World Health Organization
REGIONAL OFFICE FOR Europe

GENDER AND NONCOMMUNICABLE DISEASES IN GEORGIA

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 Georgia 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.

KEYWORDS

Noncommunicable Diseases
Gender Identity
Socioeconomic Factors
Risk Factors
Healthy Diet
Alcohol
Tobacco use
Obesity
Blood Pressure
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ACKNOWLEDGEMENTS

This report is part of a series developed by the WHO Regional Office for Europe within a collaboration between the Gender and Human Rights programme and the WHO European Office for the Prevention and Control of Noncommunicable Diseases to accelerate progress towards reducing the burden of noncommunicable diseases using a gender approach.

The report was prepared and analysis of data completed by Brett J. Craig, WHO consultant, and Lela Sturua and Marina Shakhnazarova, National Centre for Disease Control and Public Health, Georgia. The report and the series were edited by Isabel Yordi Aguirre, Programme Manager on Gender and Human Rights, and Ivo Rakovac, Programme Manager on Noncommunicable Diseases Surveillance, WHO Regional Office for Europe. Overall support and leadership for the initiative were provided by João Breda, Head, WHO European Office for Prevention and Control of Noncommunicable Diseases, and Nino Berdzuli, Director, Division of Country Health Programmes, WHO Regional Office for Europe.

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EXECUTIVE SUMMARY

This country profile for Georgia 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. The STEPS survey was completed in 2010 and again in 2016, allowing the analysis to make observations over time. The country profile is the first gender analysis of NCD risk factor data for adults in Georgia 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 health services access. 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, education and income level among the general and migrant populations. There are important differences hiding even when data are sex-disaggregated that need to be unpacked by including sociodemographic characteristics and migration status, 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 of the gender analysis therefore can be used to address specific needs and policy opportunities for Georgia.

- 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 significantly higher percentages of women than men in the older age groups are found with most of the biological risk factors (overweight and obestiy, and raised blood pressure, glucose and cholesterol).
- Prevalence of risk factors has different pathways for men and women across the life-course. Prevalence of biological risk factors is higher among women than men in the older age groups but is lower among women than men in the younger age groups.
- Similar differences are found between men and women in the general population and those in the migrant population in relation to behavioural and biological risk factors overall and across the life-course.
- While the percentage of men with multiple risk factors nearly doubles from the 18–29 age group to the 60–69 group, the percentage of women is more than six times greater between comparable age groups.

- Migrant women increase in risk with each ascending age group more than women in the general population, and migrant men increase in risk more dramatically than women through the 45–59 age group before decreasing to levels comparable to the STEPS surveys in the 60+ age group. The percentage of migrant women with multiple risk factors is nearly 10 times greater from the youngest to the oldest age group.
- Prevalence of behavioural risk factors varies by geographic location, but in general is higher in urban areas. Prevalence of biological risk factors is higher for women, however, in rural areas.
- A high education level for men and women is not associated with lower prevalence of behavioural risk factors. Higher prevalence of biological risk factors is observed for low-education women and high-education men.
- More employed men and women tend to engage in behavioural risk factors, but higher prevalence of biological risk factors is found among those who are unemployed or not in the labour force, especially for women.
- While prevalence of some behavioural risk factors decreased for both men and women between 2010 and 2016, it increased for many biological risk factors.
- Differences in prevalence among migrant men and women are similar to those of the general population, but biological risk factors tend to be higher. There is an opposite association by education level for overweight and obesity risk factors for migrant women than is observed for women in the general population.
- A significantly higher percentage of men in the general population have not been measured for biological risk factors; only on the topic of tobacco use do men reportedly receive more lifestyle advice from a health-care professional than women.
- More men and women in rural areas have not been measured for risk factors than in urban, but an improvement between 2010 and 2016 is observed.
- Women and men with low and medium education have been measured for risk factors less than those with high education.
- A trend suggests higher percentages of men who are unemployed or not in the labour force having not been measured for biological risk factors, while differences in employment and being measured decreased for women from 2010 to 2016.
- Differences observed among migrant men and women are similar to the general population, but the percentages not measured for risk factors are generally higher among migrant men and women. Migrants face various barriers to access even beyond those associated with migrant status.
- Improving access to services for women and men may therefore require that additional attention is paid to the following groups: migrant men and women overall, men in the younger age groups, men and (especially) women in rural areas, men and women in the low and medium education levels, and men who are unemployed or not in the labour force.
- 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 to ensure uptake and efficiency. This would greatly contribute to the achievement of universal health coverage and the health-related Sustainable Development Goals.

INTRODUCTION

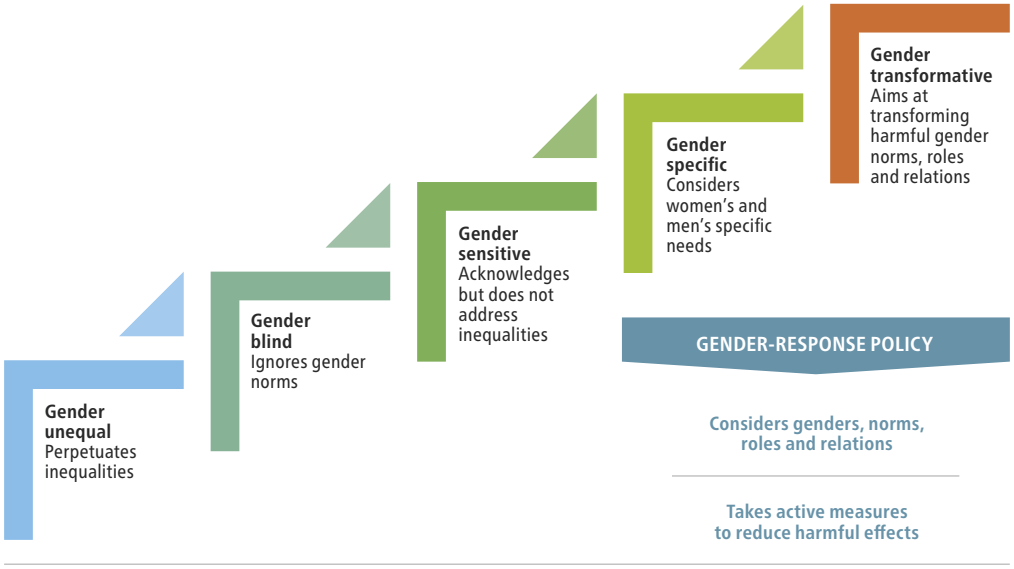
The WHO Regional Office for Europe launched a gender and noncommunicable diseases (NCDs) initiative in 2019 to improve the response to NCDs in the WHO European Region through a gender approach. Gender and rights-based approaches are imperative to accelerate transformative and sustainable progress towards 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 the Strategy and Action Plan for Refugee and Migrant Health in the WHO European Region *(4)*, as well as high-level meetings, in particular Health Systems Respond to NCDs: Experience in the European Region (Sitges, Spain, 16–18 April 2018) *(5)* 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) *(6)*.

