

Prevalence of Undiagnosed Diabetes Cases in Bamako and Surroundings, Mali

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Summary:

Introduction: Because of its costs, diabetes is a real public health problem. Many people with diabetes go unknowingly at risk of complications. This work contributes to establishing the prevalence of undiagnosed cases in Mali. Goal Determine the prevalence of undiagnosed diabetes cases in Bamako and its surroundings

Material and Methods: Data were collected from the presumed healthy general adult population of Bamako and the surrounding area by administration of a questionnaire, followed by blood samples and fasting blood glucose measurements. People with blood sugar above 1.26 g / L were called for a confirmatory test in collaboration with a clinician. The data were analyzed using SPSS software.

Results: The survey involved 809 people, 69.1% of whom were women and 30.9% were men. The average age is 37 and a half. Women, young people and civil servants were in the majority. Only 1.7% of the sample was confirmed diabetic.

Conclusion: This study provides a first estimate of the prevalence of undiagnosed diabetes. Early diagnosis helps prevent complications of the disease and reduces financial costs

Keywords: Diabetes, diagnosed, Bamako, Mali

Abbreviations: IFD: International Diabetes Federation, SPSS: Statistical Package for the Social Sciences, BMI: Body Mass Index, WHO: World Health Organization

1. INTRODUCTION

Diabetes mellitus is defined by the chronic rise in the concentration of glucose in the blood (hyperglycemia) and groups together, in a true syndrome, several diseases of different pathogenesis (disorder of the secretion and / or the action of insulin). [1] It remains one of the major public health concerns. The latest estimates from the International Diabetes Federation (IDF) in 2019 indicate that 351.7 million people, or 9.3% of the working-age population (20 to 64) have diagnosed or undiagnosed diabetes. This number is expected to increase to 417.3 million by 2030 and to 486.1 million by 2045. The largest increase will occur in regions moving from low income to middle income [2]. The prevalence of diabetes is 3.8% in Africa and 1.28% in Mali [3]. Unfortunately, many people do not know they have it; often the disease is only detected when the first, sometimes irreversible, symptoms appear. Thus according to the International Diabetes Federation (FID) 50.1% in the world and 57.9% in Africa of cases of diabetes are not diagnosed [2]. In France, in the national nutrition health study (ENNS) [4], the prevalence of undiagnosed diabetes cases was high. The relative proportion of these unrecognized diabetes cases was estimated at 30% in 30-54 year olds and 12% in 55-74 year old [5]. The objective of this study is to assess the prevalence of undiagnosed diabetes cases in Bamako and its surroundings in Mali.

2. MATERIALS AND METHODS

Our sample was obtained from an investigation to establish reference values for biochemical parameters. The investigation concerned presumed healthy subjects aged 18 and over residing in the six communes of Bamako and six other neighboring Bamako: Kalaban-coro, Mandé, Kati, Dialakorodji, Sangarébourgou and Moribabougou. A presumed healthy subject is one who has no

known condition (arterial hypertension, diabetes, etc.), who is not taking medication, or who is not in a particular physiological state. Joining the study was voluntary. The data were obtained by administering a questionnaire followed by a measurement of the weight using a personal scale and the height using a measuring rod, then a blood sample on sodium fluoride. and a blood sugar test. This blood glucose measurement was made on plasma using a "KENZA 240 ISE" biochemical machine. Subjects with a blood glucose greater than 1.26 g / L were subjected to a second blood glucose measurement. Those with a second blood glucose greater than 1.26 g / L were subjected to a clinical examination for confirmation [6]. Data analysis was performed on SPSS 21 analysis software.

3. RESULTS AND DISCUSSION

We surveyed 809 people including 559 women (69.10%) and 250 men (30.90%). The average age of the people surveyed is 37.51 years; the average height is 1.66 meters; the average mass is 74 , 13 Kg; the average blood sugar is 5.42 mmol / L and the average hemoglobin level is 4.75%. The relatively high numbers of women and young people could be explained by the composition of the Malian population and the availability of these social strata.

