



Science Department



# Measuring the Impact of Diabetes in Students' Families

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معا نفع أخلاق جديدة

## Introduction

Diabetes is a disease characterized by an abnormally high blood sugar level, which cannot be regulated. This error in regulation has two reasons, and so there are two types of diabetes.

Type1 happens when the pancreas cells cannot produce insulin. It has been detected that the cause of this type is genetic and it happens most often in children and young adults but can appear at any age. This type could be treated by insulin injection that helps glucose get into your cells to give energy.

In Type2 the pancreas produces insulin but the error is in the insulin receptor that cannot response to the secreted insulin. As a result glucose is less able to enter the cells and do its job of supplying energy, and this causes the blood sugar level to raise, making the pancreas produce even more insulin. Eventually, the pancreas can wear out from working overtime to produce extra insulin, and may no longer be able to produce enough insulin to keep a person's blood sugar levels within the normal range. This type affects adults mainly and is known to be caused by the environmental factors that influence the inherited genes.

Diabetes is a major disease that has a high prevalence worldwide. It has been estimated that 2.8% of the world's population had diabetes in the year 2000. Qatar is known to have a very high percentage of diabetes, estimated by 25% of adults and 35% in children.

## Purpose

After learning about this percentage, we decided to determine the percent of diabetics in students' families, and to determine the impact of this disease on them.

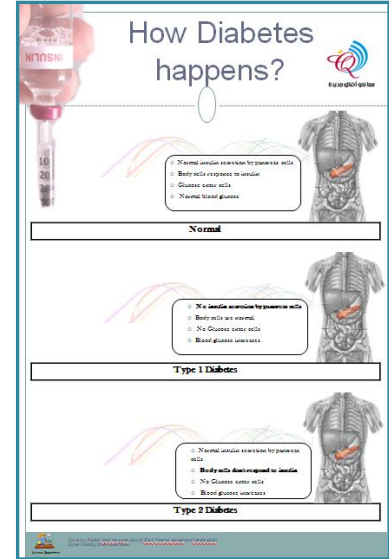
Furthermore, we wanted to know how a diabetic person feels regarding being affected by such disease.

## Prediction

We predicted that the percentage of diabetes will be high in students' families.

## Methods

- 1- We studied how insulin regulates sugar balance in the body and wrote our findings. Depending on what we have learned, we designed a model for both types in comparison with the normal state.



- 2- We created a survey which was completed by 85 families. This survey included several questions to evaluate the percentage of diabetes in surveyed families, and to know which type is more prevalent. (Refer to survey template below). The survey was distributed using a survey corner that we've prepared.

استبيان عن داء السكري

**Diabetes**

في مدرسة الأقصى الأعدادية المستقلة للبنات

١- يوجد في عائلتك من هو مصاب بمرض السكري؟ (الرجاء كتابة العدد)  
عدد المصابين:  
الجنس: - ذكر: ..... - أنثى: .....

٢- هل يصاب الأفراد بالمرض وهم أطفال أم بالغين؟  
.....

٣- ما نوع العلاج الذي يتلقاه أفراد عائلتك؟

- حقن أنسولين.
- أدوية.
- تنظيم الغذاء.

قسم العلوم

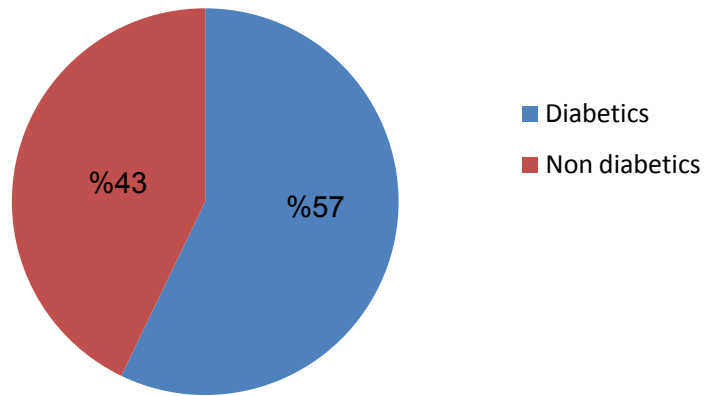
Survey Template

- 3- The results of the 85 surveys were analyzed using Excel. The number of affected persons in each family was obtained from the surveys, and the percentage of diabetes was calculated (Figures 1, 2 &3). The percentage of each type was determined . Regarding gender, we calculated the number of cases for each gender and get their percentages (Figure 4).
  