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 on data gathered through the WHO STEPwise Approach to Surveillance (STEPS) NCD risk-factor survey.

This country profile for Georgia presents an analysis of sex-disaggregated data linked with other variables, such as geographic location, education, employment and migration status gathered through the STEPS and migration surveys. 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 *(7)*.

The analysis follows the key elements identified by the WHO Regional Office for Europe *(8).* 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, employment, education, ethnicity or place of residence.

The STEPS surveys *(9)* 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. The STEPS surveys 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.

The survey in Georgia was carried out for the first time from August 2010 to December 2010 and a second time from June 2016 to September 2016. A cluster sample design was used to produce nationally representative data for the age range of 18–64 years in the 2010 survey and 18–69 in the 2016 survey. The overall response rate was 95% in 2010, with 6497 adults participating in the survey, and 75.7% in 2016, with 5554 adults. The data were weighted for complex survey design, non-response rate and population distribution by age and sex in each survey.

Using questions from the STEPS survey and other instruments, a project on migrant health in Georgia was carried out by the International Organization for Migration and the National Centre for Disease Control and Public Health of Georgia from December 2011 to January 2012. The STEPS survey on migrants in Georgia also used a cluster sample design for the age range 18–64 years and had an overall response rate of 89%, with 1522 adults participating. The most recent and most comprehensive STEPS survey (2016) *(10)* is the focus of this country profile; data from the 2010 STEPS survey *(11)* are used for observations over time, while the migrant health survey *(12)* provides a comparison with another subgroup in Georgia.

The migrant population in Georgia primarily consists of those who were forcibly displaced due to the conflicts of 2008 in Abkhazia and South Ossetia, foreign migrant students, asylum seekers, trafficked persons, returned migrants (Georgian nationals) and foreign migrant detainees. Health information systems in Georgia did not contain routine data on health conditions, health-care access and specific disease prevalence for migrant populations. The migrant health survey therefore sought to address this information gap. For most migrants in Georgia, knowledge and awareness of major NCDs and their risk factors was quite low among both men and women, and visits to a health-care professional were made only to address a specific health problem. Health-care services are not financially affordable for most migrants, and often only one person in a family holds the health insurance policy. The illnesses migrants and ethnic minorities experience are to a large extent the same as those found in the majority of the population, but prevalence rates of cardiovascular diseases usually are higher *(12).*

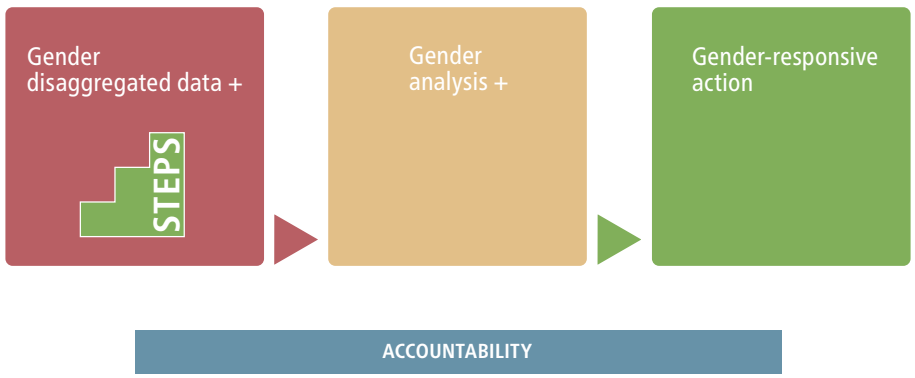
A gender analysis of STEPS NCD risk-factor survey data describes how risk factors for chronic diseases differ between and among men and women by exploring and tracking the direction and magnitude of trends

in risk factors and how these differ between and among women and men. It enables better planning and/or evaluation of gender-responsive health promotion or preventive campaigns and gender-responsive interventions. At the same time, data reveal important differences between men and women in relation to health services access.

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 on in the WHO manual *Gender mainstreaming for health managers: a practical approach (7)* (Fig. 2).

Fig. 2. Gender mainstreaming steps



Source: WHO *(7)*.

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 they are the group of diseases with the greatest burden in Georgia. NCDs are estimated to account for 93% of all deaths in Georgia *(13)*, with cardiovascular diseases accounting for 69% of all deaths in the country. Though improvements have been made, further action is still needed to address the expected increase in the overall burden of NCDs *(14)*. According to the STEPS survey of 2016, approximately 37.7% of the adult

population had raised blood pressure, 31% smoked tobacco, 17.4% were physically inactive, 33.2% were obese and 18.3% used alcohol harmfully *(13).*

Measures have been taken to address the responsiveness of health systems, and family doctors have expressed particular interest in receiving patient-counselling training on NCD risk factors *(14).* The prevalence of risk factors that account for NCDs nevertheless are different between and among men and women, and important differences exist in the ways men and women access health services.

