A survey on prevalence of diabetes mellitus due to junk food intake in young individuals.

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Type of study: original study

Running title: Analysing the prevalence of diabetes mellitus due to consumption of junk food among the general population.

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ABSTRACT

AIM:
The aim of the present study was to assess knowledge and awareness about the prevalence of diabetes mellitus due to consumption of junk food among the general population.

INTRODUCTION:
Junk food is also known as fast food due its ease of making and consumption. It is also called HFSS , High fat, salt or sugar. It's concise packing and attractive colours draw children's attention.

MATERIALS AND METHODS:
A cross-sectional study in the form of a survey was conducted among the parents of the victims in particular along with the general population. Through the online platform the survey was done by distributing the questionnaire. Around 100 responses were collected, data was circulated, results were collected and statistically analysed through SPSS software.

RESULTS:
The study observed insufficient dental nutrition knowledge among the student population.81.6% of children were affected by diabetes mellitus due to junk food. This study was made to improve the awareness and knowledge that junk food is harmful.

CONCLUSION:
This study highlights the low dental nutrition knowledge among the student population. The results of the study recommended educational programmes targeting the student population to enhance their nutritional knowledge.

Key words: Diabetes mellitus, Children, Junk food,Nutrition,Awareness

Introduction
Junk food is asked to be avoided because it has a very low nutritional value and high calorific value(1).Diabetes mellitus is a metabolic disorder that might affect the health of the individual due to high intake of junk food (2). These factors have to kept on a check for daily basis while managing diabetes and the patient is the person best equipped to deal with the situation(3)(4).Diabetes is the main cause for mortality(5)and morbidity (6)Type 1 diabetes mellitus which is traditionally called juvenile diabetes as its occurrence is more among children, is caused by deficiency of insulin due to decrease in insulin-producing beta cells of the islets of Langerhans in the pancreas.(7).

The main symptoms of diabetes mellitus are excessive urination(polyuria), increased thirst (polydipsia), and increased hunger(polyphagia).(8,9)(10). Type 1 diabetes is also known as immune-mediated or idiopathic. Type 1 diabetes is due to its immune-mediated nature, where loss of beta cell leads to T-cell mediated autoimmune attack (11)It is formerly known as (NIDDM) diabetes mellitus or adult-onset diabetes.(12)

By genetic and multiple environmental factors Type 2 diabetes is caused. Insulin deficiency causes Type 2 diabetes which is a metabolic disease, and has charecteristic features of high blood glucose and insulin resistance (13). By increasing exercise and dietary modification diabetes can be initially managed. Medications may be needed as the condition progresses. Unlike type 1 diabetes, there is very little tendency toward ketoacidosis(14)

Materials and methods.

Study design

Through online survey a cross sectional study was conducted from February to April 2021 among undergraduates.

Study subjects

All those who were willing to participate were included and a random sampling was used to select the participants

Ethical considerations

Returning the filled questionnaire was considered as implicit consent as a part of the survey. Ethical approval for the study was obtained from the Institutional Review Board (IRB), Saveetha Dental College.

Study methods

Self administered questionnaire was prepared with close-ended questions. The questionniare was distributed among dental students from February to April 2021.Distribution was done through the online survey “google forms”. The data were collected and regular check up was done for clarity, competence, consistency, accuracy and validity. Demographic details were also included in the questionnaire.

Statistical analysis

The SPSS version (22.0) was used to analyse the data. To summarise qualitative data descriptive statistics as percent were calculated. To analyze the data Chi square test was used

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Sample size

A sample size of 115 students' responses was fixed for our study.

Descriptive analysis

About 100 responses were recorded in the survey. Microsoft Excel was used to convert the data from the responses and coding was done and then exported to SPSS software for statistical results. Pie charts are for descriptive analysis and graphs are for correlation.

