World Health Organization
REGIONAL OFFICE FOR **Europe**

GENDER AND NONCOMMUNICABLE DISEASES IN UKRAINE

Analysis of STEPS data

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ABSTRACT

This report is part of the gender and noncommunicable diseases (NCDs) initiative launched by the WHO Regional Office for Europe, which aims to strengthen the response to NCDs through a gender approach. It is part of a series of country profiles and a synthesis report. The country profile of Ukraine presents a gender analysis of the WHO STEPwise survey (STEPS) data to support international commitments to reducing the burden of NCDs with evidence and knowledge exchange. A gender analysis of STEPS NCD risk-factor survey data describes how risk factors for chronic diseases differ between and among men and women by exploring and tracking the direction and magnitude of trends in risk factors and accessing services by sociodemographic variables. Important differences hide even in sex-disaggregated data that need to be unpacked through sociodemographic characteristics, because men and women are not homogenous groups. The report also recognizes gaps in evidence and calls for further analysis of the impact of gender-based inequalities.

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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

This country profile for Ukraine presents an analysis of sex-disaggregated data linked with other variables, such as education and income, gathered through the WHO STEPwise (STEPS) survey as part of the WHO Regional Office for Europe's gender and noncommunicable diseases (NCDs) initiative to improve the response to NCDs in the Region through a gender approach. It is the first gender analysis of NCD risk factor data for adults in Ukraine and makes an important contribution to, and serves as an evidence base for, international commitments on NCDs in accelerating action towards reducing the NCD burden and ensuring universal health coverage. It also contributes to raising awareness and building capacity among country-based researchers and policy-makers on the rationale for applying a gender analysis to health data.

A gender analysis of STEPS NCD risk-factor survey data describes how risk factors for chronic diseases differ between and among men and women by exploring and tracking the direction and magnitude of trends in risk factors and accessing services. It enables better planning and/or evaluation of gender-responsive health promotion or preventive campaigns and gender-responsive interventions.

The analysis in this country profile examined differences in risk factors and accessing services between men and women overall by age group, geographic location, education, employment and income. Important differences hide even in sex-disaggregated data that need to be unpacked by including sociodemographic characteristics, because men and women are not homogenous groups.

Globally, more than 100 countries have collected data through the STEPS surveys, but this is the first time a more in-depth analysis from a gender perspective has been conducted. The following findings therefore can be used to address specific needs and policy opportunities for Ukraine.

- Significantly higher percentages of men than women in most age groups engage in the behavioural risk factors for NCDs (like tobacco-smoking, alcohol consumption, insufficient levels of physical activity, insufficient intake of fruit and vegetables, adding salt to the diet and frequent consumption of processed foods), and higher percentages of women than men in the oldest age group are found with most of the biological risk factors (overweight and obesity, and raised blood pressure, glucose and cholesterol).
- Over the life-course, prevalence of biological risk factors is higher among women than men in the oldest age group but is often lower among women than men in the youngest age group.
- Prevalence of behavioural risk factors in urban and rural areas varies for men and women, but the prevalence of biological risk factors tends to be higher for women in rural areas.
- Associations between behavioural risk factors and education levels vary for both men and women. Differences in biological risk factors show higher prevalence among low-education women and both low- and medium-education men.
- More employed men and women engage in behavioural risk factors, and higher prevalence in biological risk factors is found among men and women who are unemployed or not in the labour force.

- There is no clear association between income quintile and prevalence of behavioural risk factors for men and women, but low-income women tend to have higher prevalence in biological risk factors.
- A higher percentage of men have not been measured for biological risk factors, and similar percentages of men and women have been given lifestyle advice by a health-care professional despite differences in prevalence of behavioural risk factors.
- No significant differences are found among men and women not measured in rural and urban areas. Fewer men and women with low education have been measured for risk factors than those in the high education level, and education levels vary more for men than women. There is no clear trend in being measured for risk factors and employment status. Fewer low-income men and women have been measured for risk factors, but it varies for men and women in each quintile.
- Improving access to services for women and men may therefore require that additional attention is paid to the following groups: men across the life-course; women and (especially) men with low education; and men and women in the lower income quintiles.
- Studies that specifically examine gender and social norms and gender inequality in these contexts can be used to complement this analysis by identifying driving and constraining factors for men and women in exposure to risk and access to services.

In addressing the areas identified in this report, cost-effective interventions like best-buy and other interventions recommended by WHO should be prioritized and tailored to the country-specific context and gender-related findings to ensure uptake and efficiency. This would greatly contribute to the achievement of universal health coverage and the health-related Sustainable Development Goals.

INTRODUCTION

The WHO Regional Office for Europe launched a gender and noncommunicable diseases (NCDs) initiative in 2019 to improve the response to NCDs in the Region through a gender approach. Gender and rights-based approaches are imperative to accelerate transformative and sustainable progress towards achievement of the United Nations Sustainable Development Goals (SDGs). The strategy on women's health and well-being in the WHO European Region *(1)* and the strategy on the health and well-being of men in the WHO European Region *(2)* strengthen the links between SDGs 3 and 5 in the WHO European Region while providing a comprehensive working framework for improving health and well-being in Europe through gender-responsive approaches.

Commitments by Member States of the WHO European Region to accelerate actions towards reducing NCDs build on the Action Plan for the Prevention and Control of Noncommunicable Diseases in the WHO European Region 2016–2025 *(3)* and high-level meetings, in particular Health Systems Respond to NCDs: Experience in the European Region (Sitges, Spain, 16–18 April 2018) *(4)* and the WHO European High-level Conference on Noncommunicable Diseases: Time to Deliver – Meeting Noncommunicable Disease Targets to Achieve the Sustainable Development Goals in Europe (Ashgabat, Turkmenistan, 9 April 2019) *(5)*.

To support these commitments with evidence and knowledge exchange, country profiles of Armenia, Belarus, Georgia, Kyrgyzstan, the Republic of Moldova, Turkey, Ukraine and Uzbekistan have been created using a gender analysis of data gathered through the WHO STEPwise approach to Surveillance (STEPS) NCD risk-factor survey.

This country profile for Ukraine presents an analysis of sex-disaggregated data linked with other variables, such as education and income, gathered through the STEPS survey. The analysis allows identification of the main gender-based differences and highlights some of the areas that need further gender analysis. Evidence generated within the country profiles in the series is intended to provide an evidence base and rationale for countries to strengthen health systems and whole-of-government responses to prevent, detect, manage and control NCDs, particularly at primary-care levels, through gender-responsive actions (Fig. 1).

Fig. 1. **WHO gender-response assessment scale**
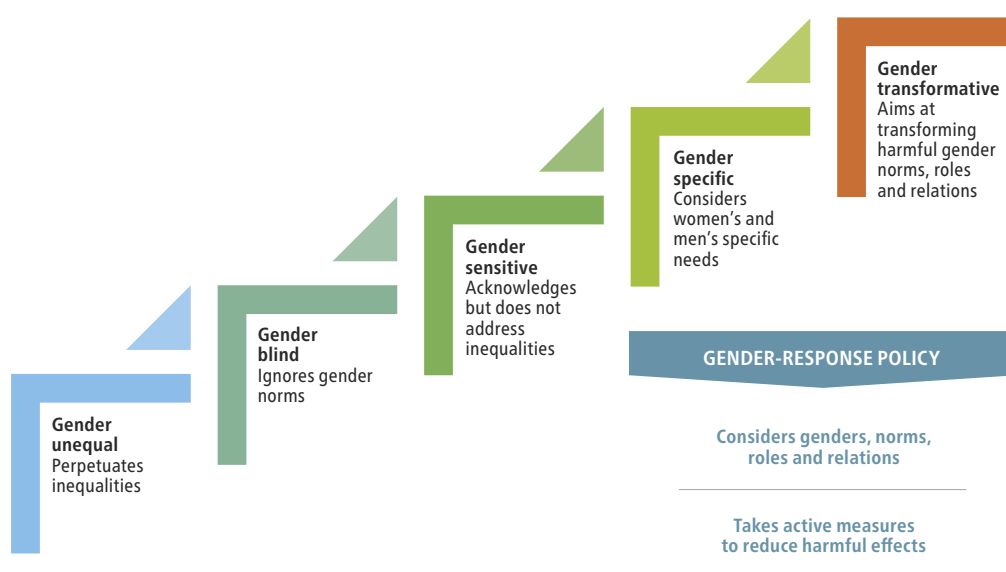
Source: WHO *(6)*.

The analysis follows the key elements identified by the WHO Regional Office for Europe under the gender and NCDs initiative *(7)*. A gender analysis considers socially constructed norms, roles, behaviours and attributes that a given society considers appropriate for women and men and how this implies differential degrees of power between and among women and men. It recognizes that women and men are not homogenous groups and that their health opportunities and risks vary according to social, economic, environmental and cultural influences throughout their lifetime, while also considering how gender intersects with other factors behind social inequalities, such as age, income, education, ethnicity or place of residence.

The STEPS surveys *(8)* gather information on NCD risk factors to help plan and evaluate programmes and interventions by collecting standardized, high-quality risk-factor data to enable comparisons while allowing flexibility. They consist of interviews (STEP 1), physical measurements such as blood pressure, weight and height (STEP 2) and biochemical measurements like blood glucose and cholesterol (STEP 3). An integrated approach is used, allowing an analysis of multiple risk factors simultaneously in a cost-efficient manner. WHO provides countries with a reference methodology for NCD surveillance and technical support for implementation.

A gender analysis of STEPS NCD risk-factor survey data describes how risk factors for chronic diseases differ between and among men and women by exploring and tracking the direction and magnitude of trends in risk factors and how these differ between and among women and men. It enables better planning and evaluation of gender-responsive health promotion and gender-responsive interventions. At the same time, data reveal important differences between men and women in relation to health services access.

The data collection for the STEPS survey in Ukraine was carried out from July to November 2019. A multistage cluster sample design was used to produce nationally representative data for the age range 18–69 years. The overall response rate was 57%, with 4409 adults participating in the survey. The data were weighted for complex survey design, non-response rate and population distribution by age and sex.

The analysis examined differences between and among men and women in risk factors and accessing services. In addition to looking at overall differences between men and women in risk factors, the analysis examined differences in groups of behavioural and biological risk factors. Differences among men and among women were then analysed by age group and other sociodemographic variables for both individual risk factors and groups of risk factors. Overall and within-group differences were also analysed by sociodemographic variables for accessing services. Examining sex-disaggregated data not only for overall differences between men and women but also for differences within these groups across the life-course is necessary, because men and women are not homogenous groups. There are important differences hiding even in sex-disaggregated data that need to be unpacked by including sociodemographic characteristics.

The country profiles in this series are the first steps in mainstreaming gender, which is explained and further elaborated in the WHO manual *Gender mainstreaming for health managers: a practical approach (6)* (Fig. 2).

Fig. 2. Gender mainstreaming steps
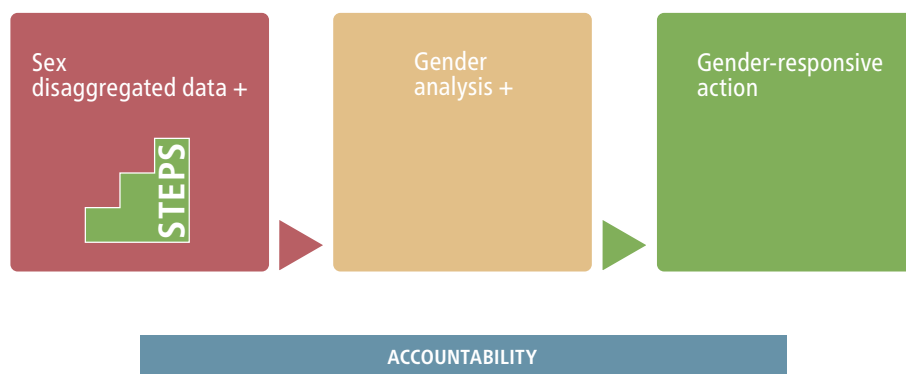
Source: WHO *(6).*

NCDs constitute the main burden of disease for both women and men, but there are important differences

NCDs are the leading cause of death, disease and disability in the WHO European Region, and represent the greatest burden of disease for men and women in Ukraine. NCDs are estimated to account for 91% of all deaths in Ukraine *(9)*, with deaths from the five major NCDs (cardiovascular diseases, diabetes, cancers, chronic respiratory diseases and mental health conditions) making up almost 84% *(10).* According to the WHO STEPwise survey, it is estimated that 33.9% of the adult population smoke tobacco, 29.8% have raised blood pressure, 24.8% are obese, 19.7% use alcohol harmfully, 10.0% are physically inactive and 7.1% have raised blood glucose.

The Ministry of Health of Ukraine, with the support of WHO, has taken steps to reduce the burden of NCDs through strengthening governance and policy, strengthening identification and prevention of NCDs in clinical and community settings, reducing risk behaviours, and strengthening NCD surveillance (WHO STEPS Noncommunicable Disease Risk Factor Study, unpublished data, 2019). A gender approach can further strengthen these efforts, as the prevalence of risk factors that account for NCDs are different between and among men and women and there are important differences in the ways in which men and women access health services.