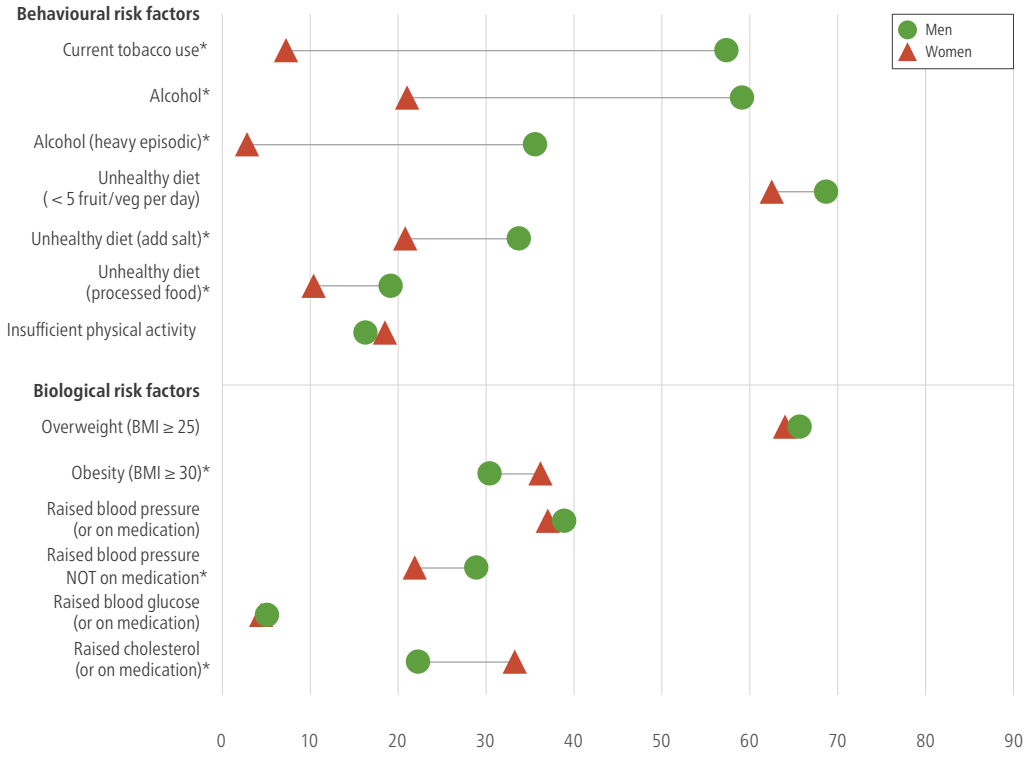
DIFFERENCES IN BEHAVIOURAL AND BIOLOGICAL RISK FACTORS

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. *Source*: WHO Regional Office for Europe *(10)*.

While the prevalence among men in the 2016 STEPS survey is significantly higher than for women in nearly all the behavioural risk factors (current tobacco use, alcohol and some diet-related factors), the same trend is not found among the biological risk factors. Prevalence is significantly higher for women in obesity and raised cholesterol, and there is no significant difference between men and women in overweight, raised blood pressure and raised blood glucose. The prevalence of raised blood pressure without medication is the only biological risk factor for which men are significantly higher than women.

It is important to note also that a study comparing self-reported tobacco use in STEPS 2016 to cotinine-detected smoking status in Georgia found that measures using self-reported tobacco use may lead to an underestimation among adults, especially women. Varying results within the population suggest differences in the social acceptability of tobacco use among groups of women, and more research is needed to understand why these differences exist *(15).*

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) ≥ 25 kg/m^2); and
- raised blood pressure (BP) (systolic BP ≥ 140 and/or diastolic BP ≥ 90 mmHg or currently on medication).

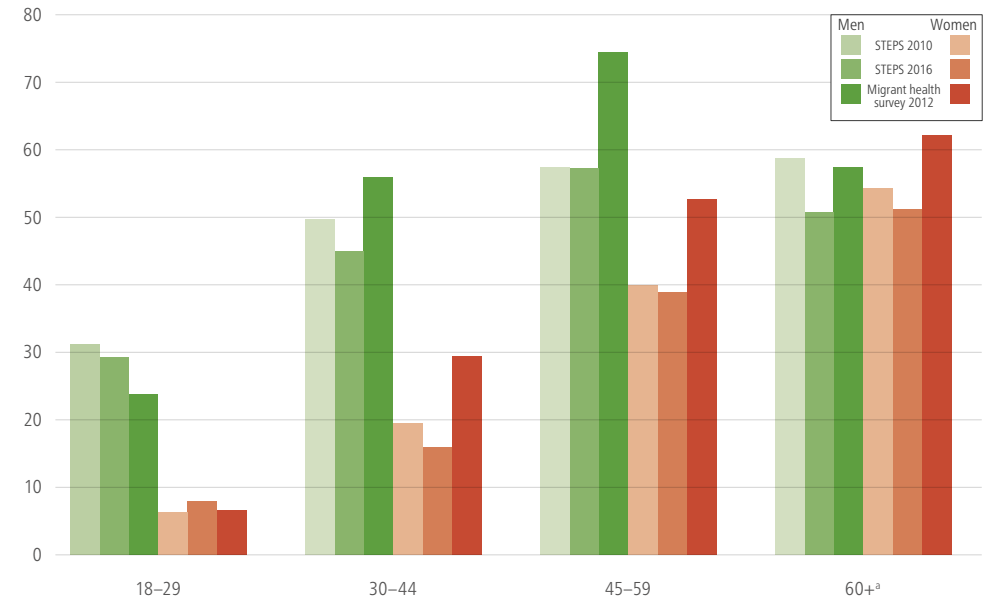
Overall, a significantly higher percentage of men in the STEPS 2016 survey (45.4%) have three or more risk factors compared to women (27.6%). A significantly lower percentage of men (5.7%) than women (9.3%) do not have any risk factors. There is no significant difference between 2016 and the previous survey of 2010. More migrant men (52.9%) and women (35.9%) have three or more 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 the older than in the younger age groups. Significantly higher percentages of both men and women in the first three age groups have three or more risk factors than the preceding age group. For men in the oldest age group, however, there is no significant difference from the previous age group, while for women there is again a significant increase. For each age group the prevalence for men is significantly higher than for women except for the oldest age group, where there is no significant difference.

While the percentage of men steadily increases with each age group, the increase in percentage of women is more drastic, causing the difference in percentage between men and women to lessen with each ascending age group until there is no significant difference. The most significant narrowing of this gap can be seen between age groups 30–44 and 45–59. The accumulation of risk factors in women is more rapid, starting after the 30–44 age group. In STEPS 2016, the percentage of men nearly doubles from the 18–29 age group to 60–69, from 29.2% to 50.8%, and the percentage of women with three or more risk factors was more than six times greater between comparable age groups, from 7.9% to 51.2% Migrant women increase in risk with each ascending age group more than women in the general population, but migrant

men increase in risk more dramatically from the 18–29 (23.8%) to the 45–59 age group (74.4%) before decreasing to the levels of men and women in the STEPS surveys in the 60+ age group. Migrant women increase in risk from the 18–29 age group (6.6%) to nearly 10 times greater in the 60+ age group (62.1%) (Fig. 4 and Annex 1, Table A1.2).

Fig. 4. Prevalence with three or more risk factors by age group (%)



[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*. *Source*: National Centre for Disease Control *(11)*; WHO Regional Office for Europe *(10)*; Sturua et al. *(12)*.

