



ORIGINAL RESEARCH PAPER

Biochemistry

STUDY OF RISK FACTORS OF DIABETES MELLITUS AND GLYCEMIC STATUS AMONG THE BAKERY EMPLOYEES

KEY WORDS: Type-2 DM, FINDRISC, Bakery employees.

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ABSTRACT

Background: The most common chronic disease is type 2 diabetes which affects both general as well as working population. Increasing prevalence of the disease is largely because of lifestyle factors associated with overweight, changes in dietary habits and increasing sedentary behavior. The Finnish Diabetes Risk Score (FINDRISC) questionnaire is a validated risk assessment tool to predict and estimates the probability of a person to develop diabetes within the next 10 years. **Objective:** To evaluate the risk factors of Diabetes Mellitus among bakery employees by using FINDRISC score. **Methodology:** The study includes 40 employees of bakeries which are located in and around Davangere, during study from Jan 2019 to Jan 2020. **Result:** 53% of the bakery employees had a low to moderate risk of 1-17%, 37% had a high risk for diabetes of 33% and another 10% had a very high risk of 50% to become diabetic in the next 10 years. **Conclusion:** This study concludes that there is a high risk of Diabetes mellitus among bakery employees of our local population because of sedentary life style and dietary habits. Accordingly, people with significant risk for type 2 diabetes would benefit from early identification and lifestyle intervention.

INTRODUCTION

Type 2 diabetes is a common chronic disease in the general as well as in the working population⁽¹⁻³⁾. Important risk factor is overweight due to an unhealthy lifestyle results in increased sickness absence, morbidity and mortality⁽⁴⁾. Increasing prevalence of disease is largely linked to lifestyle factors associated with overweight, changes in dietary habits and increasing sedentary behavior⁽⁵⁾.

The Finnish Diabetes Risk Score (FINDRISC) questionnaire is a validated risk assessment tool to predict type 2 diabetes⁽⁶⁾. It estimates the probability of a person to develop diabetes within the next 10 years. Occupational health care traditionally focuses on prevention of work-related illnesses and injuries⁽⁷⁾.

The aims of the current study were to investigate the prevalence of risk for type 2 diabetes using the FINDRISC questionnaire in a working population. People with significant risk for type 2 diabetes would benefit from early identification and lifestyle intervention^(8,9). Employees in certain occupations such as those working at bakeries are more prone for metabolic syndrome and Diabetes mellitus.^(8,9)

OBJECTIVES:

To evaluate the risk factors of Diabetes Mellitus among bakery employees by using FINDRISC score.

METHODOLY:

A cross-sectional study involving 40 employees of bakeries in the age group of 30-65 years which are located in and around Davangere. Approval taken from the ethical committee. Chronic alcoholics, smokers, known case of diabetes mellitus, liver disease and other systemic diseases were excluded from the study. Fasting blood glucose was analysed by Hexokinase method⁽¹⁰⁾ in a fully automated analyzer, Beckman Coulter AU480. Impaired fasting glycaemia was considered a fasting glycaemia between 110 mg/dl and 125 mg/dl, diabetes as 126 mg/dl or more⁽¹¹⁾. For this study, additionally, 11 questions of the FINDRISC were addressed.

The maximum value of the FINDRISC score is 26. FINDRISC score of 0-14 points denotes low to moderate risk, 15-20 a

high risk, >20 a very high risk, corresponding to a probability to develop diabetes within the next 10 years of 1-17%, 33% and 50% respectively^(6,12).

Statistical Analysis:

SPSS version 21 was used to perform the statistical analysis for measuring sample mean, standard deviation and significance of difference was calculated.

RESULTS:

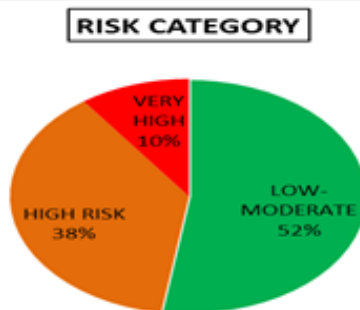


Fig. 1. Distribution of Finnish Diabetes Risk Score (FINDRISC) in the study population (N = 40)

Fig.1 shows distribution of the results of the FINDRISC questionnaire. 53% of the bakery employees had a low to moderate risk for type 2 diabetes of 1-17%, 37% had a high risk of 33% and another 10% had a very high risk of 50% to become diabetic in the next 10 years. In the present study there are 32 males and 8 females participated with mean age of 43.12 yrs and SD ± 5.31, mean weight of 77.25 kg with SD ± 6.5, mean FBS of 116.5 ± 20.84 mg/dl and FINDRISC score of 13.35 with SD ± 6.15.

DISCUSSION:

Type 2 diabetes is a most common disease in the working as well as general population which results in an increased incidence of absenteeism at work and increased morbidity and mortality^(3,4). The prevalence of the disease is rapidly increasing which is largely due to lifestyle factors associated

with overweight, increasing sedentary behavior, and changes in dietary habits⁽⁵⁾.

Some of the reversible risk factors of diabetes are elevated plasma glucose in the fasting state and after an oral glucose load, a sedentary lifestyle and over-weight. Modifying these risk factors with a lifestyle-intervention program delay the development of diabetes.⁽¹³⁾

Job related stress has been associated with poor health behaviors, such as sedentary lifestyle, unhealthy diet, cigarette smoking, and alcohol use and misuse. Such health behaviors are associated with well-established diabetes risk factors, including obesity and metabolic syndrome. Lastly, chronic stress is postulated to increase abdominal obesity through hypothalamic-pituitary-adrenal axis and sympathetic nervous system activation, which in turn increases the risk of type 2 diabetes.⁽¹³⁾

In bakery workers there is a sedentary lifestyle which increases the risk of developing diabetes and cardiovascular disease.⁽¹⁴⁾ Sedentary lifestyle leads to dysfunction of the vascular endothelium which in turn contributes to atherogenesis⁽¹⁵⁾ States of insulin resistance, including type 2 diabetes mellitus and obesity, are also associated with endothelial dysfunction.⁽¹⁶⁾

Our findings of the study is in agreement with several other studies like F B Hu et al.,⁽¹⁷⁾ Bohme P, et al.,⁽¹⁸⁾ Vandersmissen GJM, et al⁽¹⁹⁾.

CONCLUSION:

This study concludes that there is a high risk of Diabetes mellitus among bakery employees of our local population because of sedentary life style and dietary habits. Accordingly, people with significant risk for type 2 diabetes would benefit from early identification and lifestyle intervention.

Limitation of the present study was smaller sample size. Further larger sample size are required for assessment of dysglycemia in bakery workers.

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