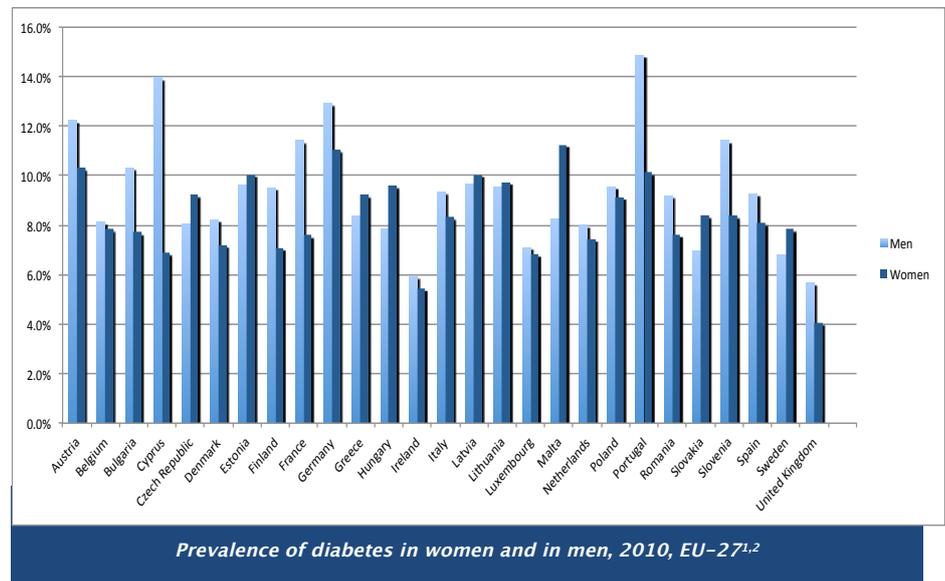


Diabetes: The Basics

Diabetes is a complex metabolic disease characterised by elevated blood glucose (sugar) levels. The increased glucose levels cause serious damage, especially to the eye, kidney, nerves, heart and blood vessels. Insulin is a hormone produced by the pancreas that regulates blood glucose. Type 1 diabetes occurs when the pancreas produces no insulin; its cause and preventative measures are largely unknown. Type 2 diabetes, which is the most common form, occurs when the body does not produce enough insulin and the insulin that is produced does not work properly. It often results from excessive body weight and lack of exercise. Gestational Diabetes Mellitus (GDM) occurs in women during pregnancy.³



Diabetes: Why Gender Matters

Worldwide diabetes is increasing rapidly and in some countries it is reaching epidemic proportions. For women it is the 9th leading cause of death in high-income countries and is becoming one of the most common non-communicable diseases globally.⁴ Prevalence of diabetes is increasing in every country across Europe each year. Women of ethnic minority groups appear to have an increased risk of developing diabetes. For both men and women, the proportion of people with diabetes increases with age. For younger women, diabetes can be a hard burden to carry. Fluctuations in hormone levels occur through the menstrual cycle and these fluctuations can affect blood sugar control. When estrogen levels are naturally high, the body may be resistant to its own insulin or injected insulin. Many women find their blood sugar tends to be high 3-5 days before, during or after their periods.⁵ During pregnancy Diabetes can cause difficulties for both mother and the unborn child. Women with diabetes should prepare for their pregnancy and stay in close contact with their doctor throughout the pregnancy. Their blood sugar levels will have to be monitored much more frequently; and it is very important that medication use is discussed with the treating doctor and advice carefully followed (see box on next page).

Increasing rates of obesity, smoking and sedentary lifestyles in women are putting them at risk of type 2 diabetes. This is compounded by women's greater longevity. The above chart of the prevalence of diabetes illustrates a large variation across EU Member States in the rate of diabetes among men and women. In some Member States, like the Czech Republic, Greece, Hungary, Malta, Slovakia and Sweden, more women have diabetes than men. In other Member States, the gap in diabetes prevalence between men and women is narrowing.