DIFFERENCES IN BEHAVIOURAL AND BIOLOGICAL RISK FACTORS

For behavioural risk factors, the STEPS data focus specifically on tobacco use, harmful alcohol consumption, unhealthy diet (low fruit and vegetable consumption, diet high in salt and/or processed foods) and insufficient physical activity, and, for biological risk factors, overweight/obesity, raised blood pressure, raised blood glucose and raised cholesterol. Highlighting where the highest differences exist will help to uncover where inequitable gender norms, roles, behaviours and attributes are likely to have the greatest effect on risk factors.

Significant differences between men and women

The prevalence of these risk factors for men and women was examined and tested for significant differences (Fig. 3 and Annex 1, Table A1.1).

Fig. 3. **Prevalence of risk factors across countries with differences between men and women (%)**

BMI: body mass index. * Statistically significant difference.
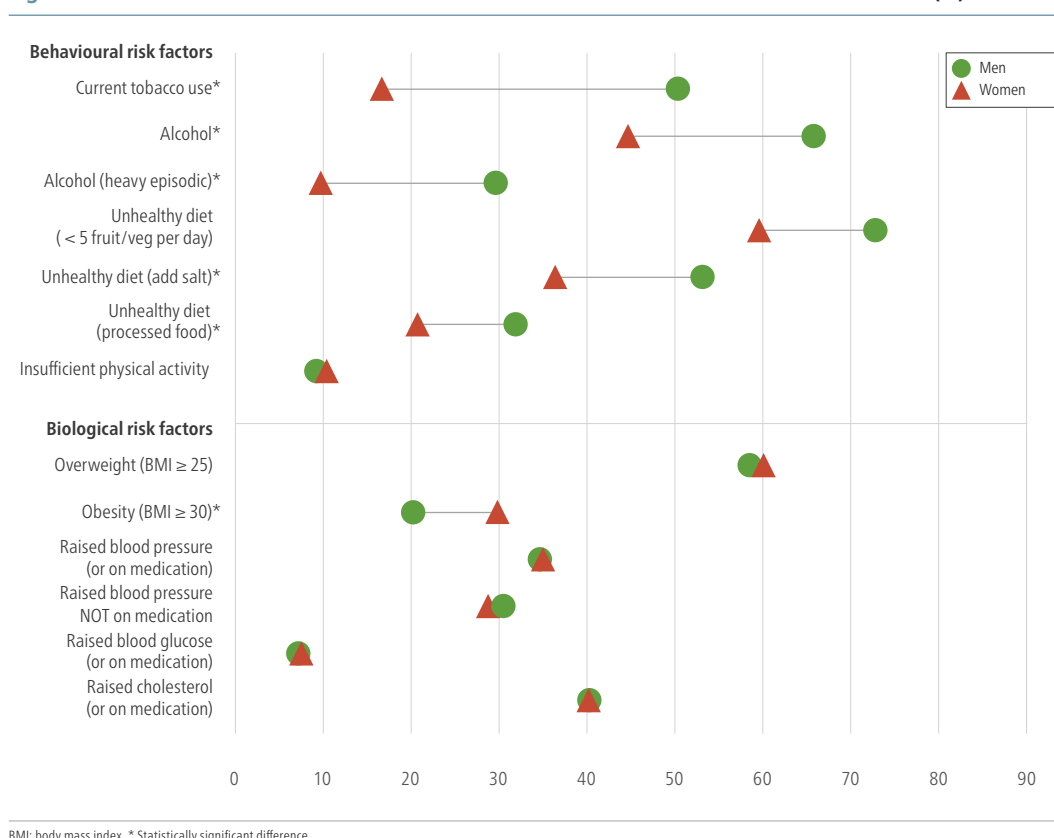
While prevalence among men is significantly higher than for women in nearly all the behavioural risk factors (current tobacco use, alcohol and diet), the same trend is not found for the biological risk factors. Prevalence is significantly higher for women in obesity, and there is no significant difference between men and women in overweight, raised blood pressure, raised blood glucose and raised cholesterol.

Prevalence of three or more risk factors

Differences between men and women in the prevalence of NCD risk factors are also found in those more at risk due to the prevalence of multiple risk factors. In accordance with the STEPS methodology, selected risk factors were used to examine the prevalence of three or more risk factors in the population. These combined risk factors are:

- current daily smokers;
- fewer than five servings of fruit and vegetables per day;
- insufficient physical activity (< 150 minutes of moderate-intensity activity per week, or equivalent);
- overweight (body mass index (BMI) $\geq$ 25 kg/m^2); and
- raised blood pressure (BP) (systolic BP $\geq$ 140 and/or diastolic BP $\geq$ 90 mmHg or currently on medication).

Overall, a significantly higher percentage of men (39.9%) have three or more risk factors compared to women (25.2%). A significantly lower percentage of men (3.9%) than women (10.5%) do not have any risk factors.

In addition to overall differences between men and women in multiple risk factors, prevalence through the life-course is different for men and women. As expected, the percentage of men and women with three or more risk factors is higher in older than in younger age groups. Through the age groups from 18–29 to 45–59, the percentages of both men and women with three or more risk factors rises significantly with each successive group; with the 60–69 age group, however, a significantly higher percentage of women have three or more risk factors than in the 45–59 age group, whereas for men there is no significant difference.

The percentage of men with three or more risk factors is higher than the percentage of women in the 18–29, 30–44 and 45–59 age groups, but the percentage of men does not increase from the 45–59 to 60–69 age group. The percentage of women with three or more risk factors, however, increases significantly through the 60–69 age group. This causes the difference that appears in the 30–44 and 45–59 age groups to lessen in the 60–69 age group, where there is no significant difference between percentages of men and women. While the percentage of men more than triples from the 18–29 age group to the 60–69, from 15.4% to 56.0%, the percentage of women with three or more risk factors is more than six times greater between comparable age groups, from 7.4% to 46.8% (Fig. 4 and Annex 1, Table A1.2).

These combined risk factors, however, do not include all risk factors, such as alcohol consumption or raised cholesterol. Additionally, risk factors have different impacts on NCD morbidity and mortality. For example, the risk associated with smoking is higher at individual level than the risk associated with eating fewer than five servings of fruit and vegetables (11): further analysis therefore is warranted to examine differences in these risk factors **between** men and women as well as **among** men and women.

Prevalence with three or more risk factors by age group (%)
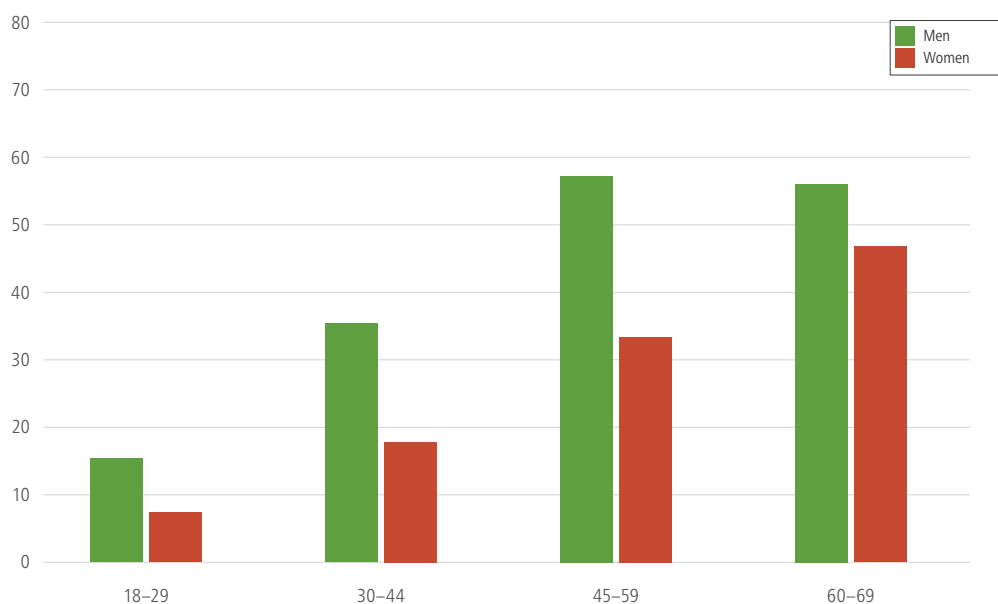
Mortality rates among men and women

Though difficult to calculate, there is probably an influence of mortality rates on prevalence of risk factors in the population when examining differences between men and women through the life-course. The mortality rate for men is much higher than for women and increases in older age groups (Fig. 5 and Annex 1, Table A1.3) *(12)*.

Fig. 5. **Total mortality per 1000**
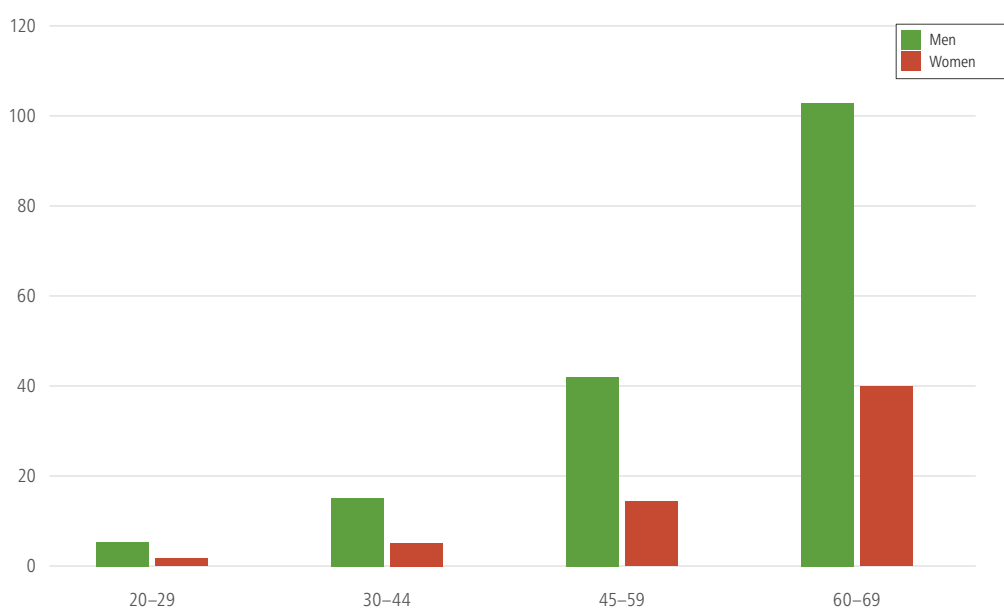
The higher mortality rates for men may account for some of the lessening of the gap observed between men and women with three or more risk factors in the older age groups.

Differences in specific risk factors among men and women between age groups

Not only do men and women experience multiple risk factors differently through the life-course, but their experience with individual risk factors is also different. Examining the differences between men and women in more detail and by age group regarding risk factors reveals further the importance of gender analysis. The difference between age groups for either sex in each behavioural risk factor shows how many more men than women engage in nearly all risk factors across age groups (Fig. 6 and Annex 1, Table A1.4).

Fig. 6. **Prevalence of behavioural risk factors by age group (%)**

> More men than women engage in behavioural risk factors across the life-course
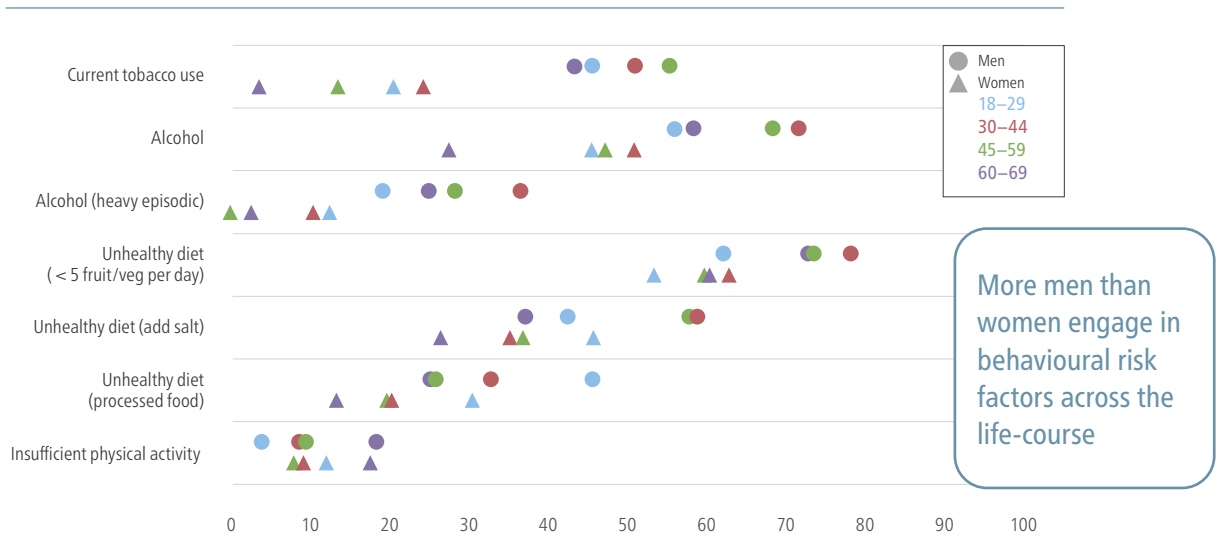
Across risk factors, prevalence among age groups for men and women do not always follow similar distributions. For example, prevalence of added salt is not different between men and women in the 18–29 age group, but while prevalence of this risk factor in this age group is among the lower percentages for men, it is the age group with the highest for women.

The story for biological risk factors and age is quite different. The percentages of men and women with biological risk factors is often higher with each advancing age group (Fig. 7 and Annex 1, Table A1.5). More important is that prevalence for men often starts higher in the youngest age group, but for women is often higher than for men in older age groups.