Questionnaire

1. Are you aware that increased intake of junk food among children leads to diabetes mellitus?

a) Yes
b) No
c) Maybe

2. Are you aware of kids suffering from diabetes mellitus caused due to junk food?

a) Yes
b) No

3. Has the child been diagnosed with diabetes mellitus?

a) Yes
b) No

4. How old was you when he/she was diagnosed with diabetes mellitus?

a) Below 2 years
b) 2-7 years
c) 7-12 years

5. Which is the predominant cause for diabetes mellitus among children?

a) Regular diet
b) Junk food
c) Hereditary

6. What is the number of chocolates taken by children per day?

a) Less than 5
b) 5-15
c) More than 15

7. How many tablespoons of sugar is taken by children per day?

a) 1-3
b) 3-5
c) 5-8

8. What are the symptoms experienced before the diagnosis of diabetes mellitus in children?

a) Increased thirst
b) Frequent urination
c) Excessive fatigue
d) Increased food intake

9. Is it insulin dependent diabetes or non-insulin diabetes?

a) Insulin dependent
b) Non-insulin dependent

10. Is daily intake of food a challenge for your children?

a) Yes
b) No

Results

The present study has observed that:

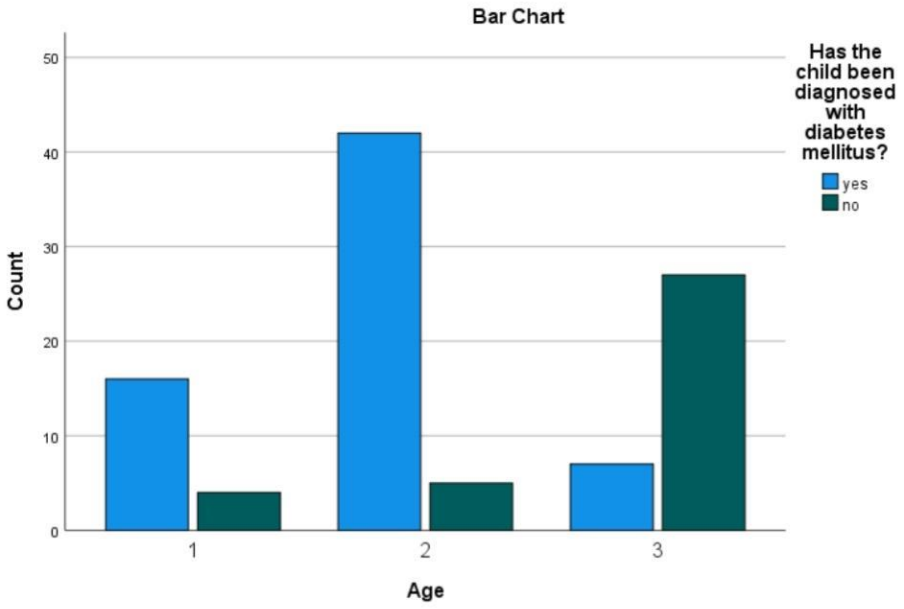

Figure 1 graphs the different age groups and their responses for the question , “Has the child been diagnosed with diabetes mellitus? “ The present observation shows statistically significant, between age and the child being diagnosed with diabetes mellitus by using Pearson's chi square test with a confidence level of 95%.