Diabetes and Cardiovascular Disease - the strong interconnection

Diabetes and CVD are strongly interconnected. Diabetes is now regarded as the biggest risk factor for heart disease. People with diabetes are at a greater risk of developing CVD such as heart attack and stroke, if the disease is left undiagnosed or poorly controlled.⁶ Diabetic women have a greater risk of heart disease and at a younger age compared with non-diabetic women.⁷ Although pre-menopausal women without diabetes have a lower risk of heart disease than men, it appears that the protective benefit of female hormones is lost in women with diabetes, regardless of age. Death from heart disease associated with type 2 diabetes is about 50 per cent greater in women than it is in men.⁷ Recognising that diabetes and CVD are closely interconnected, cardiologists of the European Society of Cardiology and diabetologists of the European Association for the Study of Diabetes, joined forces to develop evidence-based guidelines to improve the quality and management in diagnosis and care of both CVD and diabetes.⁸

Diabetes in Women—Link to Cancer

Both Diabetes type 1 and type 2 are linked to increased rates of colorectal, liver and pancreatic cancers. Type 2 diabetes has been connected to increased breast cancer; women 55 years and older with diabetes were 30% more likely to be diagnosed with breast cancer than women without diabetes.⁹

Diabetes and Depression

The rate of depression in people with diabetes is twice that in the general population. Women experience depression about twice as often as men, with higher rates of depression in women with diabetes. Depression affects quality of life, reduces the ability to self-manage diabetes and increases the risk of complications, heart disease and premature mortality. The underlying mechanisms for the increased mortality risk associated with depression are not well understood and need to be studied further. Increased awareness of depression in women with diabetes by health professionals may lead to better management of both conditions and improve outcomes.¹⁰

Diabetes and Osteoporosis

Women with diabetes should pay special attention to their bone health, already an important health consideration for older women. Women with diabetes type 1 have reduced bone mass and an increased risk of fragility fractures, while those with diabetes type 2 are susceptible to low trauma fractures, especially hip fractures.¹¹

Socio-economic Status, Gender, and Diabetes

Throughout Europe, people with low education levels are more likely to develop diabetes and die as a result. Women with a low educational level have higher mortality rates from diabetes than men with similarly low education in Europe.¹² The greater coronary heart disease risk associated with diabetes seen in women may reflect a treatment bias that favours men.⁸

Diabetes and Pregnancy - Gestational Diabetes

Women with type 1 or type 2 diabetes who have uncontrolled or undiagnosed diabetes during pregnancy are at increased risk of complications during pregnancy which can affect mother and child health. Such complications can range from miscarriage to premature or stillbirth to serious birth defects with the heart, brain and spine being particularly affected. Uncontrolled diabetes may make the baby grow excessively large which can cause complications during delivery for mother and child. Preeclampsia, which can lead to stroke or seizures, is also more likely in women with uncontrolled diabetes. In later life, infants of mothers with diabetes are more likely to become obese or overweight.^{13, 14} In 2009 the International Diabetes Federation produced Global Guidelines for pregnancy and diabetes.¹⁵

Gestational diabetes mellitus (GDM), a form of diabetes that develops in pregnancy, increases the risk of perinatal complications for both mother and child. GDM can also lead to high amniotic fluid levels, high infant weight and its associated delivery complications, and disturbed placental development. These women and their infants are at heightened risk of developing type 2 diabetes and cardiovascular disease; half of women with GDM will develop type 2 diabetes within five to ten years after pregnancy.

It is estimated that 2-6% of pregnancies in Europe result in gestational diabetes. The prevalence may be higher in Southern Mediterranean countries and lower in Northern EU countries. The exact number of women with GDM is unknown but studies show that the prevalence of GDM is increasing.¹⁴

Throughout the EU, screening and policy varies because of a lack of consensus on testing, diagnostic procedures, and screening efforts.¹⁴