These data show that prevalence of biological risk factors for women increases with older age groups as much as, if not more than, with men. This applies not only to the population with multiple risk factors, but also to many of the individual risk factors. For example, the prevalence of obesity for women is significantly higher than for men overall. Though prevalence tends to be higher for women than men in all age groups,

Fig. 7. **Prevalence of biological risk factors by age group (%)**
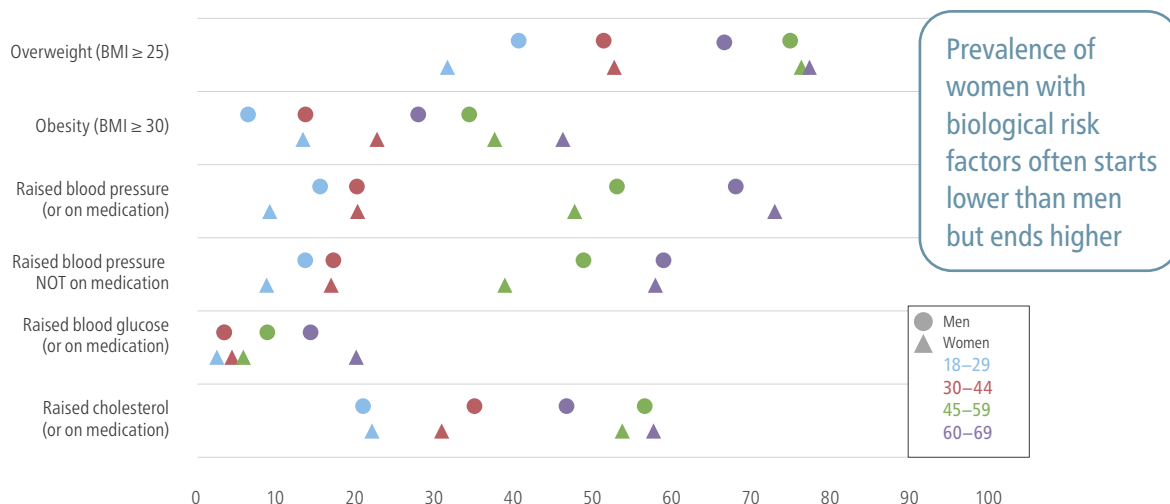
it is only significantly higher in the 60–69 age group. In the 45–59 group, the difference is the smallest among age groups, with women at 37.8% and men at 34.6%. Though not significantly different, prevalence in overweight and raised blood pressure for women is lower than men in the 18–29 age group but higher in the 60–69 group. There is little difference in prevalence of raised cholesterol between men and women in the first three age groups, but the difference is greatest in the 60–69 group, with prevalence higher for women.

While differences between men and women are apparent across the life-course, disaggregating data reveals additional differences among men and among women. Disaggregation by age group reveals specific groups of men and women who are more at risk and differences by sex. Other demographic categorizations, such as geographic location, education, employment status and income, further help identify differences between men and women and differences within these groups.

GEOGRAPHIC LOCATION – URBAN AND RURAL
The geographic location of the population can be used to further examine the differences in risk factors not only between, but also among, men and women. Data on geographic location collected in the STEPS survey have been categorized into urban and rural for the purposes of analysis. While some differences between men and women in urban and rural areas are observed, the differences are not consistent across the risk factors (Fig. 8 and Annex 1, Table A1.6). For example, significant differences in prevalence are observed for women in current tobacco use (11.3% in rural, 20.4% in urban) and alcohol consumption (37.8% in rural, 49.1% in urban), whereas for men there are no significant differences in these risk factors.

No other significant differences by geographic location are observed; however, a general trend is found for men and women that prevalence of most risk factors tends to be higher in urban areas.

Fig. 8. Prevalence of behavioural risk factors by geographic location (%)

The association of geographic location and behavioural risk factors is different for women than for men
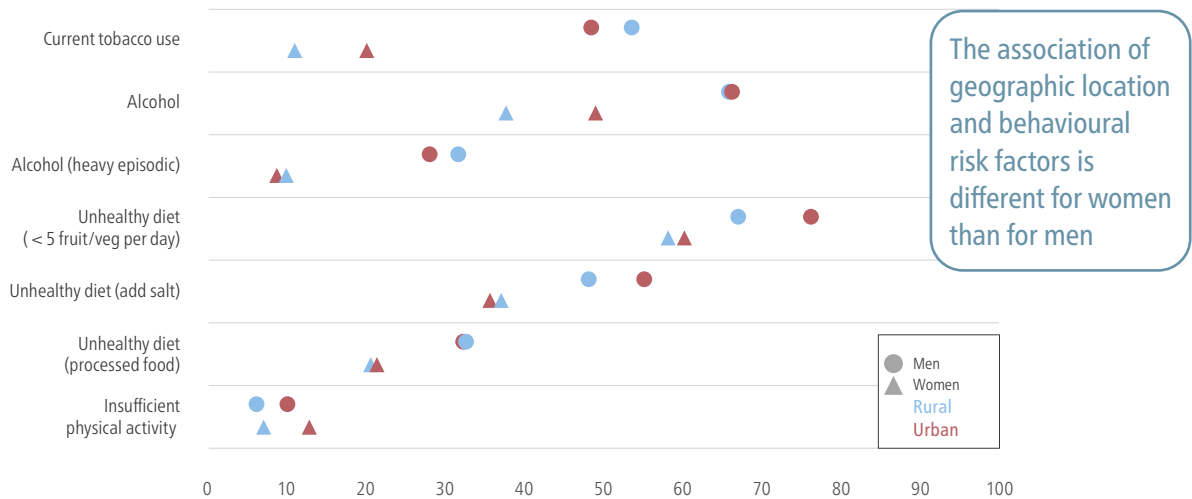
An analysis of biological risk factors by geographic location shows that the associations with risk factors by urban and rural area are also not the same for men and women (Fig. 9 and Annex 1, Table A1.7). Prevalence for women is significantly higher in rural areas than urban for overweight (66.9% in rural, 55.4% in urban), obesity (35.9% in rural, 25.4% in urban) and raised blood pressure (40.9% in rural, 30.9% in urban), but for men there are no significant differences in prevalence of these risk factors. No other significant differences are observed, but a general trend is that prevalence of biological risk factors tends to be higher for women in rural areas than urban, while for men there is no difference by geographic location.

Fig. 9. Prevalence of biological risk factors by geographic location (%)

Prevalence tends to be higher for women in rural areas than urban, but for men there is no difference
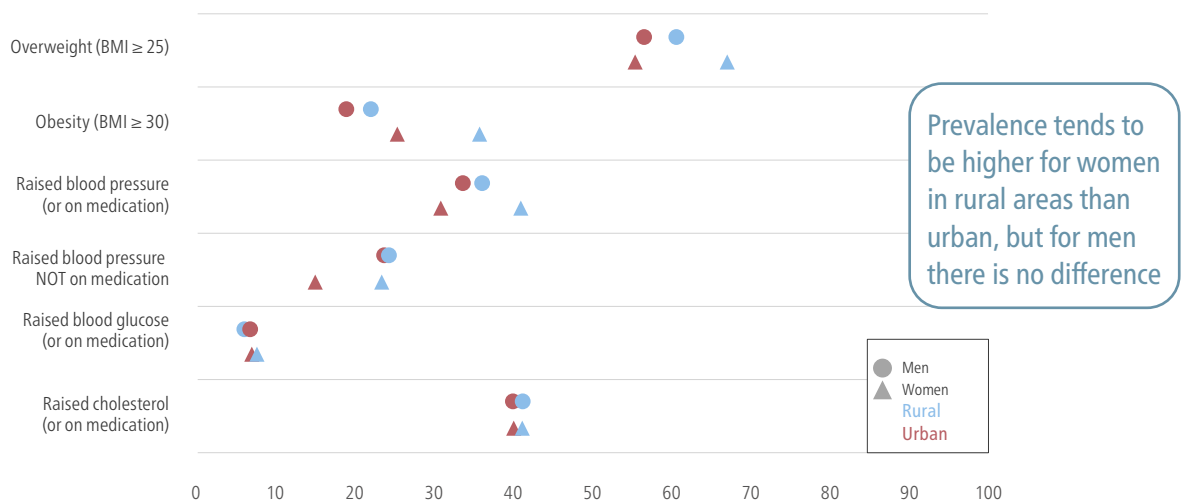
As is seen with disaggregation by age group and geographic location, important differences between men and women are hiding in the aggregated percentages of risk factors for men and women.

EDUCATION LEVELS

The education level of the population can be used to examine further the differences in risk factors not only between men and women, but also within the groups of men and women. Ukraine has extremely high literacy rates (100% for men and women) and high enrolment in primary (90.7% for boys, 92.7% for girls), secondary (85.3% for males, 86.1% for females) and tertiary education (76.8% for males, 88.8% for females) *(13)*.

Data on education level, determined by the highest level of education completed, were collected in the STEPS survey using country-specific categories. The categories have been matched to the levels of the International Standard Classification of Education (ISCED) *(14)* then condensed to reflect the three levels of low, medium and high (Table 1 and 2).

Table 1. STEPS survey categories and ISCED levels

STEPS survey categories	ISCED levels
1 = no formal schooling	ISCED 0 = early childhood education
2 = less than primary school	
3 = primary school completed	ISCED 1 = primary education ISCED 2 = lower-secondary education
4 = secondary school completed	ISCED 3 = upper-secondary education
5 = high school completed	ISCED 4 = post-secondary non-tertiary education
6 = special secondary completed	ISCED 5 = short-cycle tertiary education
7 = college/university completed	ISCED 6 = bachelor's degree or equivalent tertiary education
8 = postgraduate degree	ISCED 7 = master's degree or equivalent tertiary education ISCED 8 = doctoral degree or equivalent tertiary education

Table 2. Education level for analysis

Education level for analysis	STEPS survey categories	ISCED levels
Low level of education	1 = no formal schooling 2 = less than primary school 3 = primary school completed 4 = secondary school completed	ISCED 0–1
Medium level of education	5 = high school completed 6 = special secondary completed	ISCED 4–5
High level of education	7 = college/university completed 8 = postgraduate degree	ISCED 6–8

The prevalence of behavioural risk factors for men and women varies by education level, depending on the risk factor and whether it is men or women in that level (Fig. 10 and Annex 1, Table A1.8). For example,

current tobacco use varies significantly by education level for men, with prevalence significantly higher in the low education level (72.8%) than high (33.3%). For women, however, there is less variance and no significant differences between levels. Though prevalence for men and women in the low education level is higher among some risk factors, prevalence is not necessarily lower in the high education level across risk factors.

Fig. 10. Prevalence of behavioural risk factors by education level (%)

> Behavioural risk factors for both men and women are not necessarily lower in the high education groups
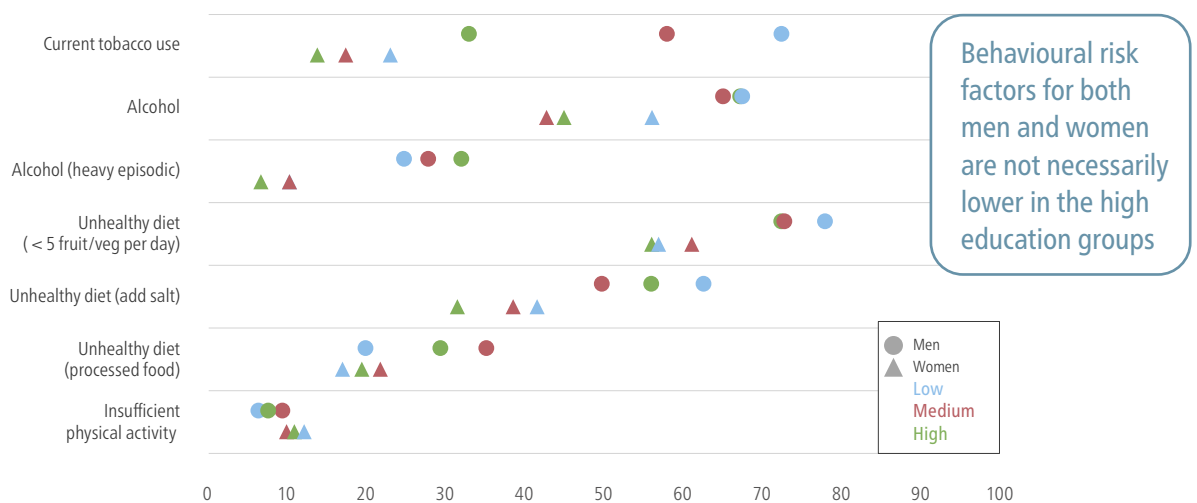
Additional differences in education levels are observed between and among men and women in relation to biological risk factors. Overall, the prevalence of biological risk factors for men and women tends to be lower in the high education level. Higher percentages tend to be found at the low education level for women and the medium and low levels for men (Fig. 11 and Annex 1, Table A1.9).

