

Prevalence and factors associated with impaired fasting glucose among urban women in Burkina Faso

Boyo Constant Paré^{1,*}, Désiré Lucien Dahourou^{2,*}, Solo Traoré^{3,4,*}, Ad Bafa Ibrahima Ouattara^{3,5}, Ter Tiero Elias Dah^{3,6}, Oumar Guira^{1,7}

¹Training and Research Unit in Health Sciences, Department of Public Health, Joseph Ki-Zerbo University, Ouagadougou, Burkina Faso, ²Department of Biomedical and Public Health, Research Institute of Health Sciences, Ouagadougou, Burkina Faso, ³Training and Research Unit in Health Sciences (UFR/SS), Lédéa Bernard Ouedraogo University, Ouahigouya, Burkina Faso, ⁴Department of Medicine and Medical Specialties, Ouahigouya Regional Teaching Hospital, Ouahigouya, Burkina Faso, ⁵Department of Paediatrics, Ouahigouya Regional Teaching Hospital, Ouahigouya, Burkina Faso, ⁶Department of Public Health, Ouahigouya Regional Teaching Hospital, Ouahigouya, Burkina Faso, ⁷Department of Internal Medicine, Yalgado Ouédraogo Teaching Hospital, Ouagadougou, Burkina Faso *These authors contributed equally to this work and are joint first authors

✉ Boyo Constant Paré, Training and Research Unit in Health Sciences, Department of Public Health, Joseph Ki-Zerbo University, Ouagadougou, Burkina Faso,
| Email: boyoconstantp@gmail.com | ORCID: 0000-0002-6842-127X

Article history:

Received: 27 May 2025

Accepted: 11 Mar 2026

Published: 12 March 2026

Abstract

Introduction: Diabetes mellitus increases the risk of heart disease by fourfold in women and twofold in men. It is a growing problem in developing countries, including Burkina Faso. Impaired Fasting Glucose (IFG) can predict increased risk for developing diabetes. We determined the proportion of IFG among adult women and identified their risk factors.

Methods: This was a cross-sectional study of female volunteers over the age of 18 years, recruited from four screening sites that targeted occupational profiles whose lifestyle would be factors influencing IFG, which can predict an increased risk for developing diabetes: university, market, police school, and nursing school. Data were collected in November 2020, in the urban setting of Ouagadougou, Burkina Faso. We performed a logistic regression to identify risk factors associated with IFG (blood glucose ≥ 6.1 mmol/L).

Results: 356 women participated in the study at four collection sites. Of these women, 10.1% (36/356; 95% CI: 7.3-13.7) were classified as IFG. The mean age was 28 ± 9.3 years, with extremes ranging from 18 to 71 years. IFG represented 46% among women aged 45 to 55 years, 16% among women with abdominal obesity, 19% among women with obesity, 28% among freelance women. In the multivariate analysis, abdominal obesity (aOR=2.6; 95%CI: 1.1-6.2), recruitment at the market site (aOR=10.8; 95%CI: 1.3-86.9) were significantly associated with a higher risk of IFG in women.

Conclusions: We observed a higher prevalence and risk of IFG among women recruited from the market setting, where women predominantly engage in activities related to trade or entrepreneurship. Further studies among women working in such settings with this type of socio-professional lifestyle could help to improve the performance of diabetes prevention and control programs in Burkina Faso.

Keywords: Impaired fasting glucose, women, prevalence, associated factors, urban environment

Citation

Suggested citation: Paré BC, Dahourou DL, Traoré S, Ouattara ABI, Dah TTE, Guira O. Prevalence and factors associated with impaired fasting glucose among urban women in Burkina Faso. *J. Interv. Epidemiol. Public Health* [Internet]. 2026 Mar 12;9(1):45. doi: 10.37432/jieph-d-25-00130

Copyright statement

© Boyo Constant Paré et al. Journal of Interventional Epidemiology and Public Health (ISSN: 2664-2824). This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Introduction

Type 2 Diabetes Mellitus (T2DM) seriously affects women's lives. It quadruples, for instance, the risk of heart disease in women and doubles that in men [1]. Worldwide, the prevalence of diabetes among women aged 20–79 years was estimated at 10.2% in 2021 [2]. In Africa, 19 million cases were reported in 2019 [3]. A proportion of 60% of the diabetes cases were estimated to not be diagnosed in this region [3]. According to the World Health Organization (WHO), the largest rise in prevalence of chronic diseases like diabetes is expected in the developing world by 2030 [4]. Diabetes is becoming a major problem in developing countries, including Burkina Faso [5]. In Burkina Faso (BF), the type 2 diabetes mellitus (T2DM) prevalence was slightly increased between 2013 and 2021 among women, with prevalence of 4.7% and 6.8% [6,7].

The risk factors for diabetes comprise overweight or obesity, being aged above 45 years, having a parent or brother/sister with type 2 diabetes mellitus (T2DM), physically activity less than 3 times a week, presence of non-alcoholic fatty liver disease, having ever experienced gestational diabetes, or having given birth to a baby who weighed above 4082 grams [8,9]. Some of these factors are modifiable while others are not. Job-related characteristics may also influence the risk factors for T2DM [10–12]. Work-related stress, shiftwork, long working hours, and sedentary work conditions might increase the risk of T2DM and generalised obesity [10–12]. Studies conducted in the United States revealed that the prevalence of diabetes varied according to occupation [10,12,13]. Nonetheless, occupation has rarely been examined as an important factor in diabetes-related studies in Low and Middle Income Countries (LMICS) [14].