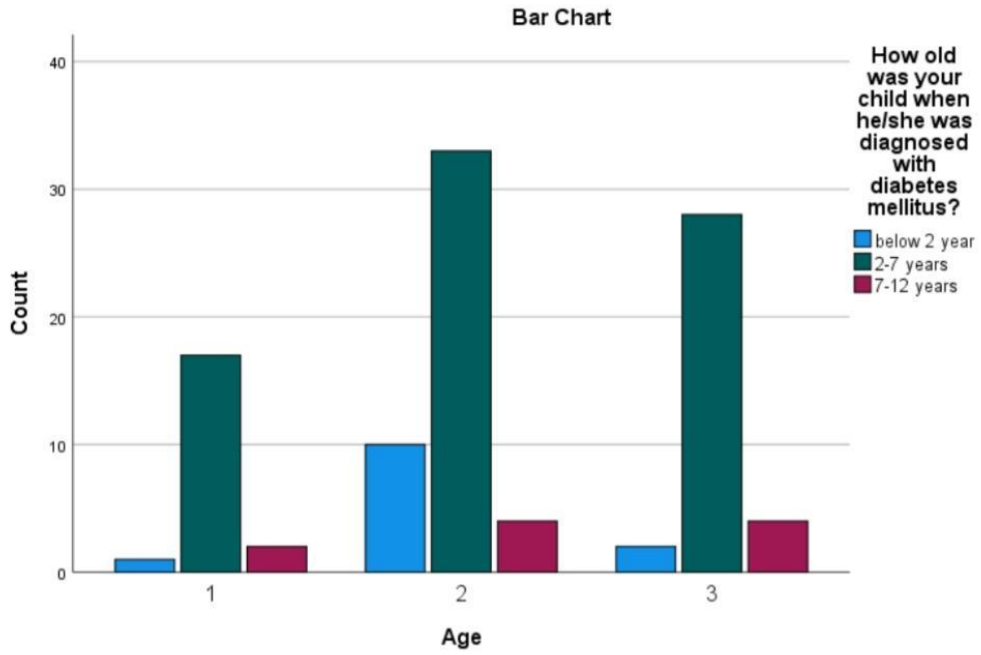

Figure 2 graphs the different age groups and their responses for the question , “How old was your child when he/she was diagnosed with diabetes mellitus“ The present observation shows statistically significant (0.198) between age and the age of the child who was diagnosed with diabetes mellitus by using Pearson's chi square test with a confidence level of 95%.

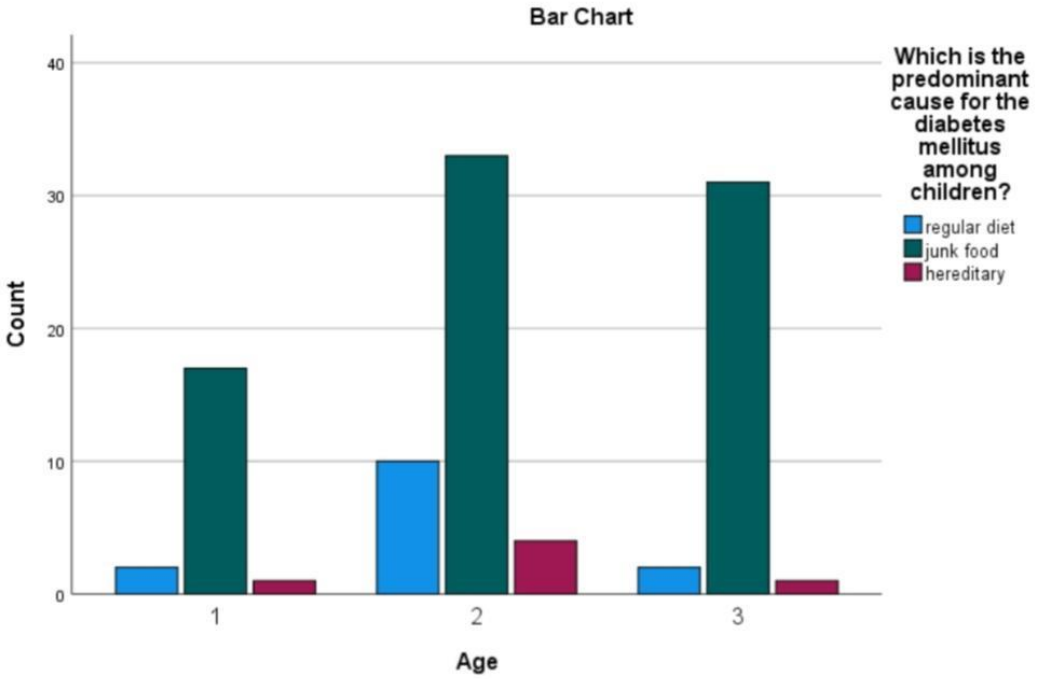

Figure 3 graphs the different age groups and their responses for the question , "Which is the predominant cause for the diabetes mellitus among children " The present observation shows statistically significant (0.228) between age and the cause for the diabetes mellitus among children by using Pearson's chi square test with a confidence level of 95%.