Fig. 11. Prevalence of biological risk factors by education level (%)

> Prevalence of biological risk factors is highest in the low level of education for women, and the medium and low levels for men
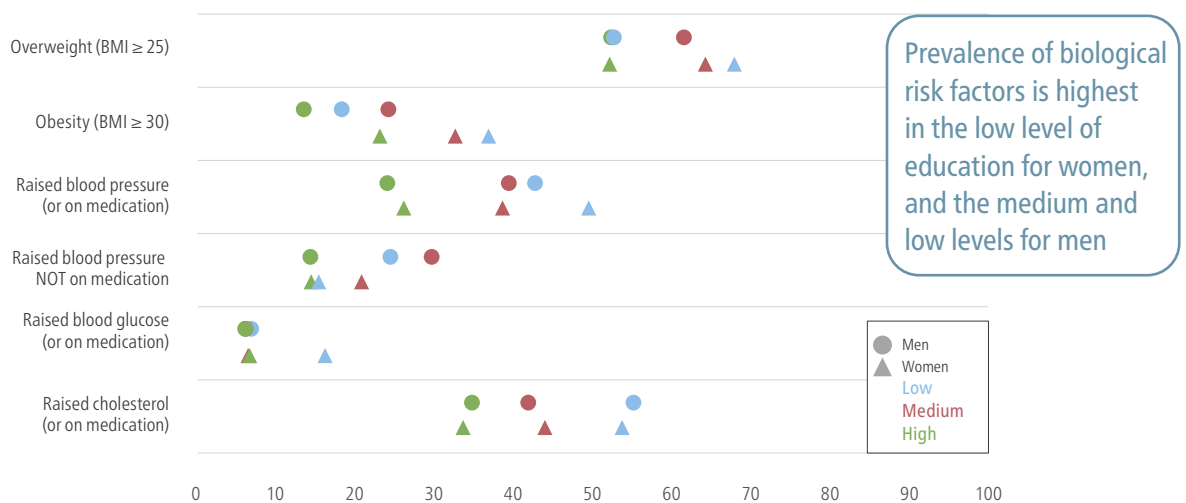
EMPLOYMENT STATUS

Unemployed people represent a particularly vulnerable group, and the impact of unemployment can be different for men and women. Participation in the labour force in Ukraine is 72.9% of men and 60.5% of women. Those not currently employed but seeking work are 10.4% of men and 7.7% of women, though a higher percentage of women are part-time workers (19.6%) than men (11.3%) *(13)*.

Data on employment status were collected in the STEPS survey, and the categories have been condensed for analysis into employed (employee of a state-owned organization, employee of a nongovernmental organization, employee of a private company, self-employed or on parental leave) and unemployed or not in the labour force (non-paid, student, homemaker, retired or unemployed (able or unable to work)). Disaggregating the STEPS survey data by employment levels and sex reveals how the prevalence of behavioural risk factors varies in some groups and not in others (Fig. 12 and Annex 1, Table A1.10).

Fig. 12. **Prevalence of behavioural risk factors by employment status (%)**

More employed men and women tend to engage in behavioural risk factors than those who are unemployed or not in the labour force
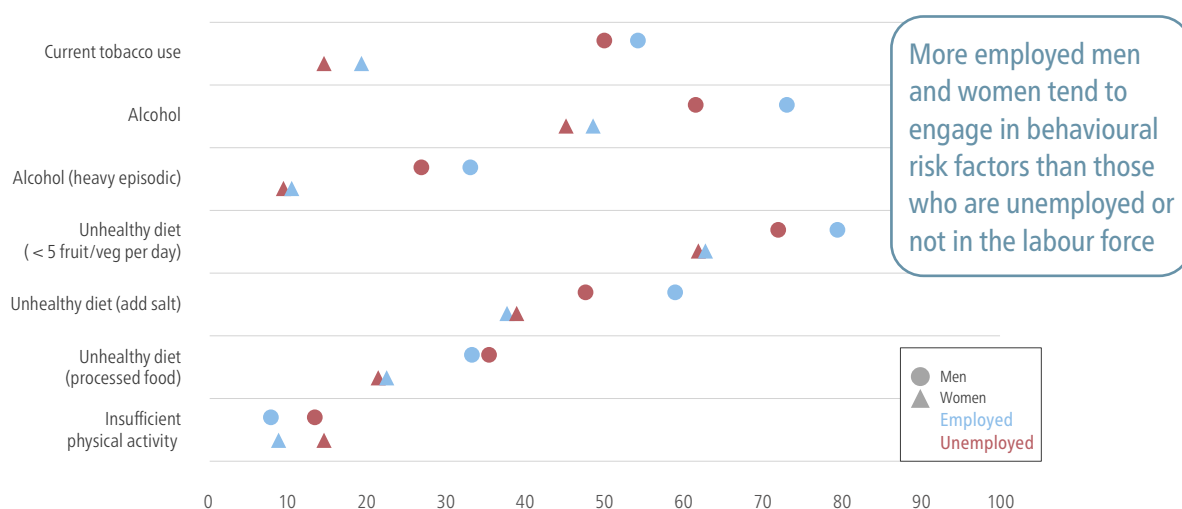
Though no significant gender-based differences are observed between those who are employed and unemployed or not in the labour force, a general trend is that more employed men and women tend to engage in behavioural risk factors.

With biological risk factors and employment status, significant differences are observed in raised blood pressure for both men (29.7% in employed, 46.2% in unemployed or not in the labour force) and women (25.8% in employed, 48.9% in unemployed or not in the labour force) (Fig. 13 and Annex 1, Table A1.11).

More variance is observed between employment groups for women than for men across risk factors, but the prevalence tends to be higher for both men and women who are unemployed or not in the labour force. This is in contrast to the trend in behavioural risk factors, where prevalence tends to be higher among employed men and women.

Fig. 13. Prevalence of biological risk factors by employment status (%)
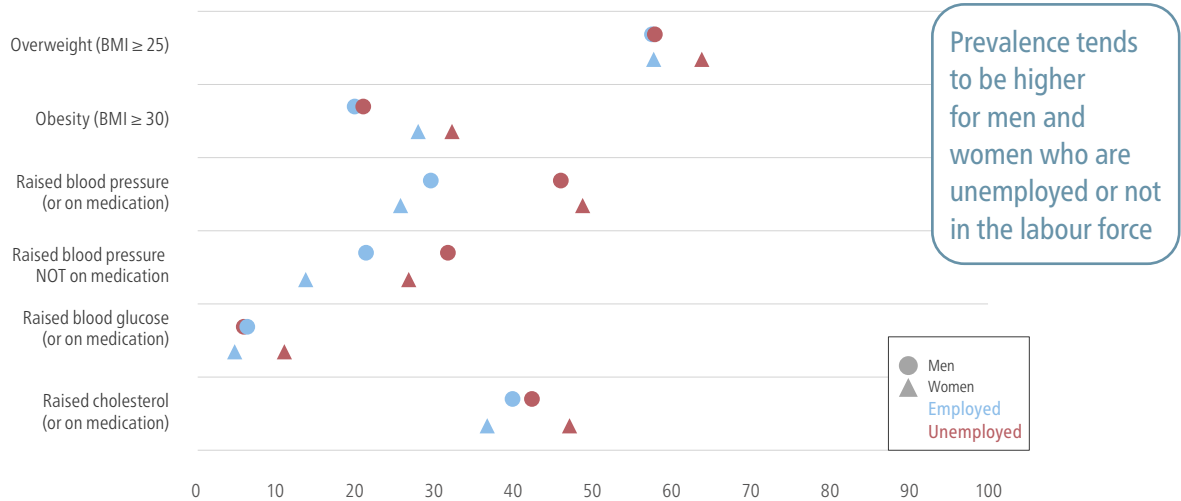
INCOME LEVELS

An analysis by income level can also be used to examine differences among men and women due to differences in lifestyle and access to resources. Based on average household income levels and adjusting for household size, five income quintiles were created for this analysis (Table 3).

Table 3. Income levels for analysis

STEPS income quintiles	Monthly household income (Ukrainian hryvnia)
Q1	< 2 500
Q2	2 501–4 500
Q3	4 501–6 000
Q4	6 001–9 000
Q5	> 9 001

In Ukraine, the estimated average annual earned income per capita for women is approximately 61% of that of men (the equivalent of Int$ 5800 for women and Int$ 9500 for men) *(13).*

Disaggregating the STEPS survey data by income quintiles and sex reveals how the prevalence of behavioural risk factors varies in some groups and not in others (Fig. 14 and Annex 1, Table A1.12).

While many differences in behavioural risk factors by income quintile are not significant, an overall trend is that there is more variance by income quintile among behavioural risk factors for men than for women. There is also no clear association between income quintile and prevalence of risk factor for men or women. While prevalence for men in the second quintile is higher in some risk factors, like alcohol consumption, it is lower in others, such as eating processed foods. The association between behavioural risk factors and income quintiles depends therefore on the risk factor for men and women.

Fig. 14. Prevalence of behavioural risk factors by income level (%)

> Variance by income quintile is higher for men than for women
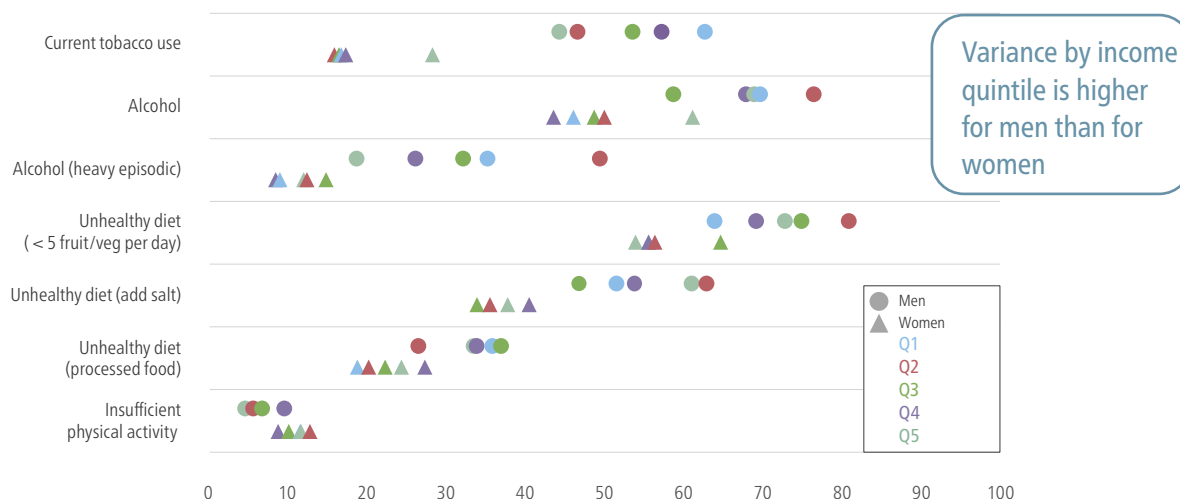
The prevalence of biological risk factors by income quintile and sex also shows limited variance, with no significant differences between men and women beyond what was already known from the more aggregated comparison. The trend for these risk factors, however, is that there is more variance for women by income quintile than for men (Fig. 15 and Annex 1, Table A1.13).

Fig. 15. Prevalence of biological risk factors by income level (%)

> Variance by income quintile is higher for women than for men, and low-income women have higher prevalence
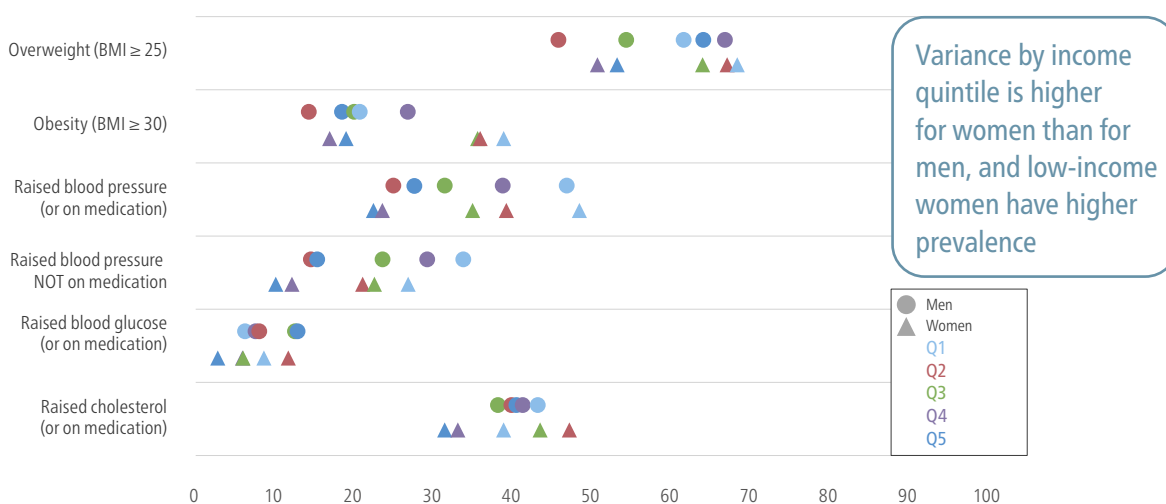
Additionally, a more consistent association between income quintile and prevalence of risk factors is observed among biological risk factors for women, but not for men. Prevalence tends to be lower for women in the higher income quintiles and higher for women in the lower quintiles.

DIFFERENCES IN THE WAY MEN AND WOMEN ACCESS SERVICES

In addition to the differences observed between and among men and women in NCD risk factors, differences are also found between men and women in accessing services for NCDs. A higher percentage of men report never having had their blood pressure, blood glucose and cholesterol levels measured by a health-care professional (Fig. 16 and Annex 1, Table A1.14).