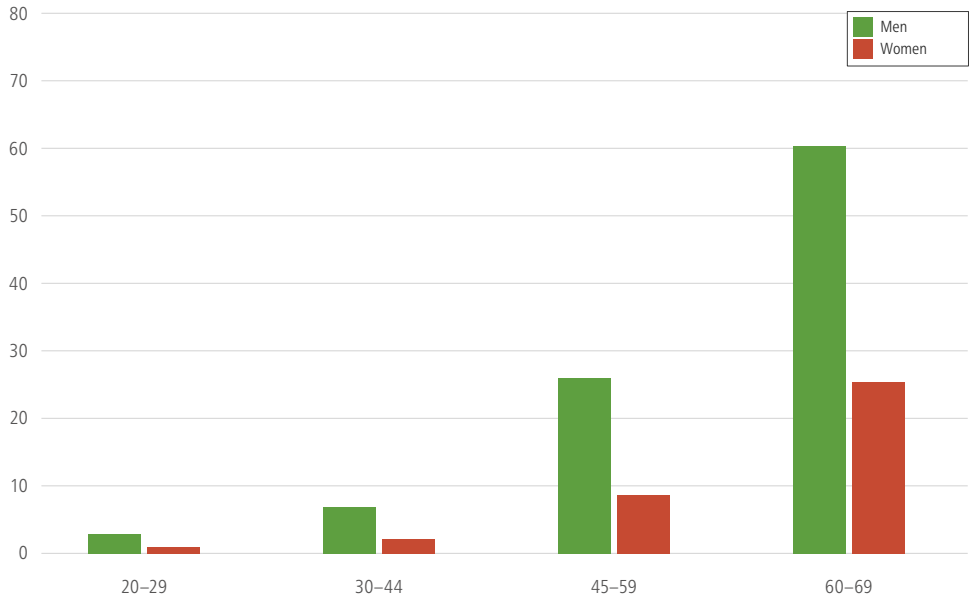
The observed trend over time is that the percentage of three or more risk factors for both men and women decreased between 2010 and 2016 across the life-course. These combined risk factors, however, do not include all risk factors, such as alcohol consumption or raised cholesterol. Additionally, risk 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 *(16)*: further analysis therefore is warranted to examine differences in these risk factors **between** men and women as well as **among** men and women.

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 significantly higher than for women and increases in the older age groups (Fig. 5 and Annex 1, Table A1.3) *(17)*.

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.

Fig. 5. Total mortality per 1000



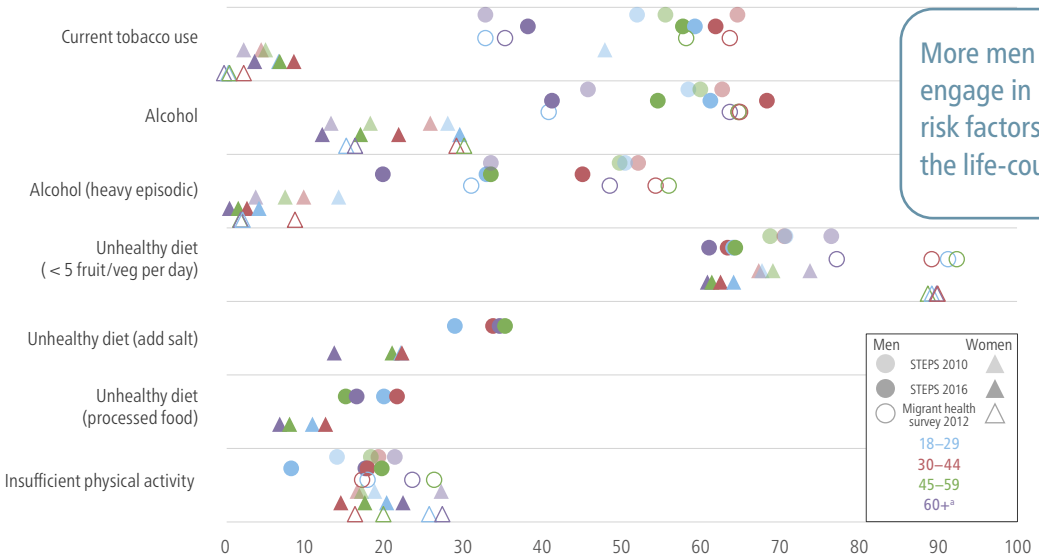
Differences in specific risk factors among men and women between age groups

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 a 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. Additionally, differences between 2010 and 2016, as well as a comparison with migrant men and women, can be seen by sex and by age group (Fig. 6 and Annex 1, Table A1.4).

In most risk factors, the age group with the highest percentage of men is between ages 30 and 44, while the highest percentage of women is found in the 18–29 and 30–44 age groups for 2016. The 60+ age group has the lowest prevalence for men and women in most risk factors, except for insufficient physical activity.

Prevalence in each risk factor varies differently between age groups and by sex. For example, where differences between age groups among men may be more pronounced, such as with tobacco use, the differences are less for women. Comparing 2010 and 2016 by age groups makes it possible to see which age groups have decreased in prevalence and which have increased. While prevalence of tobacco use for men in the 30–44 age group decreased from 2010 to 2016, it increased in all other age groups. Tobacco use for women also appears to have increased in all age groups. On the other hand, prevalence of eating fewer than five servings of fruit or vegetables per day decreased in every age group for both men and women.

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



[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*.

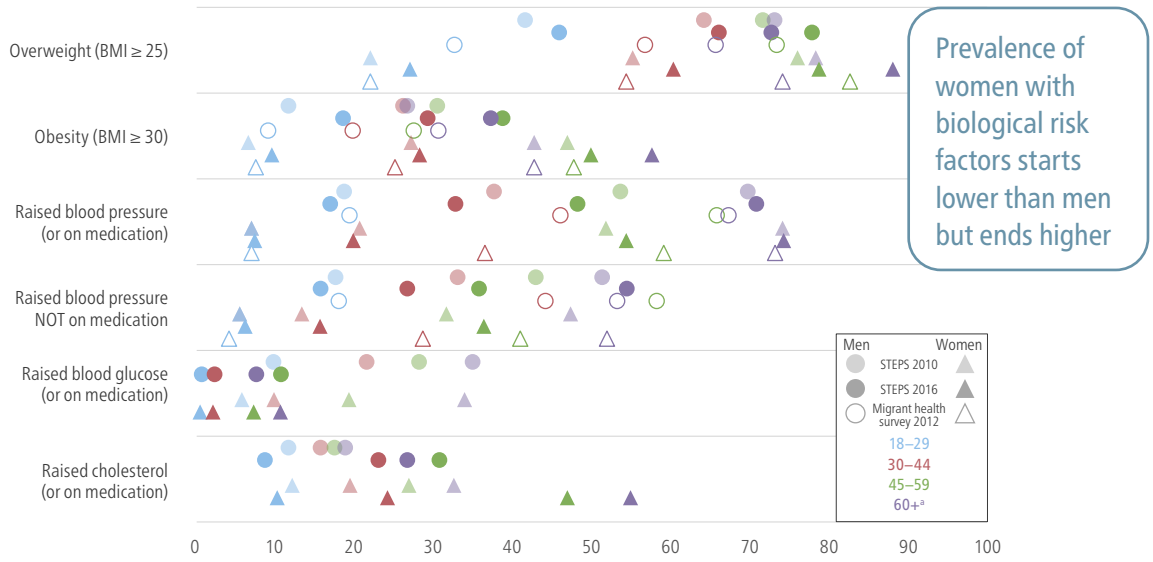
Similar differences in behavioural risk factors overall are found between men and women in the migrant and general populations. With the migrant population, however, the highest prevalence is generally found in age groups 30–44 and 45–49, especially for men, and the 18–29 age group for men is often much lower than in the general population.