- 4- A diabetic woman was interviewed to measure the personal effect of diabetes and several questions were asked about her feelings, and how the disease affects her life. The questions included:
  - When and how did you know that you have diabetes?
  - What symptoms you feel with?
  - Which type of diabetes you have?
  - How would you know that your blood sugar is abnormally high?
  - Do you have insulin injections?
  - Do you contact your doctor?

## Results

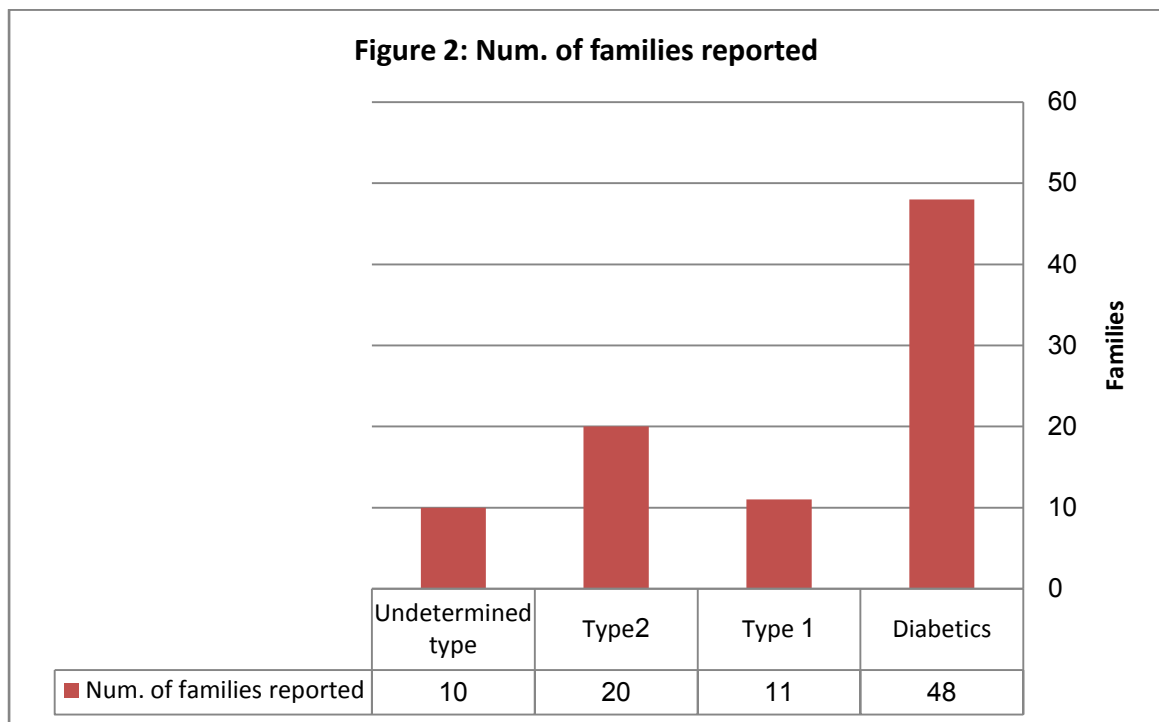
### Figures:

**Figure 1: Percentage of families reported**

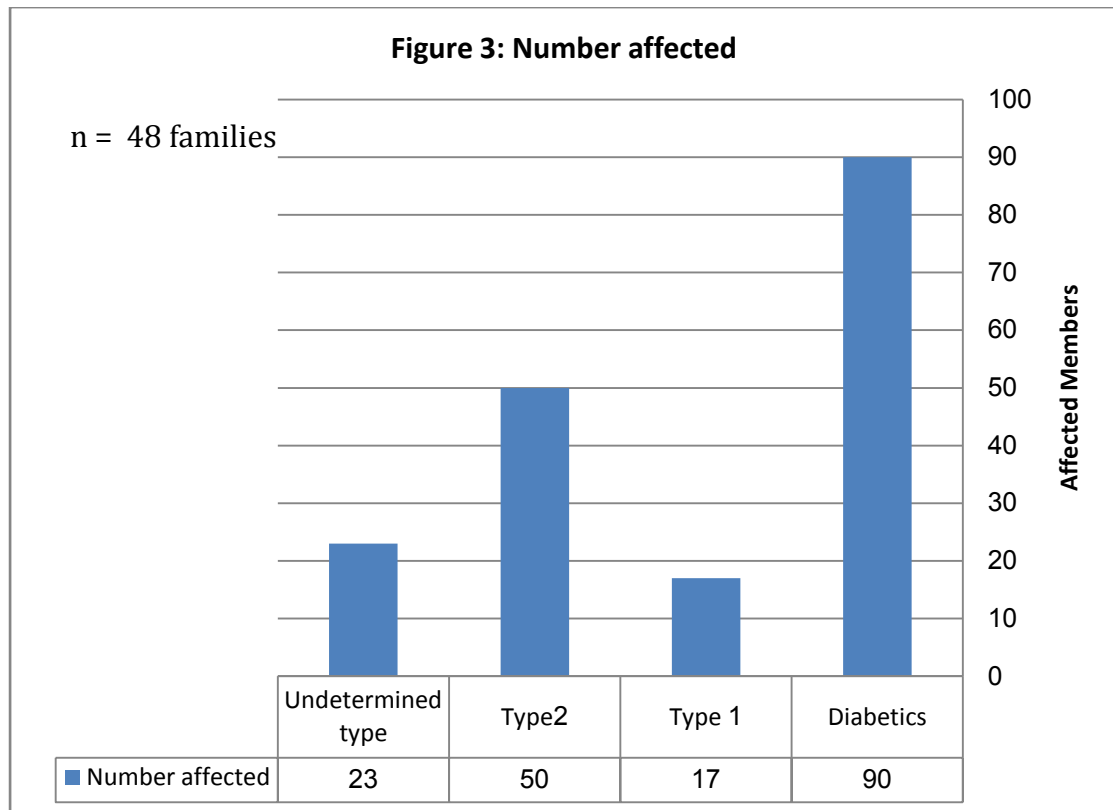


This figure shows the general percentage of diabetes in students' families.