Fig. 16. Percentage not measured for risk factors by a health-care professional
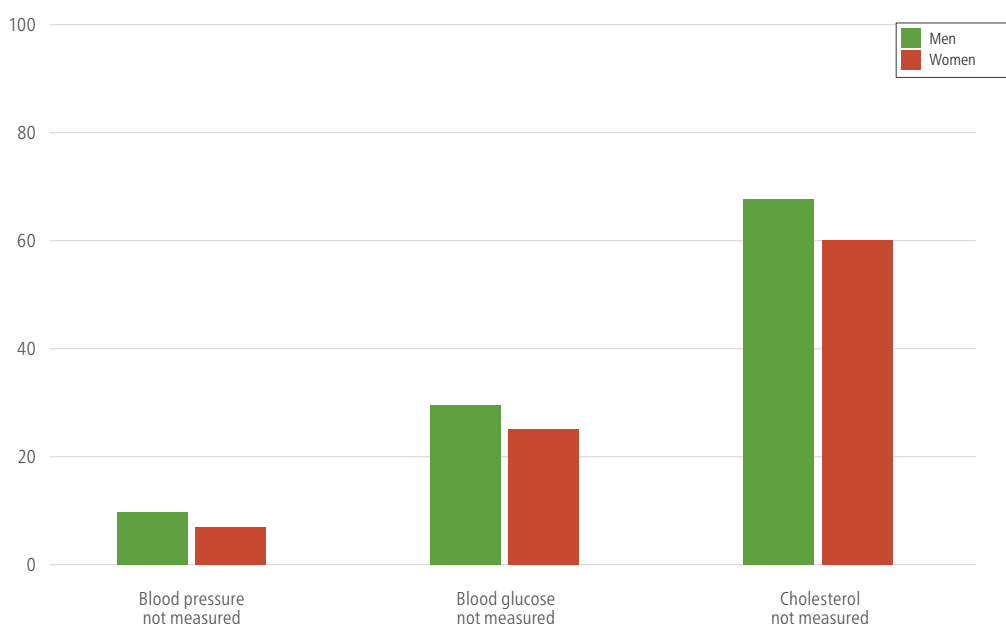
Differences in men and women not measured for risk factors

The groups can be examined further to identify target populations that may be facing barriers to accessing services (Fig. 17 and Annex 1, Table A1.15).

Fig. 17. Percentage not measured for risk factors by age group
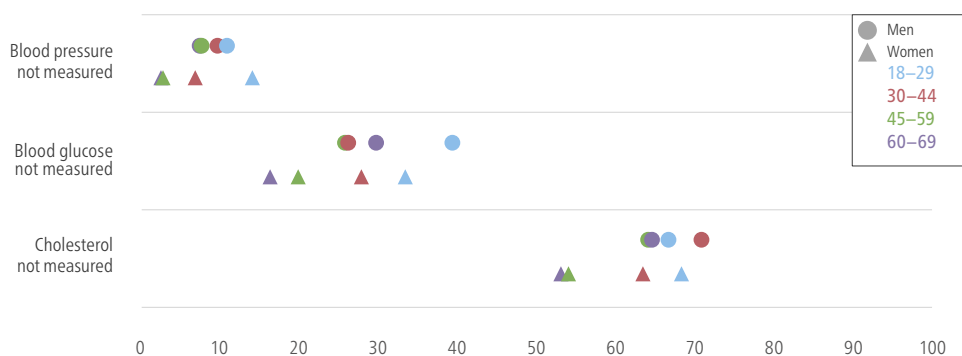
It is not surprising that the percentages of men and women who have not been measured for these risk factors decreases with each age group. The benefit the analysis brings, however, is to expose the significant differences between men and women at each age group and identify which age groups are significantly different for both men and women. This reveals that trends in accessing services differ between men and women across the life-course.

While the differences in men and women not measured are not significant, by age group it is observed that the differences are significant in two of the risk factor measurements. For raised blood pressure, a significantly higher percentage of men than women in both the 45–59 and 60–69 age groups have not been measured. For blood glucose, a significantly higher percentage of men than women in the 60–69 group have not been measured. A general trend is observed that the percentages of men not measured for these risk factors decreases much less than the percentages of women through the life-course.

GEOGRAPHIC LOCATION – URBAN AND RURAL
An analysis by geographic location shows no significant differences between men and women in urban and rural areas who have not been measured for these risk factors (Fig. 18 and Annex 1, Table A1.16).

Fig. 18. **Percentage not measured for risk factors by geographic location**
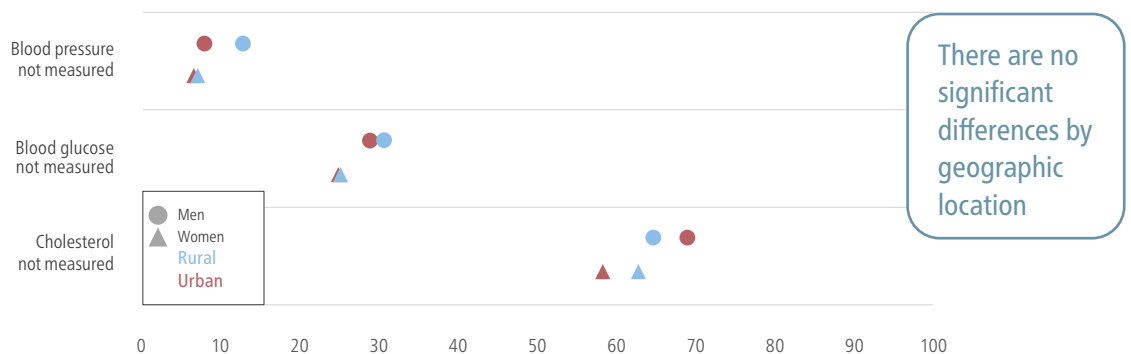
While higher percentages of men in rural areas have not been measured for raised blood pressure or blood glucose, the differences are not significant and there is no difference for women. For raised cholesterol, more men in urban areas and women in rural areas have not been measured, but again the differences are not significant.

EDUCATION LEVEL
Further differences can be seen when those not being measured for risk factors are examined by education level. Overall, fewer men and women in the lower education levels have been measured than those in the high education levels (Fig. 19 and Annex 1, Table A1.17).

The association between education level and being measured for risk factors is best observed in the measurement of blood glucose. Signficantly fewer women in the high education level have not been

measured than in the low and medium education levels, and fewer men in the high education level also have not been measured, though the difference is not significant.

Fig. 19. Percentage not measured for risk factors by education level

More men and women in the lower education levels have not been measured
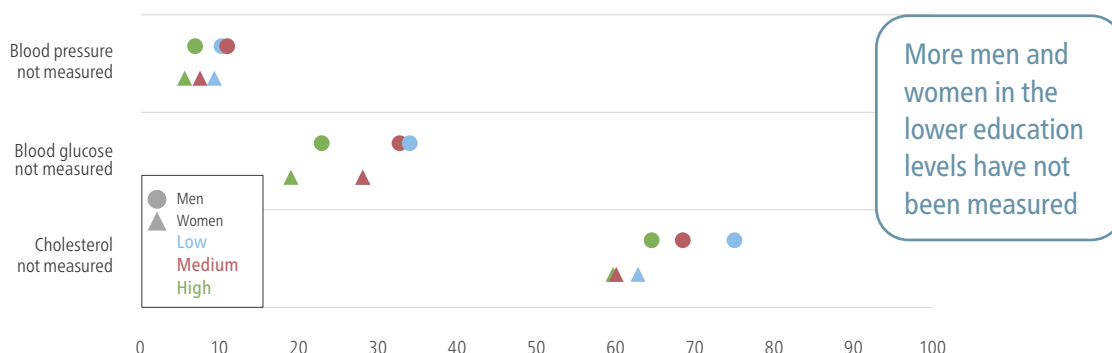
EMPLOYMENT STATUS

Just as education level can present barriers in accessing services for men and women, employment status may also play a role due to its association with accessing resources. Overall, more variance is seen among men than women by employment status. More men and women who are unemployed or not in the labour force have not had their blood pressure or blood glucose measured. The differences by employment status are greater for men than for women. The results of those who have not had their cholesterol measured by employment status is varied (Fig. 20 and Annex 1, Table A1.18).

Fig. 20. Percentage not measured for risk factors by employment status

Variance by employment status is bigger for men than for women
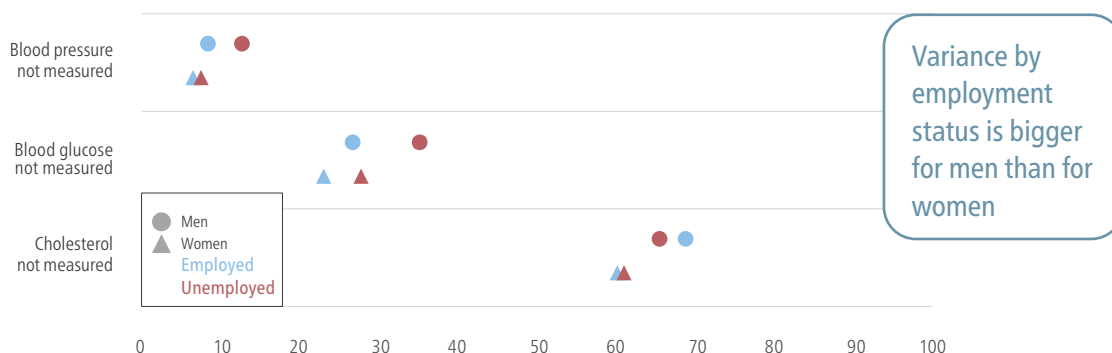
INCOME LEVEL

Income level may also influence access due to its relationship with resources. While the general trend is that higher percentages of men and women in the lower income quintiles have not been measured for risk factors, it varies for men and women (Fig. 21 and Annex 1, Table A1.19).

Fig. 21. **Percentage not measured for risk factors by income level (%)**

> Low-income men and women are measured less for risk factors, but it varies
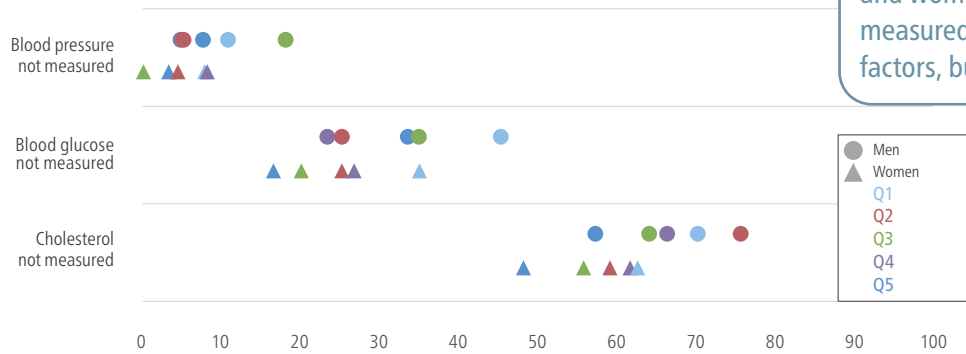
Though fewer men and women in the lower income quintiles tend to be measured for risk factors, the variance across risk factors suggests barriers may be different for each risk factor measurement and for men and women in each quintile.

Lifestyle advice given by a health-care professional

Men and women access services differently, and the responses they receive when they access services can also differ. The STEPS survey gathered information on whether men and women had been given lifestyle advice when they had visited a health-care professional. The topics under lifestyle advice can be compared with the prevalence of related risk factors (Table 4) to examine more differences between sexes.

Table 4. **Lifestyle advice topics and prevalence of related risk factors**

Lifestyle advice topic	Related risk factor
Quit using tobacco or don't start	Current tobacco use
Reduce salt in your diet	Unhealthy diet (added salt)
Eat at least five servings of fruit and/or vegetables each day	Unhealthy diet (< 5 fruit/veg)
Start or do more physical activity	Insufficient physical activity
Maintain a healthy body weight or lose weight	Overweight (BMI ≥ 25)

In one lifestyle topic (avoiding tobacco use), a significantly higher percentage of men than women have been given advice, while there is no difference between men and women receiving advice for the remaining topics.

A significantly higher percentage of men (37.5%) than women (19.3%) report having received advice on tobacco use, but the prevalence of men who currently use tobacco (50.3%) is considerably higher. Women,

however, report being given advice at nearly the same percentage as the prevalence of the risk factor of current tobacco use (16.7%). This may be due to primary health-care protocols addressing maternal and child health that require the provider to discuss tobacco use, or to women accessing services more than men. Additionally, social and cultural norms and desirability surrounding women using tobacco may affect responses to the STEPS survey (Fig. 22 and Annex 1, Table A1.20).