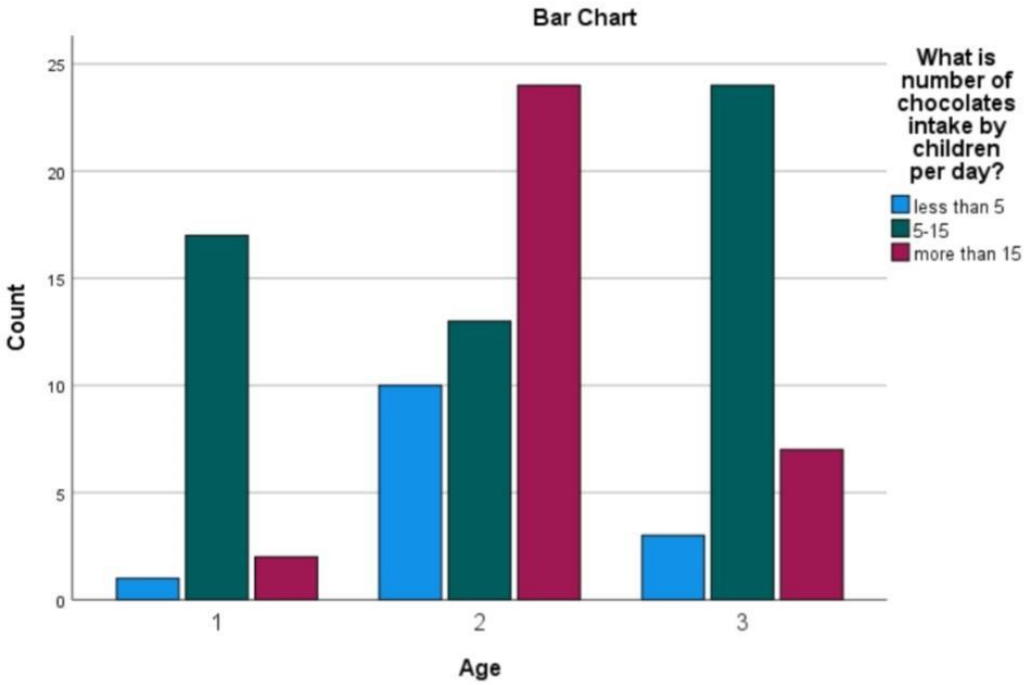

Figure 4 graphs the different age groups and their responses for the question , "What is the number of chocolates taken by children per day? " The present observation shows statistically significant, between age and the number of chocolates intake by children by using Pearson's chi square test with a confidence level of 95%.