Moreover, some studies stress a difference in cardio-metabolic risk factors distribution between women and men [15,16]. There are differences between men and women regarding type 2 diabetes and other cardiovascular risk factors with respect to comorbidities, the manifestation of complications, and the initiation of and adherence to therapy [17,18]. The majority of diabetics discover their disease through the cardinal signs of diabetes mellitus (27%) or the onset of complications (61.53%) [19,20].

In Burkina Faso, 89% of participants in the 2021 STEPS survey in urban areas had never measured their blood glucose levels [7]. Diabetes mellitus testing should serve as a gateway to the prevention and control of Non-Communicable Diseases (NCDs) [21]. Impaired Fasting Glucose (IFG) can predict increased risk for developing diabetes. Diabetes prevention or delay is effective when targeting patients with IFG [22]. Greater knowledge of the groups that are less likely to be aware of their IFG could result in a more targeted approach to screening, increased potential for detection, and therefore more effective management of diabetes. We aimed to

estimate the prevalence of IFG among adult women recruited from diverse socio-professional settings and investigate how individual lifestyle and physiological factors contribute to IFG risk within these specific urban contexts.

Methods

Study design and setting

The data were collected in November 2020, in the city of Ouagadougou, a large urban area of Burkina Faso. Ouagadougou is the capital city of the country and the largest one [23]. The urban commune of Ouagadougou is located in the province of Kadiogo, in the Central region. Ouagadougou has 12 arrondissements [23–25]. It has 2,415,266 people and 502,938 households [23–25]. Half (50%) of the workforce were government workers, while the rest were in the informal sector (45%) and the unemployed (5%) [23–25]. In addition, with a young population (24 years on average), Ouagadougou is the commune with the country's highest population density, with over 4300 inhabitants per km². More than 61% of the city's residents above 15 years are literate.

Type and study population

This study is a cross-sectional study among the adult population in Ouagadougou [25]. We extracted data from adult female participants (≥18 years) for a secondary analysis.

Data collection

The survey was conducted during a mass campaign of diabetes diagnosis for the 2020 international diabetes day. We intentionally selected four different screening sites—a university, a market, a police academy, and a nursing school—to gather data from diverse socio-professional groups. The assumption was that the lifestyles associated with these environments might influence impaired fasting glucose. A quick survey has been conducted during this mass campaign [25]. Our focus was on women, so we extracted all the women's data from the initial database. We considered all the women who were at least 18 years of age in the database. We exclude pregnant women and those who reported that they were taking medication for diabetes [25].

An anonymous questionnaire was administered to collect data, and capillary blood glucose was measured using the SD CodeFree™ glucose analyzer. A capillary whole blood was taken by finger prick and immediately analyzed. A control solution test was performed each time a new bottle of strips was opened. All other procedures described by the manufacturer were followed [25].

Weight was taken with the subjects wearing light clothing and no shoes, using a digital floor scale to the closest 0.1

kg. The BMI was calculated as the weight (kg)/ height (m²). Waist circumference (marked using a tape) was measured while standing, at the halfway level between the lowest rib and iliac crest. The value was recorded to the nearest centimeter (cm) at the navel level at the end of regular expiration [25].

Study variables

Outcome variable: The outcome variable in our study was impaired fasting glucose (IFG). IFG was defined as fasting (after at least 8 h of fasting) capillary glucose ≥ 6.1 mmol/L and < 7.0 mmol/L [7,22].

Independent variables: independent variables was age, family history of diabetes mellitus (classified into no family history, first-degree family history and second-degree family history); body mass index (in kg/m²); waist circumference; physical activity (categorized as ≥ 30 minutes of daily physical activity or not); daily fruit and vegetable intake, history of hyperglycemia; the use of anti-hypertensive treatment [25].

Statistical analysis

The study sample was characterized using frequency tables with percentages for qualitative variables. Comparisons between groups were done by the Chi square test or Fisher test. The quantitative variables were presented through mean and standard deviation. We estimated the prevalence of women with IFG with 95% confidence interval. We used logistic regression to identify the factors associated with IFG. We included in a multivariable model non-collinear independent variables associated in univariable analysis at the 20% threshold. We used a stepwise manual step-down procedure to get the final model with STATA 15 software.

Ethical considerations

This study was approved by the Health Science Ethics Committee (No. 2020-8-146) [25]. We obtained the health authorities' authorization to conduct the study. This study was conducted during a mass campaign. This was the minimal-risk study involving volunteer participants in the context where literacy is very low.

In addition, the participant's decision to participate in this study was based on a deliberate and affirmative action. Before they gave oral consent to participate, we informed participants that participation in this survey was free and voluntary [25]. No data that could identify participants was collected.

Participants with capillary glucose levels > 13.75 mmol/L (indicative of severe hyperglycemia) were systematically referred for urgent evaluation at the Internal Medicine Department of the Yalgado Ouédraogo University Hospital (CHU-YO). Participants with results below this threshold but within the IFG or diabetic range were provided with a formal referral for an outpatient consultation at the same

specialized center for diagnostic confirmation and management.

Results

Overall, 377 women were screened. Among these women, 356 women (94%) were included in this analysis. The mean age was 28 (standard deviation: 9.4 years), with extremes ranging from 18 to 71 years. Most of the participants were under 35 years (81.4%). The prevalence of IFG was 10.1% (36/356; 95% CI: 7.3-13.7). The prevalence of IFG was 46% among women aged 45 to 55 years, 16% among women with abdominal obesity, 19% among women with generalised obesity, 28% among freelance women. Generalised obesity was identified among 17.6% of participants, and 84.4% of women declared that they eat at work, not at home. Abdominal obesity was identified in 49.7% of women (Table 1).