Fig. 22. **Percentage of lifestyle advice given for related risk factors**
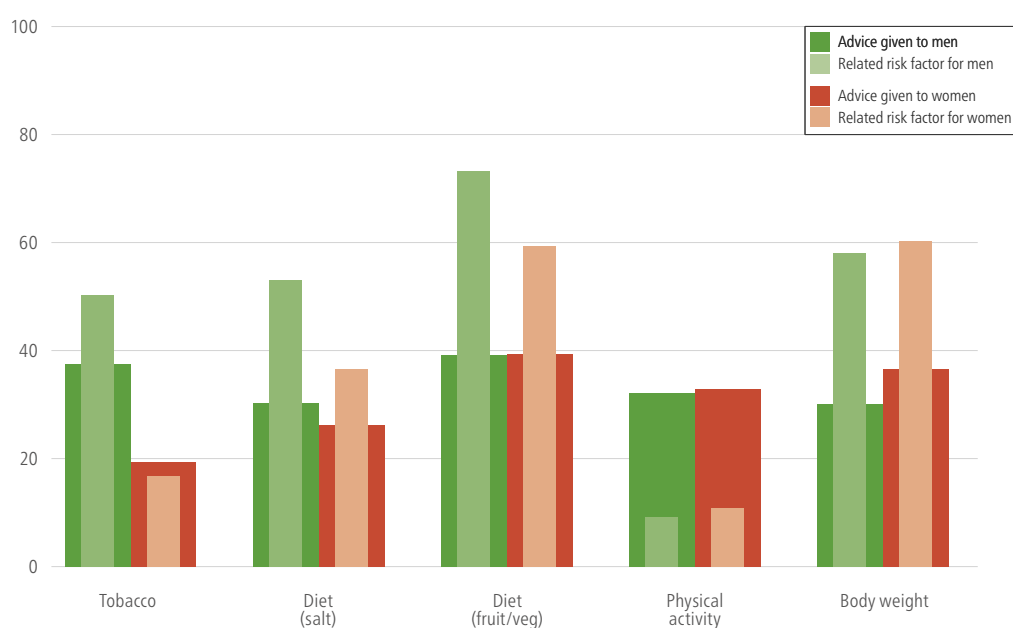
The percentages of those who have received lifestyle advice are in many cases lower than the prevalence of the related risk factors, but the percentages of those who have received advice on physical activity is much higher than the related risk factor. Apart from tobacco, the percentages of men and women who have received advice on the remaining topics are very similar, even when the prevalence of the related risk factor is significantly different between men and women, such as with added salt and eating fewer than five servings of fruit or vegetables. The difference for men and women between lifestyle advice given and the corresponding prevalence of the related risk factors warrants further analysis.

CONCLUSIONS

This country profile presents the first gender analysis of NCD risk factor data for adults in Ukraine. It makes an important contribution to, and serves as an evidence base for, enabling achievement of the SDGs, women's and men's health strategies *(1,2)*, the European Action Plan for the Prevention and Control of Noncommunicable Diseases *(3)* and other international commitments on NCDs, and promoting improved use of disaggregated data for better health outcomes, gender equality and human rights. It is also an important tool in accelerating action towards reducing the NCD burden and ensuring universal health coverage by unpacking inequalities by sociodemographic determinants in NCD risk factors and health system response, and contributes to raising awareness and building capacity among country-based researchers and policy-makers on the rationale for applying a gender analysis to health data.

Globally, more than 100 countries have collected data through the STEPS surveys, but this is the first time a more in-depth analysis from a gender perspective has been conducted. The following findings of the gender analysis therefore can be used to address specific needs and policy opportunities for Ukraine.

Significantly higher percentages of men than women in most age groups engage in all but one of the behavioural risk factors (insufficient physical activity), and higher percentages of women than men in the oldest age group are found with most of the biological risk factors. Although high prevalence of behavioural and biological risk factors for both men and women is concerning, the greater prevalence for women in the oldest age group, despite lower prevalence in behavioural risk factors, demands attention.

Men and women not only engage differently in behavioural risk factors, but also have different risk factor trajectories for both behavioural and biological risk factors over the life-course. Most notably, prevalence of most biological risk factors is higher among women than men in the oldest age group, but is lower among women than men in the youngest age group. The importance of disaggregation by sex and age becomes apparent when significant differences are found to be hiding in the aggregated percentages of risk factors for men and women. Higher levels of male premature mortality could also contribute to lower prevalence of risk factors among male survivors at older ages, but additional causes of difference in risk factors between men and women should be explored.

The analysis shows that prevalence of both behavioural and biological risk factors can vary in subgroups of men and women, and these subgroups are not equal in their relation to the risk factors. Identifying groups most at risk necessarily requires disaggregation of data and a gender analysis that links sex with age and other relevant sociodemographic variables. The additional analysis by geographic location, education, employment and income further showcases the differences across behavioural and biological risk factors not only between, but also among, men and women.

The prevalence of selected behavioural risk factors in urban and rural areas varies for men and women, but the prevalence of biological risk factors tends to be higher for women in rural areas. The prevalence of behavioural risk factors for men and women varies by education level and by risk factor. With biological risk factors, differences show higher prevalence among low-education women and both low- and medium-education men. Employed men and women have higher tobacco and alcohol use and selected unhealthy dietary behaviours than those who are unemployed or not in the labour force. Prevalence of raised blood pressure among men and women who are unemployed or not in the labour force is significantly higher

than for those who are employed. There is no clear association between income quintile and prevalence of behavioural risk factors for men and women, but the variance in prevalence between quintiles is greater for men than for women. However, more variance between quintiles is observed among women in biological risk factors, and low-income women tend to have higher prevalence.

Important differences are also seen in accessing services. A higher percentage of men have not been measured for biological risk factors, though the differences are not statistically significant. Despite accessing services more, the prevalence of biological risk factors as measured during the STEPS survey is still higher for women than men, or is not significantly different. This may in part be due to differences in accessing services among men and women, as observed through disaggregation by age, geographic location, education, employment and income.

Higher percentages of men and women in the older age groups have been measured for biological risk factors, but trends in accessing services over the life-course are different for men and women. The increase in the percentage of women measured for risk factors between ascending age groups is greater than it is for men.

No significant differences are found among men and women not measured in rural and urban areas, and no clear trend based on differences appears across risk factors. Fewer men and women with lower education levels, however, have been measured for risk factors than those in the high education level, and access by education level varies more for men than women. More variance is observed for men not measured by employment status than for women, but again there is no clear trend across risk factors and employment status. Fewer men and women in the low-income quintiles have been measured for risk factors, but it varies for men and women in each quintile.

Improving access to services for women and men may therefore require that additional attention is paid to the following groups: men across the life-course; women and (especially) men with low education; and men and women in the lower income quintiles.

Similar percentages of lifestyle advice being given to men and women despite lower prevalence of most behavioural risk factors and higher prevalence of most biological factors for women (especially in the older age groups) could be influenced by numerous factors, including health-care provider behaviours, higher frequency of interaction of women with health-care services, and cultural and gender norms.

There is a need to identify gender-specific norms and barriers to access and exposure to risk. Barriers are both gender- and disease-specific, with men and women experiencing them differently depending on the risk factor and sociodemographic characteristics *(15)*. These barriers can be identified and explored through studies that engage specific sociodemographic groups through quantitative and qualitative approaches. Such approaches could also explore possible influences, such as the presence of implicit bias in provider counselling, the sex of the health-care professional, and social norms regarding social interactions between men and women and gender inequalities. Gender-sensitive and culturally appropriate responses would then facilitate behavioural change, access and use of services.

Findings presented in this report highlight the importance of an in-depth gender analysis of existing sex-disaggregated data together with other variables in identifying NCD risk-factor differences not only between men and women, but also among men and among women. The analysis will further reveal specific needs and opportunities in prevention and management of NCDs among different population groups that can be addressed through tailored interventions.

Accompanying this country profile is a synthesis report with key findings and commonalities across eight country profiles. The gender analysis is being extended to other available surveys (including the global adult and youth tobacco surveys, the Health Behaviour in School-aged Children study and the WHO European Childhood Obesity Surveillance Initiative) to obtain more compressive insights. Studies that specifically examine gender and social norms and gender inequality in these contexts can be used to complement these surveys by identifying driving and constraining factors for exposure to risk causing differences between and among men and women. In addressing the areas identified in this report, cost-effective interventions like best-buy and other interventions recommended by WHO *(16)* should be prioritized and tailored to the country-specific context and gender-related findings to ensure uptake and efficiency. This would greatly contribute to the achievement of universal health coverage and the health-related SDGs.

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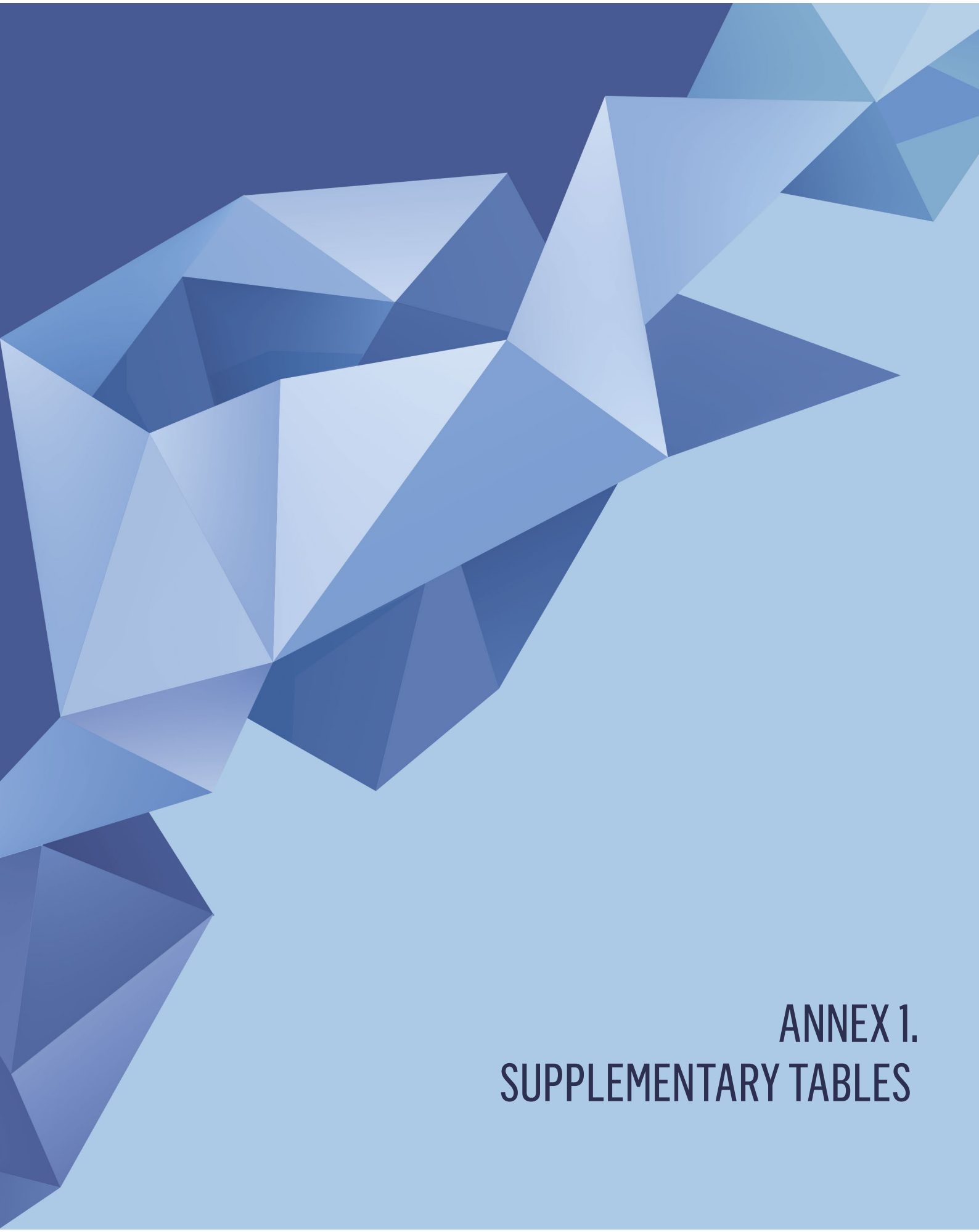
ANNEX 1.
SUPPLEMENTARY TABLES

Table A1.1. Prevalence of risk factors, men and women

Risk factors		Men % (CI 95%)	Women % (CI 95%)
Behavioural			
Current tobacco use		50.3 (43.6–57.1)	16.7 (14.3–19.1)
Alcohol consumption	Currently drink	66.1 (60.9–71.4)	44.6 (41.1-48.1)
	Heavy episodic drinking	29.5 (20.7–38.4)	9.4 (7.2–11.6)
Unhealthy diet	< 5 fruits or vegetables per day	73.2 (67.9–78.6)	59.4 (55.3–63.6)
	Always or often add salt	53.0 (46.3–59.7)	36.5 (32.5–40.4)
	Always or often eat processed foods	32.5 (27.0–38.0)	21.1 (18.2–24.1)
Insufficient physical activity		9.1 (6.6–11.7)	10.8 (8.3–13.3)
Biological			
Overweight (BMI ≥ 25)		58.0 (50.4–65.5)	60.2 (57.0–63.4)
Obesity (BMI ≥ 30)		20.1 (15.5–24.8)	29.8 (26.5–33.1)
Raised blood pressure (BP)	Raised BP (or on medication for raised BP)	34.5 (28.7–40.3)	35.0 (31.7–38.4)
	Raised BP (NOT on medication)	30.8 (25.2–36.4)	28.7 (25.4–32.1)
Raised blood glucose (or on medication)		6.7 (4.7–8.7)	7.4 (5.8–9.0)
Raised cholesterol (or on medication)		40.5 (34.9–46.0)	40.5 (36.4–44.7)

CI: confidence interval.

Table A1.2. Prevalence of three or more risk factors

Age group	Men % (CI 95%)	Women % (CI 95%)
18–29	15.4 (10.2–20.7)	7.4 (3.5–11.3)
30–44	35.4 (22.9–47.9)	17.8 (13.1–22.5)
45–59	57.3 (48.1–66.6)	33.4 (28.1–38.8)
60–69	56.0 (48.5–63.6)	46.8 (40.6–52.9)

CI: confidence interval.