The story for biological risk factors and age is quite different. The percentages of men and women with biological risk factors increases across age groups (Fig. 7 and Annex 1, Table A1.5), but prevalence for women is higher in every risk factor (except for those with blood pressure not on medication) than for men in the oldest age group.

These data show that prevalence of biological risk factors for women increases with older age groups more dramatically than with men. This applies not only to the population with multiple risk factors, but also to each individual risk factor. For example, though the overall prevalence of overweight for men in the STEPS 2016 survey is not significantly different than for women overall, prevalence for men in the 18–29 age group is significantly higher (45.9% against 26.8% for women). In the 60+ age group, however, prevalence is significantly higher for women (88.5%) than for men (73.0%). With obesity, prevalence is not significantly different between men and women in the 18–29 age group (11.4% men, 6.1% women) but is nearly double for women (57.7%) than men (37.2%) in the 60+ age group. While prevalence of raised cholesterol is not significantly different between men (8.4%) and women (9.9%) in the 18–29 age group, by the 60+ age group, prevalence for women (55.0%) is more than double the prevalence for men (26.5%).

While a decline in prevalence of several behavioural risk factors is visible between 2010 and 2016, overweight, obesity and raised cholesterol are among the biological risk factors that increased in prevalence for men and women.

Fig. 7. Prevalence of biological risk factors by age group (%)



[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*.

A similar pattern is visible between migrant men and women in biological risk factors. While prevalence for women tends to be lower than for men in the 18–29 age group, it generally is higher than for men in the 60+ age group.

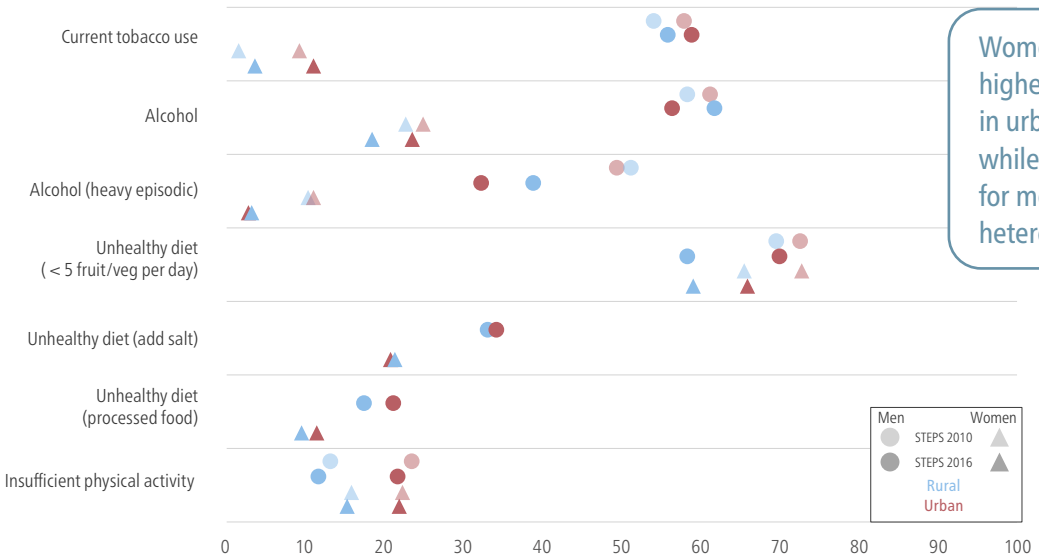
Differences between men and women are apparent across the life-course, but disaggregating data reveals additional differences among men and among women. Disaggregation by age group reveals specific groups of men and women who are more at risk and differences by sex. Other demographic categorizations, such as geographic location, education level and employment status, further help identify differences between men and women and also 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 were collected in the STEPS 2010 and 2016 surveys (but not for the migrant health survey) and have been categorized into urban and rural for the purposes of analysis. While the association between location and risk factor tends to vary, in general, higher prevalence is found in urban areas (Fig. 8 and Annex 1, Table A1.6). For example, a significant difference in prevalence of current tobacco use (3.2% in rural, 10.6% in urban) and insufficient physical activity (14.9% rural, 21.5% urban) is found for women. Significant differences in prevalence between urban and rural settings for men are found in eating fewer than five servings of fruit and vegetables per day (58.1% rural, 69.7% urban) and insufficient physical activity (14.9% rural, 21.5% in urban).

An analysis of biological risk factors by geographic location further shows that urban and rural areas are not associated with risk factors the same for men and women (Fig. 9 and Annex 1, Table A1.7). Though the

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

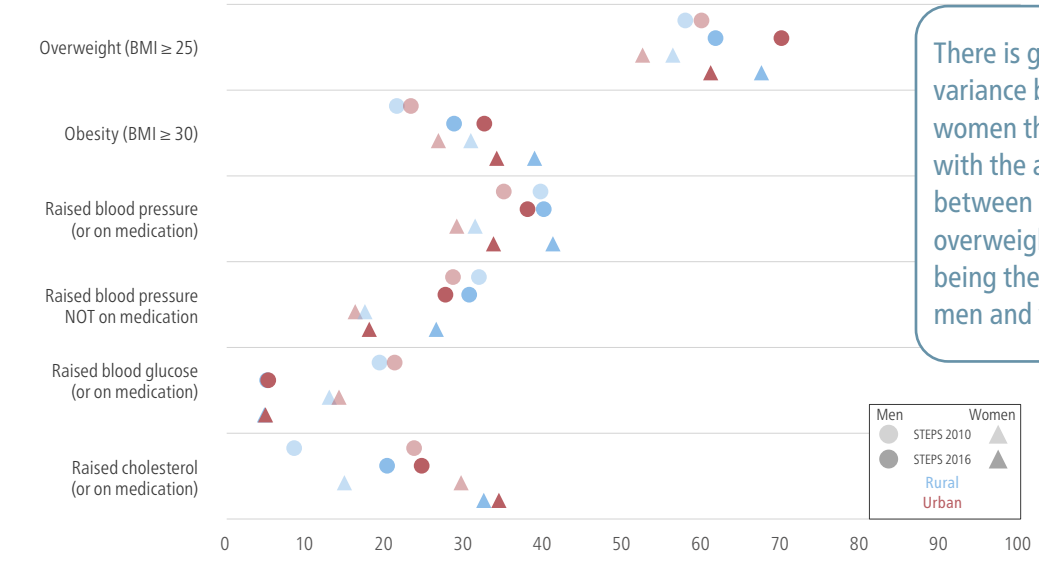


Women have higher prevalence in urban areas, while the effect for men in more heterogeneous