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References

1. International Diabetes Federation. 2012a. *Diabetes Stats in Excel Tables*. <http://www.idf.org/diabetesatlas/downloads>
2. European Commission. 2012. *Eurostat Statistical Database*. <http://epp.eurostat.ec.europa.eu/portal/>
3. WHO. 2011. Diabetes. <http://www.who.int/mediacentre/factsheets/fs312/en/>
4. The NCD Alliance. 2010. *Non-Communicable Diseases: A Priority for Women's Health and Development*. www.ncdalliance.org/women
5. Diabetes Mall. 2011. *Diabetes and Women*. <http://www.diabetesnet.com/about-diabetes/people-diabetes/women-diabetes>
6. ec.europa.eu/health/reports/docs/health_glance_2012_en.pdf
7. www.bmj.com/content/332/7533/73
8. www.escardio.org/guidelines
9. Pittman, G. 2011. "More breast cancer diagnosed in women with diabetes." *Reuters*. <http://www.reuters.com/article/211/10/20/us-breast-cancer-idUSTRE79J8EH20111020>
10. **Depression and coronary heart disease in women with diabetes**. www.ncbi.nlm.nih.gov/pubmed/12764
11. *Curr Med Res Opin*. 2009 May;25(5):1057-72. doi: 10.1185/03007990902801147210
12. Espelt, A., C Borrell, A.J. Roskam, et al. 2008. "Socioeconomic inequalities in diabetes mellitus across Europe at the beginning of the 21st century." *Diabetologia* 51(11): 1971-9.
13. Centers for Disease Control and Prevention. 2008. *Got diabetes? Thinking about having a baby?* http://www.nbdpn.org/docs/Got_diabetes_508.pdf
14. Buckley, B.S., J. Harreiter, P. Damm, R. Corcoy, A. Chico, D. Simmons, A. Vellinga, & F. Dunne. 2011. "Gestational diabetes mellitus in Europe: prevalence, current screening practice and barriers to screening." *Diabetic Medicine*. www.dali-project.eu/publications.html
15. www.idf.org > ... > Guidelines

STEPS FOR POLICY ACTION

- 1) **Improve existing EU data collection on diabetes.**
Currently data collection at the EU level only examines death rates from diabetes. Data should also be collected on the incidence and prevalence of diabetes, as well as its complications, disaggregating the data by gender and age in order to understand diabetes trends more fully.
- 2) **Examine the interaction between diabetes, gender, age and other chronic diseases.**
As individuals live longer and the prevalence of chronic diseases increases, it is important to understand the role that gender, age, and the interaction with other chronic conditions that lead to multi-morbidity and an increase in the chronic disease burden. This would lead to better prevention and management of diabetes and other chronic diseases.
- 3) **Further study the impact of diabetes on other diseases affecting women in the Chronic Disease Joint Action.**
Diabetes in women has been linked to an increased risk of a range of diseases including cardiovascular disease, certain cancers, depression and osteoporosis. The connection between diabetes and other conditions needs to be examined in more depth to gain a greater understanding of how diabetes impacts women's health across the lifespan. Additionally, medical doctors need to be trained to recognise and manage the complex interaction of chronic diseases.
- 4) **Increase awareness of the connection between pregnancy and diabetes and improve detection and treatment of gestational diabetes.**
Women with pre-existing diabetes should be better informed about the risks of diabetes and pregnancy in order to help them prepare for and manage their condition better during pregnancy and thereby ensure good health for both mother and child.

Gestational diabetes mellitus (GDM) increases the risk of type 2 diabetes in both mother and child. Efforts should be made to increase awareness and prevent the development of GDM. EU-wide screening and diagnostic guidelines need to be developed to improve better detection and treatment as well as the training of health professionals.
- 5) **Examine the effect of social determinants on diabetes for both women and men across the lifespan.**
Diabetes disproportionately affects lower socio-economic groups and older populations with women experiencing a greater disadvantage. In order to tackle health inequalities, it is essential for policymakers and healthcare professionals to understand the interplay between social, ageing and gender determinants to improve diabetes prevention and management across the lifespan and reduce the burden of chronic diseases.
- 6) **Tackle Europe's obesity crisis, by making women as family caregivers more health-literate about the role of diet and exercise in preventing diabetes.**
Type 2 diabetes is largely preventable. About nine out of ten cases could be avoided by taking a few simple steps: keeping weight down, exercising more, eating a healthy diet and not smoking.