Table A1.3. Total mortality per 1000

Age group	Men	Women
18–29	5.33	1.69
30–44	15.15	5.13
45–59	42.02	14.40
60–69	102.88	39.97

Table A1.4. Prevalence of behavioural risk factors by age group

Risk factor		Aged 18–29 % (CI 95%)	Aged 30–44 % (CI 95%)	Aged 45–59 % (CI 95%)	Aged 60–69 % (CI 95%)
Current tobacco users	Men	45.8 (37.4–54.1)	51.1 (36.1–66.0)	55.3 (47.1–63.5)	43.3 (35.8–50.8)
	Women	20.5 (14.5–26.4)	24.3 (19.0–29.7)	13.6 (10.5–16.7)	3.6 (1.8–5.5)
Alcohol	Men	56.0 (48.0–64.1)	71.6 (62.2–81.0)	68.4 (61.0–75.9)	58.5 (51.5–65.5)
	Women	45.5 (36.9–54.0)	50.8 (44.8–56.7)	47.1 (41.4–52.7)	27.6 (22.3–32.8)
Alcohol (heavy episodic)	Men	19.2 (13.5–24.9)	36.6 (18.3–54.9)	28.4 (18.6–38.2)	25.1 (18.4–31.8)
	Women	12.4 (5.8–18.9)	10.5 (7.1–13.9)	10.1 (6.7–13.4)	2.6 (1.3–4.0)

Table A1.4 contd

Risk factor		Aged 18–29 % (CI 95%)	Aged 30–44 % (CI 95%)	Aged 45–59 % (CI 95%)	Aged 60–69 % (CI 95%)
Unhealthy diet (< 5 fruit/veg per day)	Men	62.3 (53.4–71.3)	78.3 (69.7–87.0)	73.5 (66.4–80.6)	72.9 (66.3–79.5)
	Women	53.3 (43.5–63.1)	62.9 (56.7–69.0)	59.7 (53.8–65.5)	60.3 (54.4–66.3)
Unhealthy diet (add salt)	Men	42.6 (34.3–50.9)	59.0 (46.2–71.8)	57.9 (49.7–66.2)	37.3 (29.9–44.7)
	Women	45.8 (36.4–55.1)	35.1 (29.1–41.1)	36.9 (31.3–42.5)	26.6 (21.5–31.6)
Unhealthy diet (processed foods)	Men	45.6 (36.8–54.5)	33.0 (21.6–44.3)	25.9 (19.4–32.3)	25.2 (18.5–31.8)
	Women	30.4 (22.5–38.3)	20.4 (15.8–25.0)	19.8 (15.6–24.0)	13.3 (9.5–17.2)
Insufficient physical activity	Men	4.1 (1.2–7.0)	8.8 (4.0–13.5)	9.5 (5.9–13.1)	18.5 (12.5–24.4)
	Women	12.0 (5.4–18.5)	9.1 (5.6–12.5)	8.0 (5.0–11.0)	17.7 (13.0–22.3)

CI: confidence interval.

Table A1.5. Prevalence of biological risk factors by age group

Risk factor		Aged 18–29 % (CI 95%)	Aged 30–44 % (CI 95%)	Aged 45–59 % (CI 95%)	Aged 60–69 % (CI 95%)
Overweight (BMI ≥ 25)	Men	40.9 (32.1–49.7)	51.6 (36.1–67.0)	75.1 (68.4–81.9)	66.6 (59.5–73.6)
	Women	31.8 (21.3–42.3)	52.8 (47.2–58.4)	76.4 (71.6–81.3)	77.5 (72.5–82.4)
Obesity (BMI ≥ 30)	Men	6.6 (0.5–12.8)	14.0 (8.4–19.7)	34.6 (24.8–44.5)	28.2 (21.8–34.5)
	Women	13.6 (4.5–22.6)	23.0 (17.1–28.9)	37.8 (32.8–42.8)	46.4 (40.7–52.0)
Raised blood pressure (or on medication)	Men	15.9 (8.6–23.1)	20.4 (12.6–28.1)	53.3 (44.4–62.2)	68.3 (61.9–74.8)
	Women	9.5 (2.8–16.2)	20.5 (15.8–25.3)	47.7 (41.9–53.5)	73.1 (67.6–78.7)
Raised blood pressure (NOT on medication)	Men	13.9 (7.2–20.7)	17.6 (10.6–24.7)	49.1 (39.7–58.5)	59.1 (52.2–66.1)
	Women	9.0 (2.4–15.7)	17.2 (12.6–21.8)	39.0 (33.3–44.7)	58.0 (52.0–64.0)
Raised blood glucose (or on medication)	Men	3.7 (0.6–6.8)	3.7 (1.3–6.2)	9.2 (4.8–13.6)	14.6 (8.5–20.8)
	Women	2.7 (0.0–5.4)	4.6 (1.9–7.4)	6.1 (3.8–8.4)	20.2 (15.1–25.4)
Raised cholesterol (or on medication)	Men	21.3 (13.1–29.6)	35.2 (26.6–43.8)	56.7 (46.6–66.7)	46.9 (38.8–55.0)
	Women	22.4 (12.5–32.3)	31.0 (24.2–37.7)	53.8 (48.1–59.4)	57.7 (51.2–64.3)

CI: confidence interval.

Table A1.6. Prevalence of behavioural risk factors by geographic location

Risk factor		Rural % (CI 95%)	Urban % (CI 95%)
Current tobacco users	Men	53.8 (48.5–59.1)	48.6 (39.2–58.1)
	Women	11.3 (7.8–14.7)	20.4 (17.2–23.6)
Alcohol	Men	65.8 (59.2–72.3)	66.3 (59.2–73.5)
	Women	37.8 (32.0–43.6)	49.1 (44.8–53.3)
Alcohol (heavy episodic)	Men	31.9 (24.7–39.1)	28.3 (15.4–41.3)
	Women	10.1 (5.8–14.3)	9.0 (6.6–11.3)
Unhealthy diet (< 5 fruit/veg per day)	Men	67.1 (58.1–76.1)	76.3 (70.1–82.5)
	Women	58.2 (51.4–65.1)	60.3 (55.2–65.4)
Unhealthy diet (add salt)	Men	48.4 (41.1–55.7)	55.3 (46.3–64.3)
	Women	37.3 (30.7–44.0)	35.8 (31.1–40.6)
Unhealthy diet (processed foods)	Men	32.7 (24.9–40.4)	32.5 (25.3–39.7)
	Women	20.7 (15.5–25.8)	21.5 (17.9–25.0)
Insufficient physical activity	Men	6.6 (3.3–10.0)	10.4 (6.8–13.9)
	Women	7.4 (4.5–10.3)	13.1 (9.4–16.9)

CI: confidence interval.

Table A1.7. Prevalence of biological risk factors by geographic location

Risk factor		Rural % (CI 95%)	Urban % (CI 95%)
Overweight (BMI ≥ 25)	Men	60.7 (54.3–67.2)	56.6 (45.9–67.2)
	Women	66.9 (62.1–71.8)	55.4 (51.3–59.6)
Obesity (BMI ≥ 30)	Men	22.1 (16.6–27.6)	19.2 (12.8–25.5)
	Women	35.9 (30.0–41.8)	25.4 (21.7–29.2)
Raised blood pressure (or on medication)	Men	36.3 (29.6–43.0)	33.7 (25.7–41.6)
	Women	40.9 (34.9–46.8)	30.9 (27.1–34.6)
Raised blood pressure (NOT on medication)	Men	24.5 (17.8–31.1)	24.1 (16.3–31.9)
	Women	23.4 (16.4–30.3)	15.1 (11.8–18.3)
Raised blood glucose (or on medication)	Men	6.4 (3.3–9.5)	6.9 (4.3–9.6)
	Women	7.8 (5.1–10.4)	7.1 (5.2–9.0)
Raised cholesterol (or on medication)	Men	41.4 (33.0–49.8)	40.1 (32.6–47.5)
	Women	41.2 (32.7–49.6)	40.0 (32.6–47.4)

CI: confidence interval.

Table A1.8. Prevalence of behavioural risk factors by education level

Risk factor		Low % (CI 95%)	Medium % (CI 95%)	High % (CI 95%)
Current tobacco users	Men	72.8 (61.0–84.5)	58.3 (53.3–63.3)	33.3 (21.5–45.2)
	Women	23.3 (9.5–37.1)	17.6 (14.4–20.8)	14.1 (10.7–17.5)
Alcohol	Men	67.7 (53.9–81.5)	65.3 (60.1–70.4)	67.6 (56.1–79.1)
	Women	56.4 (43.0–69.9)	43.1 (38.7–47.4)	45.3 (39.8–50.8)
Alcohol (heavy episodic)	Men	25.1 (11.4–38.9)	28.4 (22.5–34.3)	32.4 (10.6–54.3)
	Women	10.6 (4.0–17.2)	10.7 (7.5–13.9)	7.1 (4.3–9.9)
Unhealthy diet (< 5 fruit/veg per day)	Men	78.3 (67.4–89.2)	73.0 (67.9–78.0)	72.8 (61.6–83.9)
	Women	57.1 (43.4–70.9)	61.4 (56.2–66.6)	56.4 (50.4–62.3)
Unhealthy diet (add salt)	Men	62.9 (48.3–77.5)	50.0 (44.2–55.7)	56.4 (41.1–71.7)
	Women	41.9 (28.3–55.6)	38.8 (33.7–43.8)	31.8 (26.3–37.2)
Unhealthy diet (processed foods)	Men	20.2 (9.9–30.5)	35.5 (30.5–40.4)	29.8 (18.2–41.4)
	Women	17.3 (8.9–25.7)	22.2 (18.7–25.8)	19.7 (15.4–24.0)
Insufficient physical activity	Men	6.7 (1.0–12.5)	9.9 (6.9–13.0)	8.1 (3.8–12.4)
	Women	12.5 (5.8–19.2)	10.3 (7.4–13.2)	11.2 (6.6–15.7)

CI: confidence interval.

Table A1.9. Prevalence of biological risk factors by education level

Risk factor		Low % (CI 95%)	Medium % (CI 95%)	High % (CI 95%)
Overweight (BMI ≥ 25)	Men	52.7 (34.9–70.5)	61.7 (56.5–66.9)	52.6 (34.8–70.4)
	Women	67.8 (53.4–82.2)	64.1 (60.0–68.2)	52 (46.5–57.5)
Obesity (BMI ≥ 30)	Men	18.5 (8.0–28.9)	24.4 (18.1–30.6)	13.8 (7.6–19.9)
	Women	37.1 (23.1–51.1)	32.7 (28.2–37.3)	23.2 (18.3–28.2)
Raised blood pressure (or on medication)	Men	42.9 (25.7–60.1)	39.6 (33.5–45.7)	24.3 (14.6–34.1)
	Women	49.8 (35.0–64.6)	38.8 (34.4–43.2)	26.3 (21.8–30.9)
Raised blood pressure (NOT on medication)	Men	24.6 (12.6–36.7)	30.0 (22.8–37.2)	14.5 (7.5–21.6)
	Women	15.7 (6.6–24.9)	21.1 (16.1–26.2)	14.6 (10.6–18.7)
Raised blood glucose (or on medication)	Men	7.2 (1.6–12.9)	6.6 (4.2–9.0)	6.6 (2.8–10.5)
	Women	16.5 (6.9–26.1)	6.9 (5.1–8.6)	7.0 (4.1–9.8)
Raised cholesterol (or on medication)	Men	55.5 (37.0–73.9)	42.0 (34.6–49.5)	35.0 (26.9–43.0)
	Women	53.8 (35.9–71.6)	44.1 (38.6–49.6)	33.7 (28.0–39.3)

CI: confidence interval.

Table A1.10. Prevalence of behavioural risk factors by employment status

Risk factor		Employed % (CI 95%)	Unemployed or not in the labour force % (CI 95%)
Current tobacco users	Men	51.6 (42.2–61.0)	47.7 (41.5–53.8)
	Women	18.3 (15.0–21.7)	13.9 (10.5–17.2)
Alcohol	Men	69.5 (62.9–76.0)	58.7 (52.7–64.6)
	Women	46.2 (41.7–50.7)	42.9 (38.1–47.6)
Alcohol (heavy episodic)	Men	31.6 (19.5–43.6)	25.7 (20.3–31.1)
	Women	9.9 (6.9–12.9)	9.0 (6.4–11.5)
Unhealthy diet (< 5 fruit/veg per day)	Men	75.8 (69.4–82.2)	68.6 (61.9–75.2)
	Women	59.7 (54.7–64.7)	58.9 (53.3–64.6)
Unhealthy diet (add salt)	Men	56.2 (47.5–64.9)	45.3 (38.9–51.6)
	Women	35.8 (31.2–40.4)	37.0 (31.7–42.2)
Unhealthy diet (processed foods)	Men	31.7 (24.5–38.9)	33.8 (27.2–40.4)
	Women	21.4 (17.8–25.0)	20.4 (16.5–24.2)
Insufficient physical activity	Men	7.6 (4.7–10.6)	12.9 (9.2–16.6)
	Women	8.4 (5.3–11.5)	13.9 (10.5–17.3)

CI: confidence interval.