In the univariate analysis the following variables were associated with IFG among women: being screened in the market i.e. freelance women (OR=15.81; 95% CI: 2.01-124.35), age group of [35-45[(OR=5.69; 95% CI: 2.44-13.25) [45-55[(OR=13.76; 95% CI: 4.16-45.49), presence of abdominal obesity (OR=4.01; 95% CI: 1.77-9.08), being married (OR=2.25; 95% CI: 1.10-4.60), being obese (OR=3.33; 95% CI: 1.43-7.74). In the multivariate analysis, abdominal obesity (aOR=2.59; 95% CI:1.08-6.20), being screened in the market, i.e. freelance women (trade, business, entrepreneurship) (aOR=10.77; 95% CI:1.33-86.92 significantly increased the odds of IFG in women (Table 2).

Discussion

We observed a high proportion of women with IFG, exceeding the national prevalence reported in the 2021 STEPS survey. This suggests that urban-specific metabolic risks may be intensifying faster than national figures reflect. Our findings align with similar studies in Ouagadougou, which reported among men and women [26] and a high proportion of diabetes occurrence in women compared to men [5]. Significant disparities were observed in IFG proportion across data collection sites, reflecting the diverse socio-demographic profiles within the city.

The lower rates at the Police academy, the private university and the nursing school likely represent baseline risks among the younger, more physically active and health literate groups. In contrast, the proportion of IFG at the central market is likely driven by the fact that it was the site with the older participants and the higher rates of obesity. These results suggest that current national strategies, which largely rely on passive hospital-based detection, are suboptimal for reaching high-risk urban sub-populations.

A high prevalence of IFG was observed among women aged 45 to 55 years, compared to those aged less than 35

Table 1. Sociodemographic, anthropometric, lifestyle and terrain characteristics of participants

Characteristics	Non IFG		IFG		P value	Total
	N=320	%	N=36	%		
Data collection sites					< 0.001	
Police academy	40	97.6	1	2.4		41
Nursing school	188	92.2	16	7.8		204
Biggest Market of the city	43	71.7	17	28.3		60
Private university	49	96.1	2	3.9		51
Age (years)					< 0.001	
< 35	273	94.1	17	5.9		290
35–45	31	73.8	11	26.2		42
45–55	7	53.8	6	46.2		13
> 55	9	81.8	2	18.2		11
Family history of diabetes^a					0.28	
No previous history	226	91.5	21	8.5		247
1st degree family history ^b	45	84.9	8	15.1		53
2nd degree family history ^c	49	87.5	7	12.5		56
30 minutes of daily physical activity					0.65	
Yes	192	90.8	13	9.2		205
No	128	89.3	23	10.7		151
Daily consumption of fruit and vegetables					0.20	
Not every day	267	90.8	27	9.2		294
Every day	53	85.5	9	14.5		62
Prescription of anti-hypertensive					0.11	
Yes	10	76.9	3	23.1		13
No	310	90.4	33	9.6		343
History of hyperglycemia					0.22	
Yes	7	77.8	2	22.2		9
No	313	90.2	34	9.8		347
Waist circumference					< 0.001	
No abdominal obesity ^d	171	95.5	8	4.5		179
Abdominal obesity ^e	149	84.2	28	15.8		177
BMI in kg/m²					0.01	
Normal ^f	184	93.4	13	6.6		197
Overweight ^g	85	88.5	11	11.5		96
Generalized Obesity ^h	51	80.9	12	19.1		63
Marital Status					0.04	
Married	125	85.6	21	14.4		146
Single	188	93.1	14	6.9		202
Widowed	3	75.0	1	25.0		4
Divorced	0	0.0	0	0.0		0
Means of transportation					0.89*	
Motorcycle	257	89.9	29	10.1		286
Bicycle	19	90.5	2	9.5		21
Pedestrian	26	86.7	4	13.3		30
Car	15	93.7	1	6.3		16
Type of physical activity					0.50	
Walk	119	88.8	15	11.2		134
Work	131	89.7	15	10.3		146
Leisure	32	97.0	1	3.0		33
None	33	86.8	5	13.2		38
Lunch location					0.24	
At home	47	85.5	8	14.5		55
Out of the house	270	90.6	28	9.4		298
Contraceptive					0.90	
Yes	90	90.0	10	10.0		100
No	215	89.6	25	10.4		240

*Fisher test; ^aPast history; ^b1st degree: close relatives, i.e. father, mother, children, sister, brother; ^c2nd degree: distant relatives, i.e. grandparents, aunts, uncles, cousins; ^dNo abdominal obesity: Waist circumference < 80 cm for women; ^ePresence of abdominal obesity: waist circumference ≥ 80 cm for women and ≥ 94 cm for men; ^fNormal: BMI between 18–25 kg/m²; ^gOverweight: BMI between 25–30 kg/m²; ^hObesity: BMI ≥ 30 kg/m²; IFG: Impaired Fasting Glucose

years. Although getting old increases the risk of IFG [27], and it was likely participants who felt a certain risk of an unhealthy state who came for the screening, these figures

are worrying. Indeed, in Burkina Faso, the latest 2021 STEPS survey showed 89.0% of participants had never had their blood glucose level measured. Community screening

can therefore be used in such settings to identify people at risk and people living with impaired fasting glucose who are unaware of their condition.