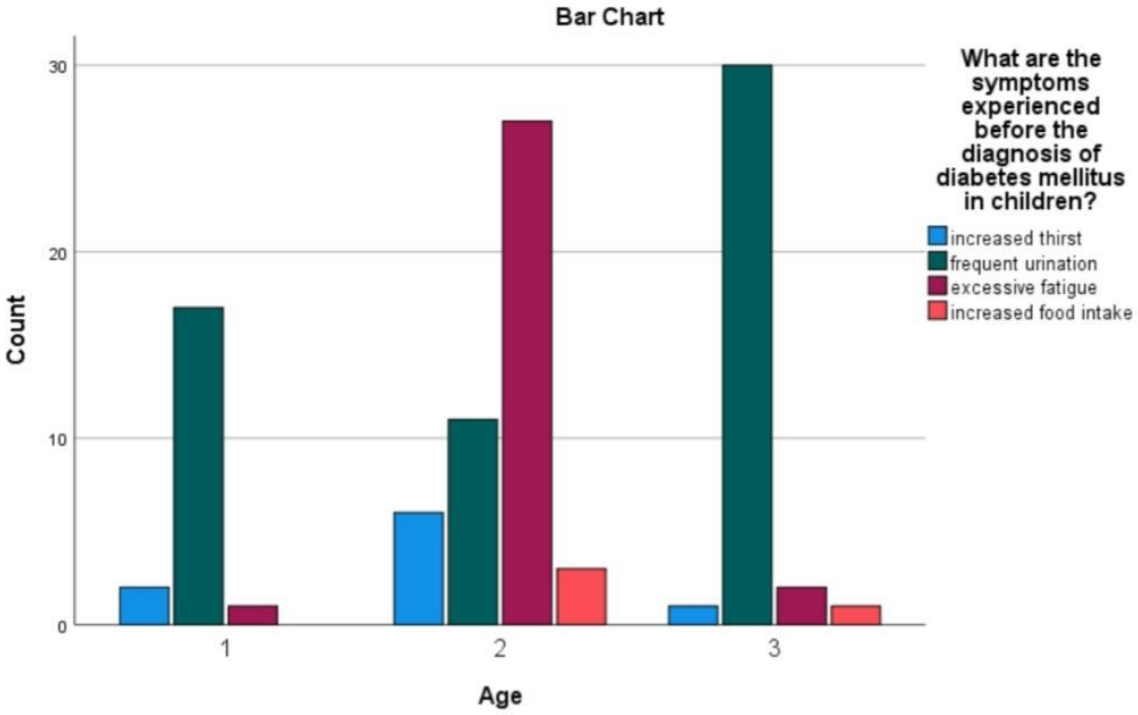

Figure 5 graphs the different age groups and their responses for the question , "What are the symptoms experienced before the diagnosis of diabetes mellitus in children?" The present observation shows statistically significant,between age and the symptoms experienced before the diagnosis by using Pearson's chi square test with a confidence level of 95%.

DISCUSSION:

The ultimate goal of the research is to create awareness among the general population that junk food(15,16) causes diabetes mellitus among young individuals.(17) Even though 44.1% of the population is aware that increased intake of junk food (18)leads to diabetes mellitus, 60.8 % of the children(19) from the taken population were victimised by juvenile diabetes mellitus(20).

Uncontrolled diabetes leads to dysfunctioning of many body organs.(21) Damage to small and (22)large blood vessels and nerves leads to loss of vision and kidney function, heart attacks, strokes, and lower limb amputations(23,24). Diabetes causes disability and shortens lives (25). Dantzer et al 2003 in his study concluded that depression and anxiety are psychological (26)causes that have an major impact on type 1 diabetes mellitus but in this

study does not show any significant support for this rather(27) emphasizes the impact of junk food more(28)(29)(30)

From the survey,it is observed that 77.2% of children in the age group 2-7 years were diagnosed with diabetes mellitus , out of which 55.1% of them have 5-15 chocolates per day and 46.1% of them have 3-5 tablespoons of sugar is taken by children per day. Majority of the population , 56.9% suffer from frequent urination before the diagnosis of diabetes mellitus (Figure 1-5).

LIMITATIONS:

However it is acknowledged that this study is limited to one geographical location and the results cannot be generalised throughout the country.

FUTURE SCOPE:

This study highlights very low knowledge about junk food among parents.Hence it is necessary to develop knowledge about junk food.

CONCLUSION:

From this the present study concluded that among the general population regarding their knowledge about diabetes mellitus due to junk food among young children. The results of the current study recommended educational programmes targeting the general population including all age groups to enhance the awareness about diabetes mellitus due to junk food among young children.

AUTHOR CONTRIBUTIONS:

Ms Sneha Harshini.S : literature search,data collection,manuscript writing
Mrs.S.Sangeetha: study design, data verification, manuscript writing.

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CONFLICT OF INTEREST :

The authors declare no conflict of interest.

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