syndrome.[1-3] Diabetes mellitus (DM) is probably one of the oldest diseases known to man. It was first reported in Egyptian manuscript about 3000 years ago.[4] It is estimated that 366 million people had DM in

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2011; by 2030 this would have risen to 552 million.[5] Thirty years ago, type 2 diabetes mellitus has been thought to be a rare occurrence in children and adolescents. However, in the mid-1990s, investigators began to observe an increasing incidence of type 2 diabetes mellitus worldwide.[6] This is particularly the case in the United States.[6,7] In some regions in the United States, type 2 diabetes mellitus is as frequent as type 1 diabetes mellitus in adolescents.[8] The present retrospective hospital study was conducted to assess the prevalence of diabetes among adolesecent children visited in a hospital.

## MATERIALS AND METHODS

The study was conducted in a hospital over a period of 1 year among 40 adolescent children of age group 15-17 years. Ethical approval was obtained from the Ethical Committee of the institution. Informed verbal consent was gathered from each participant. Children who were taking any drug with possible impact on glucose metabolism (e.g., steroids, B-blockers, and thiazide diuretics) other than antidiabetes mellitus drugs were excluded to avoid false positive prediabetes or diabetes mellitus. Diabetes was diagnosed if: (a) Fasting plasma glucose $\geq 126$ mg/dL (7.0 mmol/L) or (b) 2 h plasma glucose $\geq 200$ mg/dL (11.1 mmol/L) during an oral glucose tolerance test using a glucose load of equivalent to 75 g anhydrous glucose in water or (c) Symptoms of diabetes plus random plasma glucose $\geq 200$ mg/dL (11.1 mmol/L). Repeat test was carried out to confirm the diagnosis of DM.[9] The data was analyzed using the SPSS version 20.0 software package

## RESULTS

In our study total participants were 40 in which 25 (62.5%) were boys whereas 5 (37.5%) were girls. 18(45%) were of age group 15-16 years whereas 22(55%) were of age group 16-17 years. Diabetes was more prevalent in boys (24%). It was more prevalent in age group 15-6 years (27.77%).

**Table 1: Distribution according to gender**

| Gender | N (%) |
|--------|-------|
| Boys | 25(62.5%) |
| Girls | 15(37.5%) |
| Total | 40(100%) |

**Table 2: Distribution according to age group**

| Age group | N (%) |
|-----------|-------|
| 15-16 | 18(45%) |
| 16-17 | 22(55%) |

**Table 3: Prevalence of diabetes according to gender**

| Diabetes mellitus | Present n (%) |
|-------------------|---------------|
| Boys  (25) | 6(24%) |
| Girls (15) | 2(13.33%) |

**Table 4: Prevalence of diabetes according to age group**

| Diabetes Mellitus | Present n (%) |
|---|---|
| 15-16 | 5(27.77%) |
| 16-17 | 3(13.63%) |

**DISCUSSION**

In our study total participants were 40 in which 25 (62.5%) were boys whereas 5 (37.5%) were girls. 18(45%) were of age group 15-16 years whereas 22(55%) were of age group 16-17 years. Diabetes was more prevalent in boys (24%). It was more prevalent in age group 15-6 years (27.77%).

CURES – Part I 2003 conducted by Mohan from Madras Diabetic Research Foundation which covered 50,000 subjects revealed that 16% of the subject above the age of 20 years were affected by diabetes.[10]

Study of Mani from Chennai done in a Hamlet of the rural population covering 21,062 subjects detected diabetes in 3.64%.[11]

A study by Kaur et al in Chandigarh observed that 63.3% of them were poor in practicing foot care through regular washing, monitoring of blood sugar was infrequent (46.7%).[12]

According to the study done by Yufang Bi et al., the prevalence rate of the male is higher than that in the female.[13]

In the population of adults over age of 18 in China, the prevalence rate of people aged 18–29 is only 4.5%. However, the prevalence in the population over the age of seventy has reached 23.5%.[14]

**CONCLUSION**

It was concluded that diabetes was more prevalent in boys. It was more prevalent in age group 15-6 years.

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