We acknowledge that using the data collection site as a proxy for socio-professional risk profiles is a limitation of this study. This approach was chosen due to significant missing data in the self-reported occupation variables. While individuals tested at the market may include transient visitors from other professional backgrounds, the site-specific prevalence remains a robust indicator of the ecological risk environment. The IFG proportion disparity, ranging from 2.4% at the police academy to 28.3% at the central market, highlights that certain urban hubs in Ouagadougou act as ‘hotspots’ for impaired fasting glucose. These findings suggest that screening strategies should be tailored to specific urban settings where high-risk populations congregate, even if individual occupational status remains heterogeneous. Typical lifestyle due to the socio-professional environment might be a factor influencing glycemia [13,28].

array

Indeed, several studies have shown that health outcomes may be impacted by types of food and restaurants available in our environment and the food choices we make due to our daily activities [29,30]. In addition, socio-economic inequalities expose women to the main risk factors for diabetes, such as poor diet, physical inactivity, smoking, and harmful alcohol consumption. This poor lifestyle may be responsible for the high prevalence of obesity among women, one of the main risk factors for diabetes [17,18,31].

Participants from the university, mostly students, have a youthful lifestyle, eat fast food and occasionally do sports. Thus, IFG represented 3.9% of this group. It represented 19% among women with generalised obesity, 28% among women from the market’s site. Participants from the market’s site were mainly self-employed women working at the market, making sales for a living. This market is located in the heart of downtown and is the biggest. Most of them go there in the morning and return home only in the evening, due to the distance. As a result, their breakfasts and lunches are bought at the market (restaurants or food vendors nearby or have them delivered by restaurants around). Indeed, 298 (84%) declared to eat outside. Market participants were very much inclined to eat out (88%), which means no real control over their carbohydrate consumption. Due to their professional activities of selling in small shops, they likely do less sport. In contrast, participants from the police academy were more likely than the other groups to take part in sports on a regular basis, and they had the lowest proportion of IFG in their group.

The proportion of participants from nursing school who presented IFG was moderate. This contrasts with the fact

that nurses and healthcare professionals, because of their medical knowledge and educational training, would be less likely to be at high risk of diabetes [32]. However, a study among health professionals in Ouagadougou showed a paradox with the low consumption level of fruits (12% daily) and vegetables (22% daily) among health professionals, coupled with a low level of knowledge of the functions of fruits and vegetables [33]. Moreover, this category of students is mainly selected by an examination from the civil service office, and they are students who are beginning to have a more stable monthly income. In addition, the design with data collection through a mass campaign may explain some of these results.

The risk for developing diabetes is often associated with overweight, generalised obesity, and abdominal obesity [34]. In this survey, IFG represented 16% among women with abdominal obesity and 12% and 19%, respectively, among overweight and obese women. Abdominal obesity significantly increased the risk of diabetes among women. It underscores that central adiposity might be a primary driver of metabolic dysregulation among women in Ouagadougou. Waist circumference is a factor frequently associated with diabetes in many settings [26,35–38]. The national STEPS data (2013 – 2021) indicate a broad increase in abdominal obesity prevalence in women; our findings pinpoint specific urban vulnerabilities [6,7].

The increase between 2013 and 2021 is probably due to the habits of communities that may have changed with urbanisation and modernisation. The high prevalence of abdominal obesity compared to generalized obesity suggests a thin-fat phenotype often observed in populations undergoing rapid nutrition transitions. This is likely exacerbated by the fact that 84.4% of our participants consume meals at their place of employment, where access to nutrient-dense food may often be limited in favour of high glycemic, energy-dense street foods. This suggests that health education models should focus on workplace-based environmental dietary interventions.

It should also be noted that in our context, the high proportions of overweight and obese women could be explained by socio-cultural motivations. In many sub-Saharan countries, being overweight is considered a sign of beauty and well-being for women [39]. The socio-professional environment could therefore contribute to a progressive leverage effect on diabetes risk factors. Being able to tackle habits among women, taking into account their socio-professional environment, may contribute to controlling the diabetes epidemic at the population level [40].

Limitations of the study

The findings of this study should be interpreted in light of several limitations. First, it was a cross-sectional design, which precludes any causal inference between the socio-professional environment and the onset of the IFG.

Table 2. Univariate and multivariate analyses of factors associated with impaired fasting glucose in women