3.1. Distribution of the Sample by Body Mass Index and by Sex

The average Body Mass Index (BMI) is 26.82 Kg / m². The distribution of the survey population by BMI is shown in Figure 1 The rate of underweight is higher in men (2.80%) than in women. 61.20% of men have a normal weight against 33.10% for women. 33.30% of women are overweight against 28.80% for men. As for the obesity rate, it is four times higher in women (32.40%) than in men (7.20%). These results are in the same direction as those published by WHO in 2021 which according to which 15% of women were obese in 2016 against 11% of men; and 40% of women are overweight against 39% for men [7].

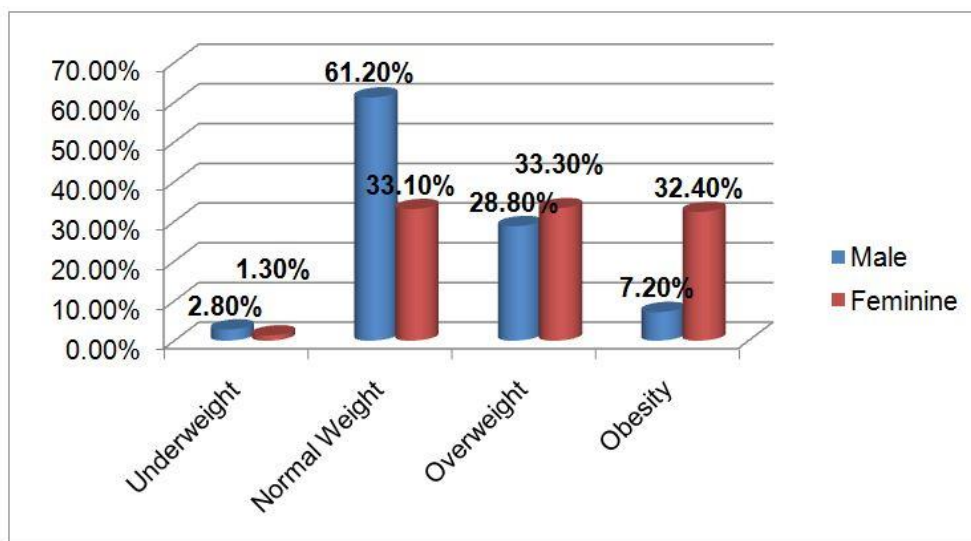


Figure1. Distribution of the sample by Body Mass Index and by sex

3.2. Distribution of the Sample by Diabetic Status

Of the 809 people surveyed, 759 or 93.80% have normal blood sugar levels against 50 or 6.20%. The distribution of people surveyed by diabetic status is shown in Figure 2 On the first visit, we detected 50 cases of hyperglycemia, or 6.2% of the sample. At the second visit 14 people were confirmed diabetic, ie 1.7%. 85.7% of these new diabetics (unrecognized diabetes) are female. This could be explained by the relative sedentary lifestyle of women compared to men [8]. The majority of these diabetics are administrative workers (57.1%) compared to 21.4% artisans and 21.4% housewives. These results are in line with those of the French Institute for Public Health Surveillance [4]. This could be explained not only by the place of study, but also by the fact that administrative officers put little physical effort into the performance of their duties.