prevalence of overweight and obesity is not significantly different for men and women between urban and rural areas, a trend appears that indicates location may have an opposite association for men and women when it comes to weight. Prevalence of men with overweight (69.7%) and obesity (32.2%) is higher in urban areas than rural (61.4% overweight, 28.3% obesity). For women, however, the prevalence is higher in rural areas (67.1% overweight, 38.4% obesity) than in urban (60.7% overweight, 33.7% obesity). Because of this opposite association, men and women are significantly different from one another in prevalence of overweight in urban areas, despite not being significantly different overall.

Prevalence of raised blood pressure is also significantly higher for rural women (40.8%) than for urban (33.3%), but for men there is no difference. Prevalence of several biological risk factors, including overweight,

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



There is greater variance by location for women than for men, with the association between location and overweight/obesity being the opposite for men and women

obesity, raised blood pressure and raised cholesterol, increased from 2010 to 2016, especially for rural men and women. Most notable is the increases in raised blood pressure and cholesterol for rural women.

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 level

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. Georgia has extremely high literacy rates (99.8% for men, 99.3% for women) and high enrolment in primary (97.6% for boys, 98.2% for girls) and secondary education (95.2% for males, 96.8% for females). A significant difference is visible only at tertiary level (57.3% for males, 63.7% for females) *(18).*

Data on education level, determined by the highest level of education completed, were collected in the STEPS and migrant health surveys using country-specific categories. These categories have been matched to the levels of the International Standard Classification of Education (ISCED) *(19)* then condensed to reflect the three levels of low, medium and high (Table 1 and 2).

Table 1. STEPS survey categories and ISCED levels

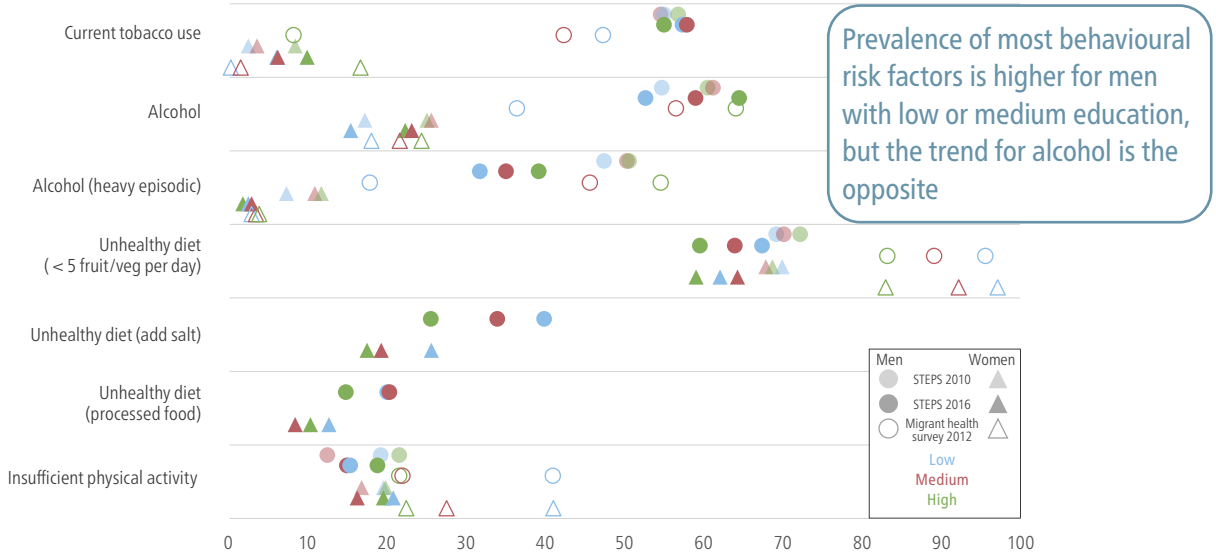
STEPS survey categories	ISCED levels
1 = no formal schooling (not completed primary school)	ISCED 0 = early childhood education
2 = primary school completed	ISCED 1 = primary education
3 = main secondary school completed	ISCED 2 = lower-secondary education
4 = secondary school completed	ISCED 3 = upper secondary education
5 = professional education completed	ISCED 4 = post-secondary non-tertiary education ISCED 5 = short-cycle tertiary education
6 = university completed	ISCED 6 = bachelor's degree or equivalent tertiary education
7 = 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 = primary school completed 3 = secondary school completed	ISCED 0–2
Medium level of education	4 = college completed 5 = high school completed	ISCED 3–5
High level of education	6 = college/university completed 7 = postgraduate degree	ISCED 6–8

The prevelence 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, while the lowest prevalence for alcohol consumption is found among men and women with low education, prevalence of adding salt to food is highest for men and women with low education. Highest prevalence for men in general is among low and medium education levels, but the same trend is not observed for women. Changes from 2010 to 2016 also depend on risk factor and education level, with no consistent trend observed across risk factors.

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



[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*.