	Univariate			Multivariate		
	cOR	95% CI	p	aOR	95% CI	p
Data collection sites			< 0.001			
Police academy	1			1		
Nursing school	3.40	0.43-26.41	0.24	3.21	0.41-25.12	0.26
Biggest market of the city	15.81	2.01-124.35	< 0.01	10.77	1.33-86.92	0.02
Private university	1.61	0.14-18.66	0.69	1.53	0.13-17.71	0.77
Age (years)			< 0.001			
<35	1					
35-45	5.69	2.44-13.25	< 0.001			
45-55	13.76	4.16-45.49	< 0.001			
>55	3.56	0.71-17.82	0.12			
Family history of diabetes^a			0.29			
No previous history	1					
1st degree family history ^b	1.91	0.79-4.58	0.14			
2nd degree family history ^c	1.53	0.61-3.81	0.35			
30 minutes of daily physical activity			0.65			
Yes	0.84	0.41-1.73				
No	1					
Daily consumption of fruit and vegetables						
Not every day	1					
Every day	1.67	0.74-3.77	0.21			
Prescription of anti-HTA						
Yes	2.81	0.73-10.75	0.12			
No	1					
History of hyperglycemia						
Yes	2.63	0.52-13.16	0.23			
No	1					
Waist circumference						
No abdominal obesity ^d	1					
Presence of abdominal obesity ^e	4.01	1.77-9.08	< 0.01	2.59	1.08-6.20	0.03
BMI (kg/m²)			0.01			
Normal ^f	1					
Overweight ^g	1.83	0.78-4.25	0.15			
Generalized Obesity ^h	3.33	1.43-7.74	< 0.01			
Marital status			0.05			
Married	2.25	1.10-4.60	0.02			
Single	1					
Widowed	4.47	0.43-45.88	0.20			
Divorced	-	-	-			
Means of transportation			0.89			
Motorcycle	1.69	0.21-13.28	0.47			
Bicycle	1.57	0.13-19.12	0.72			
Pedestrian	2.30	0.23-22.59	0.61			
Car	1					
Type of physical activity			0.56			
Walk	0.83	0.28-2.45	0.73			
Work	0.75	0.25-2.22	0.61			
Leisure	0.20	0.02-1.86	0.16			
None	1					
Lunch location						
At home	1					
Out of the house	0.60	0.26-1.41	0.25			
Contraceptive						
Yes	0.95	0.44-2.07	0.90			
No	1					

^aPast history; ^b1st degree: close relatives, i.e. father, mother, children, sister, brother; ^c2nd degree: distant relatives, i.e. grandparents, aunts, uncles, cousins; ^dNo abdominal obesity: Waist circumference < 80 cm for women; ^ePresence of abdominal obesity: waist circumference ≥ 80 cm for women and ≥ 94 cm for men; ^fNormal: BMI between 18-25 kg/m²; ^gOverweight: BMI between 25-30 kg/m²; ^hGeneralized obesity: BMI ≥ 30 kg/m²

Second, the fact that data were collected at fixed sites during a mass screening campaign introduces a potential for self-selection bias; individuals who perceive themselves to be at higher risk may have been more likely to volunteer for screening than those who perceived their health as normal.

Consequently, the observed IFG prevalence of 10.1% may be an overestimation of the true prevalence among the general female population in Ouagadougou. Furthermore, blood glucose was measured once and could not be repeated, as required for the diagnosis of diabetes mellitus in the standards of excellence [41,42], and the capillary blood glucose was measured instead of plasma glucose.

The measurement of most exposures was based on participant declarations. We also acknowledge that some well-known metabolic risk factors for diabetes mellitus were not included in the study, such as lipids, history of fetal macrosomia, smoking, and alcohol intake. This could lead to information bias, even if these risk factors are rare among women in our setting. Despite these constraints, the study provides critical insights into the metabolic health of women within specific urban professional clusters that are often overlooked in national surveys.

Conclusions

A market setting where women mostly have activities related to trade business or entrepreneurship is associated with a higher prevalence of impaired fasting glucose in women. These findings highlight the importance of targeting such urban hubs for screening and prevention programs. Further studies among women working in such settings with this type of socio-professional lifestyle could help to improve the performance of IFG prevention and control programs.

What is already known about this topic

- In a low-income country, most of the population has never been tested for blood glucose
- In Burkina Faso in national study in 2021 showed that 79% of the population has never been tested for blood glucose
- Diabetes mellitus is a public health problem that seriously affects women's lives. It increases, for instance, the risk of heart disease by fourfold in women and twofold in men

What This Study Adds

- Abdominal obesity (aOR=2.59; 95% CI: 0.8-6.20), being screened in the site of the market (aOR=10.77; 95% CI: 1.33-86.92) significantly increased the risk of IFG in women.
- A market setting in a West African urban environment, where women mostly have activities related to trade business or entrepreneurship, is associated with IFG in women.
- Community screening may be a useful strategy to identify people living with IFG who are unaware of their condition in such settings.

Conflict of Interest

The authors of this work declare no competing interests.

Funding

The authors did not receive any specific funding for this work.

Acknowledgments

We are thankful to the women who participated in the study.

Authors' contributions

B.C.P., D.L.D. and S.T., contributed equally to this work and share the first authorship. B.C.P., D.L.D. and S.T., designed the study and analyzed the data. B.C.P., D.L.D., S.T., A.B.I.O., T.T.E.D. and O.G. interpreted the data. B.C.P., S.T. and D.L.D. wrote the first draft. B.C.P., D.L.D., S.T., A.B.I.O., T.T.E.D. and O.G. critically reviewed the manuscript. All the authors have read and approved the final version of the article.