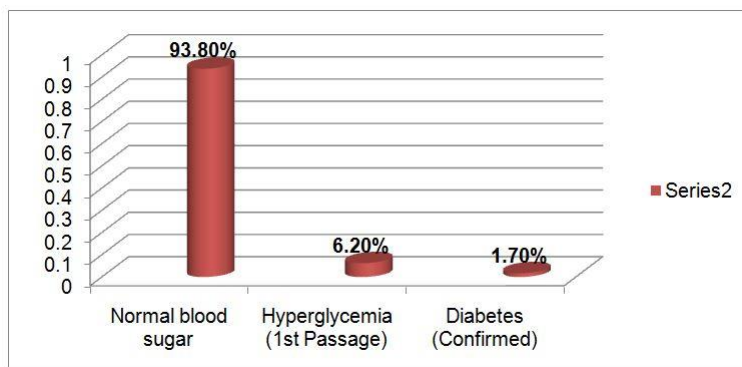


Figure2. Distribution of the sample by diabetic status

3.3. Distribution of Undiagnosed Diabetes Cases by Age Group

The average age of these diabetics is 39.79 years. The youngest is a 25-year-old woman and the oldest a 58-year-old man. The distribution of unrecognized diabetes cases is shown in Figure 3. The majority of unrecognized diabetes cases are found in the 30 - 54 age group with 78.60% against 7.10% for the 55 and over age group. These results are in the same direction as those found by Bonaldi C et al. in France [5]. The 30 to 54 age group includes people in full activity who very often do not do enough health checks, and it is at these ages that type 2 diabetes most commonly appears.

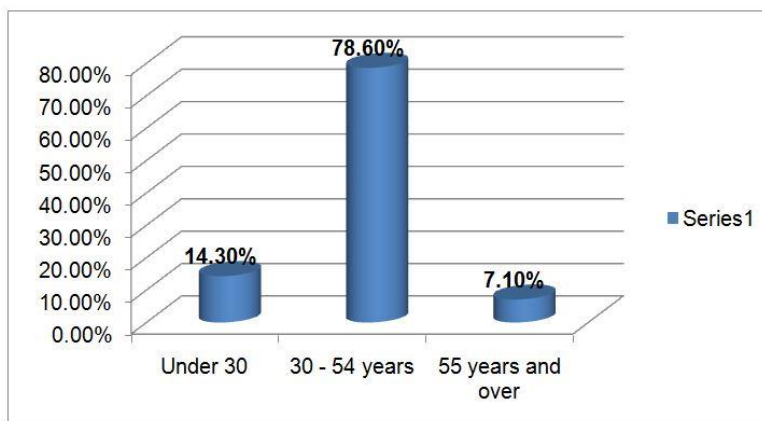


Figure3. Distribution of diabetics by age group

3.4. Distribution of Diabetics by BMI

The average Body Mass Index (BMI) of new diabetics is 31.49 Kg / m². The small BMI is 23.05 Kg / m² and the largest is 41.09 Kg / m². The distribution of unrecognized diabetes cases by IMC is shown in Figure 4. Among the unrecognized cases of diabetes, 64.30% are people with obesity, 21.40% are overweight and 14.30% are people of normal weight. These results confirm those found by WANG.Y et al. in 2005 according to which obesity and overweight are real risk factors for type 2 diabetes [9].

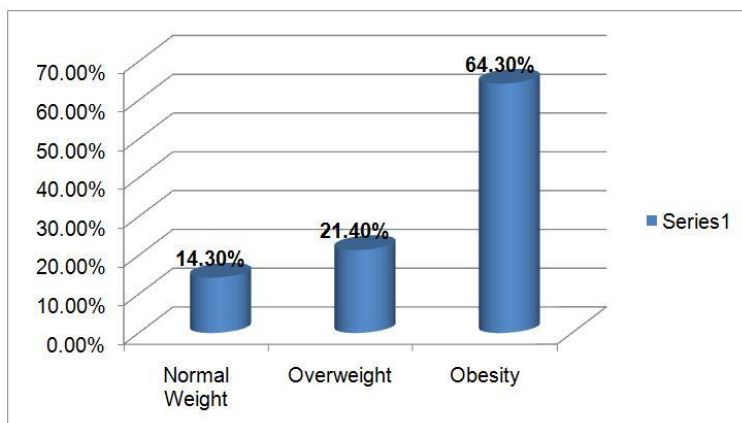


Figure4. Distribution of diabetics by BMI

4. CONCLUSION

Based on a local sample, this study provides a first estimate of the prevalence of undiagnosed diabetes and moderate fasting hyperglycemia in adults aged 18 and over living in Bamako and its surroundings. She confirms that obesity and overweight are risk factors for developing type 2 diabetes and that their rates are relatively higher in women. Early diagnosis helps prevent complications of the disease and reduces financial costs.

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