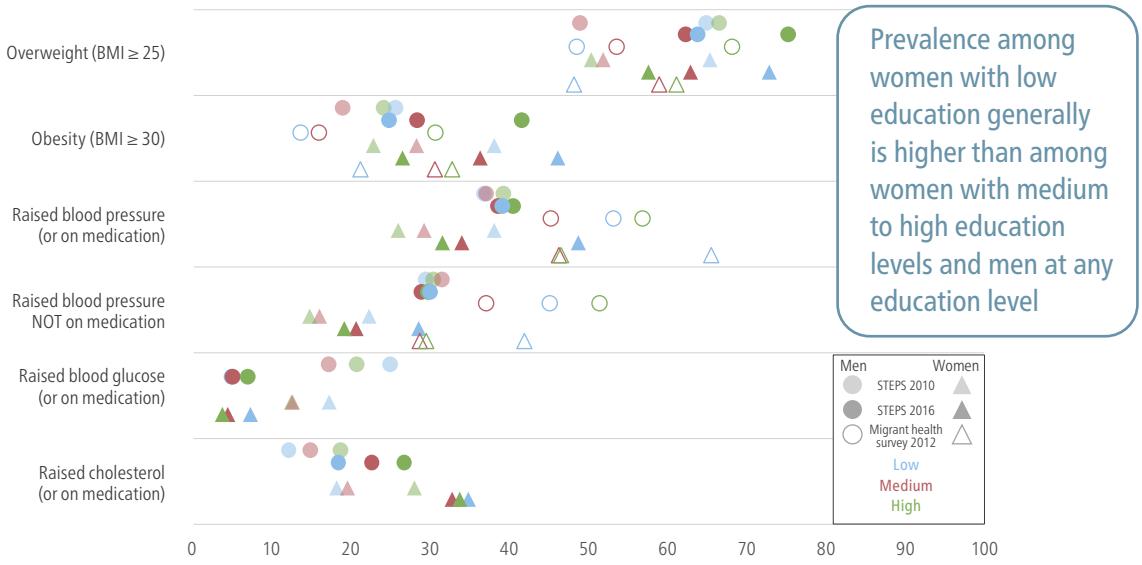
There is significantly more variance by education level for both men and women among the migrant population, but the association varies between men and women. For example, higher prevalence of tobacco use for men is found among those in the low (47.4%) and medium education (42.4%) levels, but the higher prevalence for women is in the high education level (16.7% high, 1.6% medium, 0.3% low). Alcohol consumption is significantly lower for men in the low education level than other levels, while significantly more men and women in the low education level than other levels take part in insufficient physical activity.

Additional differences in education levels are observed between and among men and women in relation to biological risk factors. Higher prevalence tends to be found in the low education level for women, which is most often higher than men in all education levels. Higher prevalence for men, however, tends to be in the high education level (Fig. 11 and Annex 1, Table A1.9).

The significant difference in prevalence of obesity between men and women overall is driven by women in the medium and low education levels. The prevalence of both raised blood pressure risk factors is also

significantly lower in the high education level for women, showing that women in this level tend to have the lowest prevalence. Differences in prevalence of risk factors between men and women are often dependent on prevalence in groups among men and among women.

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



[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*.

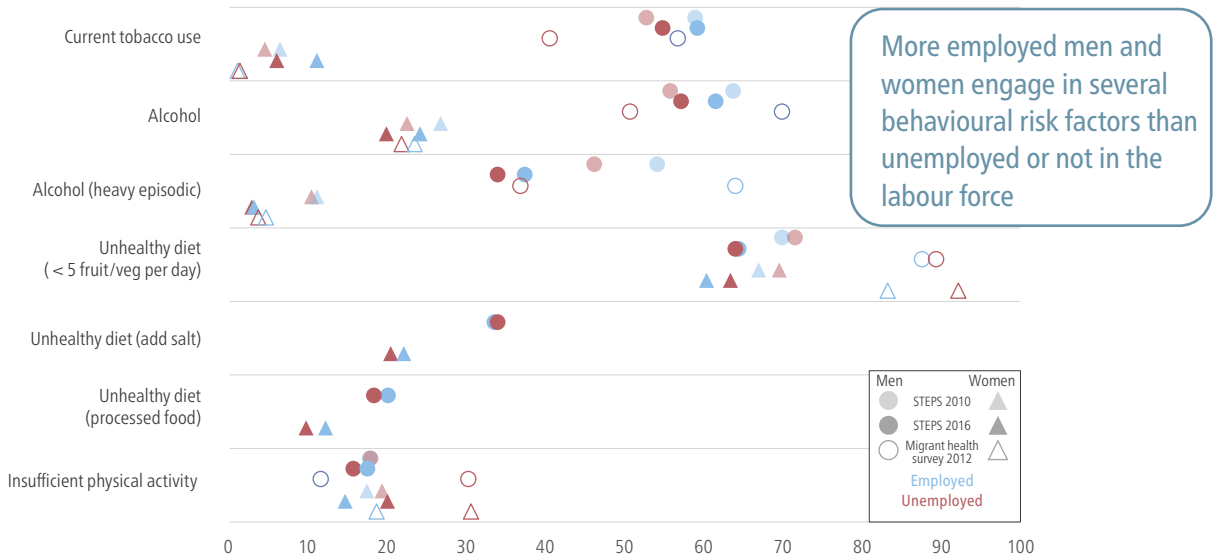
Employment status

An analysis by employment status can also be used to examine differences among men and women due to variations in many determinants that include lifestyles and access to resources. Data on employment status were collected in the STEPS and migrant health surveys, and the categories have been condensed for analysis into employed (government employee, nongovernment employee, self-employed) and unemployed or not in the labour force (non-paid, student, homemaker, retired, unemployed (able or unable to work)).

In Georgia, the estimated average annual earned income per capita for adult women is approximately 49% of that for adult men (the equivalent of Int$ 6500 for women and Int$ 13 200 for men). Participation of adults in the labour force is 83.2% of men and 63.4% of women. Those not currently employed but are seeking work are 14.9% of men and 12.8% of women, though a higher percentage of women are part-time workers (43.6%) than men (29.0%) *(18)*.

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). While there is little variance in the prevalence of behavioural risk factors by employment status, a trend of risk

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



factors that reveal differences indicates that employed men and women appear to engage in behavioural risk factors more than those who are unemployed or not in the labour force.

No significant differences were observed for men by employment status. For women, tobacco use is significantly higher among employed women (10.8%) than those who are unemployed or not in the labour force (5.7%), but insufficient physical activity is higher among women who are unemployed or not in the labour force (19.7%) than those who are employed (14.4%).