References

- [1] Centers for Disease Control and Prevention (CDC). Diabetes and Women [Internet]. Atlanta (GA): Centers for Disease Control and Prevention; 2024 May 15 [cited 2026 Mar 12]. Available from:https://www.cdc.gov/diabetes/risk-factors/diabetes-and-women-1.html?CDC_AAref_Val=https://www.cdc.gov/diabetes/library/features/diabetes-and-women.html
- [2] Magliano DJ, Boyko EJ, IDF Diabetes Atlas 10th edition scientific Committee. Global picture. In: IDF DIABETES ATLAS [Internet]. 10th ed. Brussels: International Diabetes Federation; 2021 [cited 2026 Mar 12]. Available from:<https://www.ncbi.nlm.nih.gov/books/NBK581940/>
- [3] Saeedi P, Petersohn I, Salpea P, Malanda B, Karuranga S, Unwin N, Colagiuri S, Guariguata L, Motala AA, Ogurtsova K, Shaw JE, Bright D, Williams R. Global and regional diabetes prevalence estimates for 2019 and projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th ed. *Diabetes Res Clin Pract*[Internet]. 2019 Nov[2026 Mar 12];157:107843.doi:10.1016/j.diabres.2019.107843
- [4] World Health Organization. Global report on diabetes [Internet]. Geneva (Switzerland): World Health Organization; 2016 Apr 21 [cited 2026 Mar 12]. 86 p. Available from:<https://www.who.int/publications/item/9789241565257>
- [5] Millogo GRC, Yaméogo C, Samandoulougou A, Yaméogo NV, Kologo KJ, Toguyeni JY, Zabsonré P. Diabète en milieu urbain de Ouagadougou au Burkina Faso: profil épidémiologique et niveau de perception de la population adulte [Diabetes in the urban environment of Ouagadougou in Burkina Faso: epidemiological profile and level of perception of the adult population]. *Pan Afr Med J*[Internet]. 2015 Feb 17[cited 2026 Mar 12];20:146.doi:10.11604/pamj.2015.20.146.3249
- [6] Ministère de la Santé, Burkina Faso. Rapport de l'enquête nationale sur la prévalence des principaux facteurs de risque communs de maladies non transmissibles au Burkina Faso [Report of the national survey on the prevalence of the main common risk factors for non-communicable diseases in Burkina Faso] [Internet]. Ouagadougou (Burkina Faso):