Table A1.11. Prevalence of biological risk factors by employment status

Risk factor		Employed % (CI 95%)	Unemployed or not in the labour force % (CI 95%)
Overweight (BMI ≥ 25)	Men	57.7 (47.1–68.3)	58.1 (51.7–64.4)
	Women	57.8 (53.4–62.3)	63.8 (59.2–68.4)
Obesity (BMI ≥ 30)	Men	20.0 (13.8–26.3)	21.1 (15.9–26.3)
	Women	28.1 (23.3–32.8)	32.3 (27.9–36.6)
Raised blood pressure (or on medication)	Men	29.7 (22.2–37.1)	46.2 (39.6–52.8)
	Women	25.8 (21.8–29.9)	48.9 (43.7–54.2)
Raised blood pressure (NOT on medication)	Men	21.5 (14.3–28.7)	32.0 (24.4–39.7)
	Women	13.9 (10.0–17.7)	26.9 (20.6–33.2)
Raised blood glucose (or on medication)	Men	6.6 (4.0–9.3)	6.1 (3.8–8.5)
	Women	4.9 (3.1–6.7)	11.3 (8.4–14.2)
Raised cholesterol (or on medication)	Men	40.1 (33.1–47.2)	42.6 (34.7–50.5)
	Women	36.8 (31.4–42.1)	47.3 (41.3–53.3)

CI: confidence interval.

Table A1.12. Prevalence of behavioural risk factors by income quintiles

Risk factor		Q1 % (CI 95%)	Q2 % (CI 95%)	Q3 % (CI 95%)	Q4 % (CI 95%)	Q5 % (CI 95%)
Current tobacco users	Men	62.9 (54.4–71.5)	46.8 (20.0–73.6)	53.9 (43.0–64.9)	57.5 (46.9–68.1)	44.5 (32.4–56.6)
	Women	16.9 (10.2–23.6)	16.2 (11.1–21.3)	16.7 (11.1–22.3)	17.5 (12.1–22.8)	28.4 (18.1–38.7)
Alcohol	Men	69.9 (60.4–79.4)	76.7 (62.3–91.1)	59.0 (48.3–69.8)	68.0 (58.9–77.1)	69.2 (59.4–78.9)
	Women	46.2 (38.6–53.7)	50.2 (42.5–57.9)	49.0 (39.8–58.1)	43.7 (36.5–50.9)	61.3 (50.8–71.8)
Alcohol (heavy episodic)	Men	35.4 (25.7–45.1)	49.8 (21.1–78.5)	32.3 (21.8–42.7)	26.4 (12.7–40.1)	18.9 (9.3–28.6)
	Women	9.2 (5.6–12.9)	12.6 (8.3–17.0)	15.1 (6.3–23.9)	8.7 (4.2–13.3)	12.2 (4.0–20.5)
Unhealthy diet (< 5 fruit/veg per day)	Men	64.1 (53.5–74.7)	81.1 (68.9–93.3)	75.1 (64.4–85.9)	69.4 (58.9–79.9)	73.0 (62.0–84.0)
	Women	55.7 (47.0–64.3)	56.5 (48.4–64.7)	64.7 (55.6–73.8)	55.7 (44.9–66.5)	54.0 (41.6–66.4)
Unhealthy diet (add salt)	Men	51.8 (42.1–61.4)	63.2 (41.7–84.6)	47.1 (35.9–58.3)	54.0 (42.9–65.2)	61.3 (50.7–71.8)
	Women	40.6 (31.9–49.3)	35.8 (27.9–43.8)	34.1 (26.2–42.0)	40.6 (30.0–51.1)	37.9 (26.5–49.4)
Unhealthy diet (processed foods)	Men	36.1 (26.3–45.9)	26.9 (10.3–43.4)	37.1 (26.6–47.6)	34.1 (24.3–43.9)	33.8 (22.8–44.7)
	Women	18.9 (12.4–25.5)	20.5 (14.6–26.4)	22.5 (14.2–30.8)	27.5 (19.8–35.2)	24.6 (14.6–34.5)
Insufficient physical activity	Men	10.0 (4.6–15.3)	6.0 (1.3–10.8)	7.1 (3.0–11.2)	10.0 (3.6–16.3)	4.9 (1.1–8.7)
	Women	11.7 (7.1–16.3)	13.1 (6.1–20.2)	10.4 (5.5–15.3)	9.1 (4.8–13.4)	11.8 (4.1–19.4)

CI: confidence interval.

Table A1.13. **Prevalence of biological risk factors by income quintile**

Risk factor		Q1 % (CI 95%)	Q2 % (CI 95%)	Q3 % (CI 95%)	Q4 % (CI 95%)	Q5 % (CI 95%)
Overweight (BMI ≥ 25)	Men	61.9 (50.6–73.2)	46.2 (19.4–72.9)	54.8 (44.1–65.4)	67.1 (56.1–78.2)	64.5 (53.6–75.5)
	Women	68.6 (61.8–75.4)	67.4 (60.3–74.5)	64.3 (56.4–72.2)	51 (42.0–59.9)	53.5 (41.7–65.4)
Obesity (BMI ≥ 30)	Men	21.1 (13.2–29.0)	14.8 (4.9–24.7)	20.3 (9.9–30.6)	27.3 (13.2–41.5)	18.9 (10.3–27.5)
	Women	39.3 (32.1–46.5)	36.2 (28.0–44.5)	36.0 (26.6–45.3)	17.3 (11.4–23.2)	19.4 (9.7–29.2)
Raised blood pressure (or on medication)	Men	47.3 (36.5–58.1)	25.5 (9.5–41.6)	32.3 (21.5–43.1)	38.4 (25.0–51.8)	27.6 (17.9–37.3)
	Women	48.7 (40.8–56.5)	39.6 (32.1–47.1)	35.2 (26.1–44.3)	23.4 (16.1–30.8)	22.0 (13.5–30.5)
Raised blood pressure NOT on medication	Men	34.2 (22.6–45.8)	14.9 (3.8–26.0)	24.1 (12.4–35.7)	29.7 (13.9–45.5)	15.8 (8.0–23.6)
	Women	27.2 (18.4–36.1)	21.4 (13.1–29.7)	22.9 (12.2–33.6)	12.5 (6.0–19.0)	10.5 (2.7–18.3)
Raised blood glucose (or on medication)	Men	6.8 (3.0–10.6)	8.5 (3.8–13.3)	13.2 (0.0–27.2)	7.9 (2.1–13.6)	13.4 (5.1–21.7)
	Women	8.9 (5.4–12.5)	12.2 (7.2–17.1)	6.4 (2.8–9.9)	6.3 (2.8–9.9)	3.1 (0.0–7.1)
Raised cholesterol (or on medication)	Men	43.5 (29.9–57.2)	40.2 (28.0–52.5)	38.6 (26.5–50.7)	41.8 (26.8–56.8)	40.9 (26.9–54.9)
	Women	39.2 (31.2–47.1)	47.4 (37.3–57.5)	43.7 (32.4–55.0)	33.5 (24.5–42.6)	31.7 (19.9–43.4)

CI: confidence interval.

Table A1.14. **Percentages not measured for risk factors by a health-care professional**

Risk factor measurement	Men % (CI 95%)	Women % (CI 95%)
Blood pressure not measured	9.7 (7.0–12.4)	7.0 (5.2–8.8)
Blood glucose not measured	29.6 (24.1–35.0)	25.1 (21.9–28.3)
Cholesterol not measured	67.7 (62.1–73.2)	60.1 (56.6–63.6)

CI: confidence interval.

Table A1.15. **Percentages not measured for risk factors by age group**

Risk factor measurement		Aged 18–29 % (CI 95%)	Aged 30–44 % (CI 95%)	Aged 45–59 % (CI 95%)	Aged 60–69 % (CI 95%)
Blood pressure not measured	Men	11.4 (5.9–16.9)	10.3 (5.4–15.3)	8.4 (5.3–11.6)	7.7 (2.3–13.1)
	Women	14.5 (9.0–20.0)	7.3 (4.2–10.4)	3.4 (1.6–5.2)	3.1 (1.1–5.0)
Blood glucose not measured	Men	39.7 (30.4–49.1)	26.6 (17.3–36.0)	26.4 (20.0–32.8)	30.2 (23.4–37.1)
	Women	33.7 (25.9–41.6)	28.2 (22.7–33.7)	20.2 (15.6–24.8)	16.8 (12.8–20.8)
Cholesterol not measured	Men	66.9 (57.6–76.3)	71.1 (61.0–81.2)	64.4 (56.5–72.2)	64.8 (58.3–71.4)
	Women	68.4 (62.0–74.9)	63.6 (57.9–69.2)	54.2 (48.6–59.8)	53.2 (47.3–59.2)

CI: confidence interval.

Table A1.16. **Percentages not measured for risk factors by geographic location**

Risk factor measurement		Rural % (CI 95%)	Urban % (CI 95%)
Blood pressure not measured	Men	13.0 (7.4–18.6)	8.1 (5.4–10.8)
	Women	7.2 (4.3–10.2)	6.8 (4.5–9.1)
Blood glucose not measured	Men	30.7 (22.1–39.3)	29.0 (22.1–35.8)
	Women	25.2 (20.1–30.2)	25.0 (20.9–29.2)
Cholesterol not measured	Men	64.8 (56.4–73.1)	69.0 (62.0–76.1)
	Women	62.8 (56.9–68.6)	58.3 (54.0–62.6)

CI: confidence interval.

Table A1.17. **Percentages not measured for risk factors by education level**

Risk factor measurement		Low % (CI 95%)	Medium % (CI 95%)	High % (CI 95%)
Blood pressure not measured	Men	10.5 (2.0–19.0)	11.2 (8.1–14.4)	6.9 (2.7–11.1)
	Women	9.3 (2.8–15.8)	7.5 (5.0–10.0)	5.5 (3.3–7.8)
Blood glucose not measured	Men	34.2 (20.5–47.9)	32.8 (27.6–38.1)	23.0 (14.0–32.1)
	Women	28.2 (18.0–38.4)	28.2 (24.0–32.4)	19.1 (14.8–23.4)
Cholesterol not measured	Men	75.2 (63.5–87.0)	68.6 (63.6–73.5)	64.7 (51.6–77.8)
	Women	62.9 (48.9–76.9)	60.1 (55.9–64.2)	59.8 (54.0–65.5)

CI: confidence interval.

Table A1.18. **Percentages not measured for risk factors by employment status**

Risk factor measurement		Employed % (CI 95%)	Unemployed or not in the labour force % (CI 95%)
Blood pressure not measured	Men	8.5 (5.6–11.3)	12.9 (8.3–17.6)
	Women	6.5 (4.2–8.8)	7.6 (5.0–10.1)
Blood glucose not measured	Men	26.7 (20.3–33.1)	35.2 (28.9–41.6)
	Women	23.0 (18.9–27.0)	27.8 (23.4–32.3)
Cholesterol not measured	Men	68.7 (61.6–75.7)	65.4 (59.0–71.8)
	Women	59.8 (55.1–64.5)	60.9 (56.6–65.2)

CI: confidence interval.

Table A1.19. **Percentages not measured for risk factors by income quintile**

Risk factor measurement		Q1 % (CI 95%)	Q2 % (CI 95%)	Q3 % (CI 95%)	Q4 % (CI 95%)	Q5 % (CI 95%)
Blood pressure not measured	Men	11.2 (4.4–18.0)	5.7 (1.5–9.9)	18.4 (9.0–27.9)	5.2 (1.3–9.1)	8.1 (2.3–13.8)
	Women	8.4 (4.6–12.3)	4.8 (1.1–8.5)	4.1 (1.5–6.7)	8.5 (2.5–14.4)	3.7 (0.3–7.1)
Blood glucose not measured	Men	45.6 (34.5–56.7)	25.6 (9.9–41.4)	35.3 (25.1–45.4)	23.7 (15.2–32.2)	33.9 (22.1–45.7)
	Women	35.3 (27.3–43.2)	25.5 (17.4–33.6)	20.5 (14.5–26.6)	27.1 (18.6–35.6)	16.9 (7.4–26.4)
Cholesterol not measured	Men	70.5 (63.1–77.8)	75.8 (61.0–90.6)	64.4 (53.6–75.1)	66.5 (56.5–76.6)	57.6 (45.6–69.6)
	Women	62.9 (56.0–69.9)	59.3 (52.0–66.6)	55.9 (47.5–64.2)	61.8 (53.6–69.9)	48.4 (36.6–60.3)

CI: confidence interval.

Table A1.20. **Percentages of lifestyle advice given for related risk factors**

Risk factor measurement		Advice given % (CI 95%)	Prevalence of related risk factor % (CI 95%)
Tobacco	Men	37.5 (29.6–45.3)	50.3 (43.6–57.1)
	Women	19.3 (15.1–23.5)	16.7 (14.3–19.1)
Diet – added salt	Men	30.2 (22.0–38.4)	53.0 (46.3–59.7)
	Women	26.2 (22.3–30.2)	36.5 (32.5–40.4)
Diet – fruit and vegetables	Men	39.1 (31.3–46.9)	73.2 (67.9–78.6)
	Women	39.4 (34.4–44.3)	59.4 (55.3–63.6)
Physical activity	Men	32.2 (25.9–38.5)	9.1 (6.6–11.7)
	Women	32.9 (28.3–37.4)	10.8 (8.3–13.3)
Body weight	Men	30.1 (23.8–36.6)	58.0 (50.4–65.5)
	Women	36.6 (32.1–41.1)	60.2 (57.0–63.4)

CI: confidence interval.

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