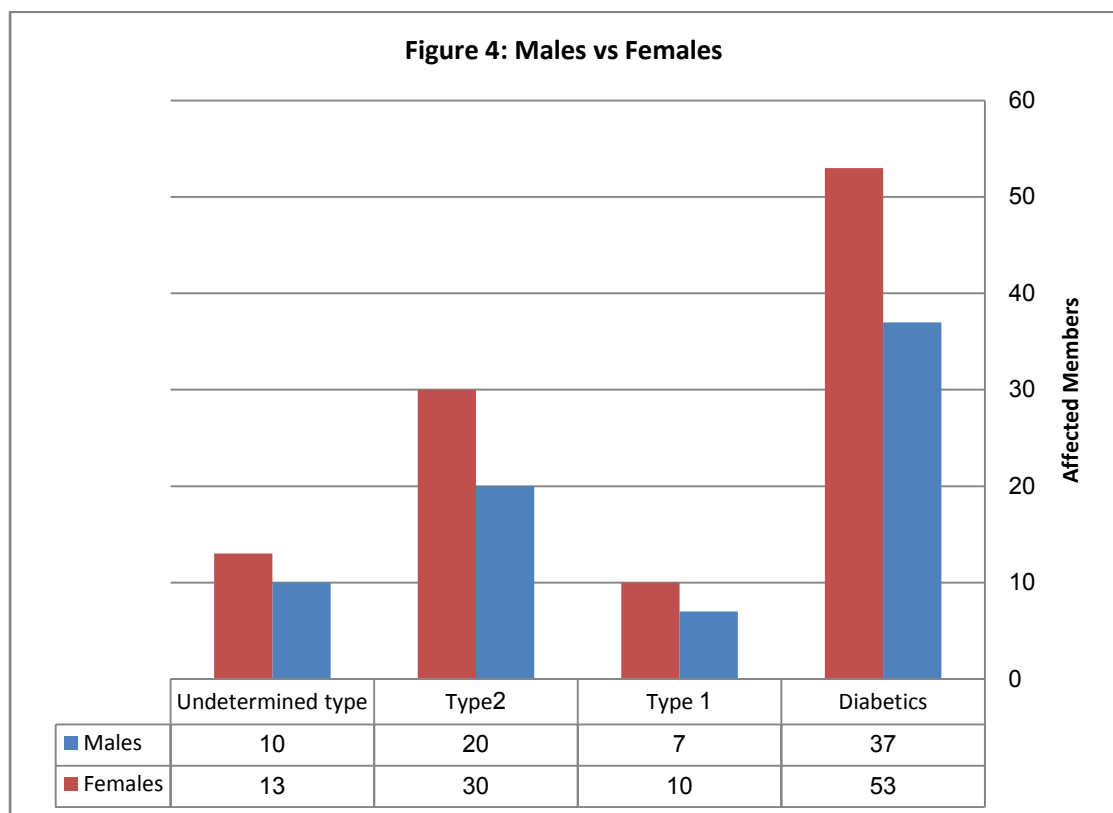
**Figure 2: Num. of families reported**



This figure shows the number of families that have diabetic members. (Note that there are some cases that were not determined by some surveyed students).



This figure shows the different types of diabetes in students' families.



This figure shows the numbers of males & females affected by type1 diabetes and type2 diabetes.

### **Diabetes Percentage:**

We analyzed data from the surveys. The analysis showed 57% of families had at least one member of the family with diabetes (Figure 1). In many families more than one person had diabetes for a total of 90 individuals in 48 families (Figure 3). Males were affected 41% of the time and females 59%. (Figure 4).

We had also analyzed the percentage of Type 1 and Type 2 diabetics. We found that type 2 (55.6%) has a higher percentage than type 1 (18.9%). [Note: the rest of the cases were not determined by the surveyed students].

### **Interview Results:**

Q1: when did you know that you have diabetes?

I knew this when I was 8 years old.

Q2: How did you know that ?

When I went to the hospital and made a blood test.

Q3: What symptom you feel with?

- Over eating and drinking.
- Vomiting.
- Going to toilet lots of times.
- Tiredness.

Q4: Which type of diabetes you have (Type 1) or (type2) ?

I have type (1).

Q5: How would you know that your blood sugar is increasing?

The first step in controlling your blood sugar level is to know the reasons that contribute to the increase or decrease in this level. The cause of my case is that I don't have insulin in my body.

Over eating could contribute to the high glucose. Also if the medicine is not taken on time and if you talk lower does when you are sick, the sugar will be increased.

Q6: Do you use the insulin injections?

Yes .I use the insulin injections

Q7: Do you contact your doctor?

Yes. I contact my doctor on schadulaled time.

## Conclusion

Our data showed that Type 2 diabetes is more prevalent than Type 1. Families in our school also have a higher rate of diabetics than in the general Qatari population. In students' families most of the diabetics are females.

After asking a diabetic woman about her feelings, we noticed that she is bored from the insulin injection and the diet, and she is feeling that she is not a normal person because she is deprived of many foods especially sweet things.

We recommend that a balanced diet be evident in Qatari homes and exercises be an important part of families' lives for the prevention of this disease. We also suggest that students teach their parents about the danger of this disease and the importance of taking a protective action against it, especially when there is a risk to be affected.

## References

1. Global prevalence of diabetes; *Diabetes care*.
2. <http://www.nlm.nih.gov>
3. <http://kidshealth.org>
4. <http://www.walgreens.com>
5. <http://www.al-watan.com>