- Ministère de la Santé, Burkina Faso; 2014 Jun [cited 2026 Mar 12]. French
- [7] Ministère de la Santé et de l'Hygiène Publique, Burkina Faso. Draft: Rapport de la deuxième enquête nationale sur la prévalence des principaux facteurs de risque communs de maladies non transmissibles au Burkina Faso [Report of the second national survey on the prevalence of the main common risk factors for non-communicable diseases in Burkina Faso] [Draft Report]. Ouagadougou (Burkina Faso): Ministère de la Santé, Burkina Faso; 2022 Sep [cited 2026 Mar 12]. French
- [8] Gotter A, Bailey D. Diabetes in Women: Symptoms, Risks, and More [Internet]. San Francisco (CA): Healthline; 2017 [cited 2026 Mar 12]. Available from:<https://www.healthline.com/health/diabetes/symptoms-in-women>
- [9] Centers for Disease Control and Prevention (CDC). Diabetes Risk Factors [Internet]. Atlanta (GA): CDC; 2024 May 15 [cited 2026 Mar 12]. Available from:<https://www.cdc.gov/diabetes/risk-factors/index.html>
- [10] Knutsson A, Kempe A. Shift work and diabetes – A systematic review. *Chronobiol Int*. 2014 Dec;31(10):1146–51.[doi:10.3109/07420528.2014.957308](https://doi.org/10.3109/07420528.2014.957308)
- [11] Kroenke CH, Spiegelman D, Manson J, Schernhammer ES, Colditz GA, Kawachi I. Work Characteristics and Incidence of Type 2 Diabetes in Women. *Am J Epidemiol*[Internet]. 2007 Feb 1 [cited 2026 Mar 12];165(2):175–83.[doi:10.1093/aje/kwj355](https://doi.org/10.1093/aje/kwj355)
- [12] Van Uffelen JGZ, Wong J, Chau JY, van der Ploeg HP, Riphagen I, Gilson ND, Burton NW, Healy GN, Thorp AA, Clark BK, Gardiner PA, Dunstan DW, Bauman A, Owen N, Brown WJ. Occupational Sitting and Health Risks. *Am J Prev Med*. 2010 Oct;39(4):379–88.[doi:10.1016/j.amepre.2010.05.024](https://doi.org/10.1016/j.amepre.2010.05.024)
- [13] Shockey TM, Tsai RJ, Cho P. Prevalence of Diagnosed Diabetes Among Employed US Adults by Demographic Characteristics and Occupation, 36 States, 2014 to 2018. *J Occup Environ Med* [Internet]. 2021 Apr [cited 2026 Mar 12];63(4):302–10.[doi:10.1097/JOM.0000000000002117](https://doi.org/10.1097/JOM.0000000000002117)
- [14] Agardh E, Allebeck P, Hallqvist J, Moradi T, Sidorchuk A. Type 2 diabetes incidence and socio-economic position: a systematic review and meta-analysis. *Int J Epidemiol*[Internet]. 2011 Jun 1;40(3):804–18.[doi:10.1093/ije/dyr029](https://doi.org/10.1093/ije/dyr029)
- [15] Obirikorang C, Osakunor DNM, Anto EO, Amponsah SO, Adarkwa OK. Obesity and Cardio-Metabolic Risk Factors in an Urban and Rural Population in the Ashanti Region-Ghana: A Comparative Cross-Sectional Study. *PLoS ONE* [Internet]. 2015 Jun 5 [cited 2026 Mar 12];10(6):e0129494.[doi:10.1371/journal.pone.0129494](https://doi.org/10.1371/journal.pone.0129494)
- [16] Amoah AGB. Obesity in adult residents of Accra, Ghana. *Ethn Dis*. 2003;13(2 Suppl 2):S97-101. Available from:[urlhttps://www.jstor.org/stable/48666389](https://www.jstor.org/stable/48666389)
- [17] Tramunt B, Smati S, Grandgeorge N, Lenfant F, Arnal JF, Montagner A, Gourdy P. Sex differences in metabolic regulation and diabetes susceptibility. *Diabetologia*[Internet]. 2020 Mar [cited 2026 Mar 12];63(3):453–61.[doi:10.1007/s00125-019-05040-3](https://doi.org/10.1007/s00125-019-05040-3)
- [18] Kautzky-Willer A, Leutner M, Harreiter J. Sex differences in type 2 diabetes. *Diabetologia*[Internet]. 2023 Jun [cited 2026 Mar 12];66(6):986–1002.[doi:10.1007/s00125-023-05891-x](https://doi.org/10.1007/s00125-023-05891-x)
- [19] Diop SN, Djrolo F, Traoré Sidibé A, Baldé NM, Monabeka HG, Epaka ME, Drabo YJ, Abodo JR, Kasiam JB, Mbaye NM. Consensus pour la prise en charge de l'hyperglycémie dans le diabète de type 2 en Afrique subsaharienne. Rédigé par un groupe d'experts africains du diabète [Consensus for the management of hyperglycemia in type 2 diabetes in sub-Saharan Africa. Written by a group of African experts on diabetes]. *Médecine des Maladies Métaboliques*. 2019 Mar;13(2):210–6.[doi:10.1016/S1957-2557\(19\)30057-4](https://doi.org/10.1016/S1957-2557(19)30057-4)
- [20] Nemi KD, Djalogue L, Djagadou KA, Tchamdja T, Tsevi YM, Balaka A. Les modes de révélation du diabète sucré au CHU Sylvanus Olympio de Lomé [Modes of presentation of diabetes mellitus at the Sylvanus Olympio University Hospital in Lomé]. *Pan Afr Med J*[Internet]. 2019 Jan 18 [cited 2026 Mar 12];34:99. Available from:<https://www.ajol.info/index.php/pamj/article/view/210372>
- [21] The Lancet Diabetes Endocrinology. Undiagnosed type 2 diabetes: an invisible risk factor. *Lancet Diabetes Endocrinol* [Internet]. 2024 Apr [cited 2026 Mar 12];12(4):215.[doi:10.1016/S2213-8587\(24\)00072-X](https://doi.org/10.1016/S2213-8587(24)00072-X)
- [22] Schmidt MI, Bracco PA, Yudkin JS, Bensenor IM, Griep RH, Barreto SM, Castilhos CD, Duncan BB. Intermediate hyperglycaemia to predict progression to type 2 diabetes (ELSA-Brasil): an occupational cohort study in Brazil. *Lancet Diabetes Endocrinol* [Internet]. 2019 Apr [cited 2026 Mar 12];7(4):267–77.[doi:10.1016/S2213-8587\(19\)30058-0](https://doi.org/10.1016/S2213-8587(19)30058-0)
- [23] Institut National de la Statistique et de la Démographie, Burkina Faso. Cinquième Recensement Général de la Population et de l'Habitation du Burkina Faso [Fifth General Census of Population and Housing of Burkina Faso]. Ouagadougou (Burkina Faso): INSD Burkina Faso; 2022 [cited 2026 Mar 12]. French
- [24] Institut National de la Statistique et de la Démographie du Burkina Faso (INSD). Monographie de Ouagadougou. Cinquième recensement général de la population et de l'habitat 2019 [Monograph of Ouagadougou. Fifth general census of population and housing 2019] [Internet]. Ouagadougou (Burkina Faso): INSD Burkina Faso; 2019 [cited 2026 Mar 12]. Available from:<https://www.insd.bf/>
- [25] Traoré S, Dahourou DL, Paré BC, Sagna Y, Zemba D, Somé DP, Ouédraogo NCJ, Millogo KR, Séré L, Rouamba T, Tiéno H, Guira O. Prevalence of undiagnosed diabetes mellitus and its associated factors in urban Burkina Faso. *J Public Health Afr*[Internet]. 2024 Sep 16 [cited 2026 Mar 12];15(1).[doi:10.4102/jphia.v15i1.497](https://doi.org/10.4102/jphia.v15i1.497)
- [26] Traoré S, Paré BC, Dabourou DL, Guira O, Sagna Y, Kamouni JP, Zoungrana L, Bognounou R, Tiéno H, Drabo YJ. Performance of the Finnish Diabetes Risk Score (FINDRISC) in the Identification of Dysglycemia in an Urban Population in Ouagadougou (Burkina Faso). *OJIM*[Internet]. 2021 [cited 2026 Mar 12];11(02):39–54.[doi:10.4236/ojim.2021.112003](https://doi.org/10.4236/ojim.2021.112003)

- [27] Yan Z, Cai M, Han X, Chen Q, Lu H. The Interaction Between Age and Risk Factors for Diabetes and Prediabetes: A Community-Based Cross-Sectional Study. *Diabetes Metab Syndr Obes* [Internet]. 2023 Jan 11 [cited 2026 Mar 12];16:85–93.doi:10.2147/DMSO.S390857
- [28] Carlsson S, Andersson T, Talbäck M, Feychting M. Incidence and prevalence of type 2 diabetes by occupation: results from all Swedish employees. *Diabetologia*. 2020 Jan;63(1):95–103. doi:10.1007/s00125-019-04997-5
- [29] Morland KB, Evenson KR. Obesity prevalence and the local food environment. *Health Place* [Internet]. 2009 Jun [cited 2026 Mar 12];15(2):491–5.doi:10.1016/j.healthplace.2008.09.004
- [30] Jabs J, Devine CM. Time scarcity and food choices: An overview. *Appetite* [Internet]. 2006 Sep [cited 2026 Mar 12];47(2):196–204. doi:10.1016/j.appet.2006.02.014
- [31] Kautzky-Willer A, Leutner M, Abrahamian H, Frühwald L, Hoppichler F, Lechleitner M, Harreiter J. Geschlechtsspezifische Aspekte bei Prädiabetes und Diabetes mellitus – klinische Empfehlungen (Update 2023) [Sex-specific aspects of prediabetes and diabetes mellitus – clinical recommendations (Update 2023)]. *Wien Klin Wochenschr* [Internet]. 2023 Jan [cited 2026 Mar 12];135(S1):275–85.doi:10.1007/s00508-023-02185-5
- [32] Huang HL, Pan CC, Wang SM, Kung PT, Chou WY, Tsai WC. The incidence risk of type 2 diabetes mellitus in female nurses: a nationwide matched cohort study. *BMC Public Health*[Internet]. 2016 Dec[cited 2026 Mar 12];16(1):443.doi:10.1186/s12889-016-3113-y
- [33] Kabore YLB, Jean T, Aristide RB, Anyovi F, Souleymane K. Factors associated with irregular consumption of fruits and vegetables among health professionals in Ouagadougou, Burkina Faso. *ISABB J Health Environ Sci* [Internet. 2020 Jun 30[cited 2026 Mar 12];7(1):1–10.doi:10.5897/ISAAB-JHE2019.0056
- [34] Steyn NP, Mann J, Bennett PH, Temple N, Zimmet P, Tuomilehto J, Lindström J, Louheranta A. Diet, nutrition and the prevention of type 2 diabetes. *Public Health Nutr* [Internet]. 2004 Feb [cited 2026 Mar 12];7(1a):147–65.doi:10.1079/PHN2003586
- [35] Anioke IC, Ezedigboh AN, Dozie-Nwakile OC, Chukwu IJ, Kalu PN. Predictors of poor glycemic control in adult with type 2 diabetes in South-Eastern Nigeria. *Afr Health Sci* [Internet]. 2019 Dec [cited 2026 Mar 12];19(4):2819–28.doi:10.4314/ahs.v19i4.3
- [36] Achila OO, Ghebretinsae M, Kidane A, Simon M, Makonen S, Rezene Y. Factors Associated with Poor Glycemic and Lipid Levels in Ambulatory Diabetes Mellitus Type 2 Patients in Asmara, Eritrea: A Cross-Sectional Study. *J Diabetes Res* [Internet]. 2020 Jan 29 [cited 2026 Mar 12];2020:5901569.doi:10.1155/2020/5901569
- [37] Traoré S, Guira O, Zoungrana L, Sagna Y, Bognounou R, Paré CB, Dabourou DL, Séré L, Zemba D, Dembélé LS, Somé PD, Savadogo PPC, Tondé A, Tiéno H, Drabo JY. Factors Associated with Prolonged Poor Glycemic Control in Type 2 Diabetes Mellitus (T2DM) Patients Followed in the Department of Internal Medicine at the Yalgado Ouedraogo Teaching Hospital, Ouagadougou (Burkina Faso). *OJIM*. 2021;11(01):1–26.doi:10.4236/ojim.2021.111001
- [38] Diendere J, Kabore A, Kabore J, Lanou H, Fofana HR, Pare BC, Zeba AN, Meda N. Sex-Specific Prevalence of Metabolic Abnormalities by Trend of Urbanization and Age, Among Adults in Burkina Faso: Analysis Using the National Baseline Data. *CAJPH* [Internet]. 2023 Jul 13 [cited 2026 Mar 12].doi:10.11648/j.cajph.20230903.14
- [39] Correia J, Pataky Z, Golay A. Comprendre l'obésité en Afrique: poids du développement et des représentations [Understanding obesity in Africa: the weight of development and representations]. *Rev Med Suisse* [Internet]. 2014 [cited 2026 Mar 12];10(423):712–6. Available from:https://www.revmed.ch/view/519284/4235229/RMS_423_712.pdf
- [40] Golden SH, Maruthur N, Mathioudakis N, Spanakis E, Rubin D, Zilbermint M, Hill-Briggs F. The Case for Diabetes Population Health Improvement: Evidence-Based Programming for Population Outcomes in Diabetes. *Curr Diab Rep* [Internet]. 2017 Jul [cited 2026 Mar 12];17(7):51.doi:10.1007/s11892-017-0875-2
- [41] Peer N, Steyn K, Lombard C, Lambert EV, Vythilingum B, Levitt NS. Rising Diabetes Prevalence among Urban-Dwelling Black South Africans. *PLoS ONE* [Internet]. 2012 Sep 4 [cited 2026 Mar 12];7(9):e43336.doi:10.1371/journal.pone.0043336
- [42] Darmon P, Bauduceau B, Bordier L, Charbonnel B, Cosson E, Detournay B, Fontaine P, Grimaldi A, Gourdy P, Guerci B, Hanaire H, Penfornis A, Scheen A; Société Francophone du Diabète (SFD). Prise de position de la Société Francophone du Diabète (SFD) sur la prise en charge médicamenteuse de l'hyperglycémie du patient diabétique de type 2 [Position statement of the Francophone Diabetes Society (SFD) on the pharmacological management of hyperglycemia in type 2 diabetic patients]. *Médecine des Maladies Métaboliques* [Internet]. 2017 Oct [cited 2026 Mar 12];11(6):577–93. Available from:https://www.sfdiabete.org/sites/www.sfdiabete.org/files/files/ressources/mmm_2019_ndeg8_prise_de_position_sfd_dt2_tt_v_finale.pdf