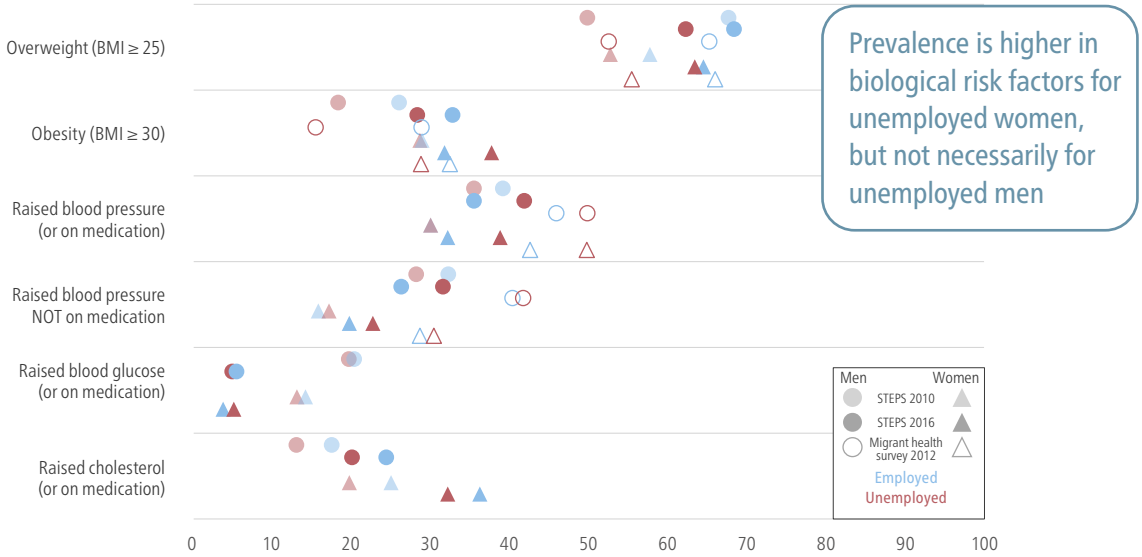
More variance is found among men in the migrant population for behavioural risk factors than among women. Tobacco and alcohol use in particular are higher for employed men than those who are unemployed or not in the labour force, and alcohol (heavy episodic drinking) is significantly higher among employed men (63.9%) than those who are unemployed or not in the labour force (36.7%).

Across biological risk factors, prevalence appears to be higher for women who are unemployed or not in the labour force than for employed women, but there is no such trend for men (Fig. 13 and Annex 1, Table A1.11).

There are no significant differences for men by employment status and no consistent trend across risk factors. For women, prevalence tends to be higher for women who are unemployed or not in the labour force than for employed women, and a significantly higher percentage of women who are unemployed or not in the labour force (38.6%) have raised blood pressure than those who are employed (32.0%).

For biological risk factors among the migrant population, however, employment status does not create a clear trend across risk factors for men or for women.

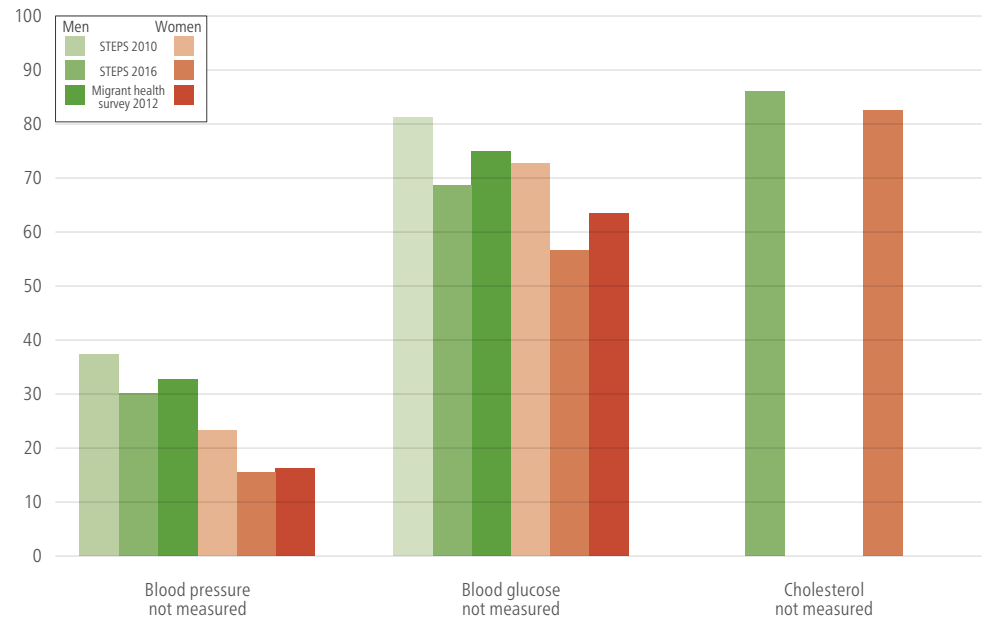
Fig. 13. Prevalence of biological risk factors by employment status (%)



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, significant differences are also found between men and women in accessing services for NCDs. A higher percentage of men reported never having had their blood pressure and blood glucose measured by a health-care professional. Comparing the 2016 STEPS survey to 2010, the percentages of men and women who have not been measured decreased for blood pressure and blood glucose. Migrants, on the other hand, typically access health services less, which affects health outcomes, including those associated with NCDs *(12).* An obvious improvement is visible for both men and women being measured for blood pressure and blood glucose from 2010 and 2016. The percentages of migrant men and women who have not been measured are lower than those of the general population in the 2010 STEPS survey but higher than the general population in 2016. Data on cholesterol measuring were not available from the STEPS 2010 and migrant health surveys (Fig. 14 and Annex 1, Table A1.12).

Fig. 14. Percentage not been measured for risk factors by health-care professional



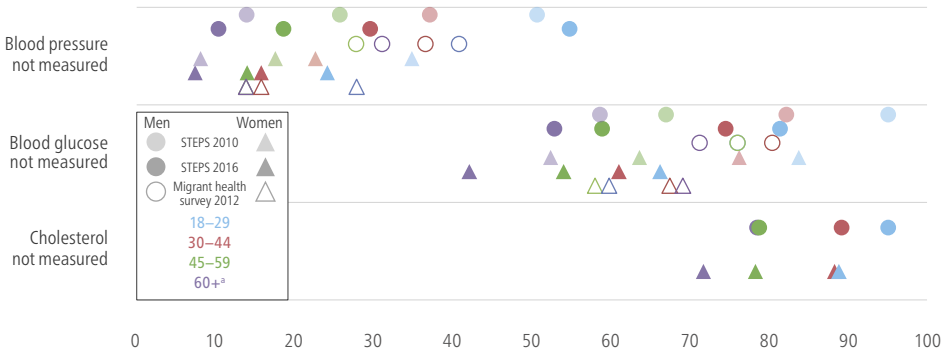
[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*.

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. 15 and Annex 1, Table A1.13).

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

Fig. 15. Percentage not measured for risk factors by age group



[a] 60–64: STEPS 2010 *(11)* and migrant health study 2012 *(12)*; 60–69: STEPS 2016 *(10)*.

and women across the life-course; the increase in measuring men and women is observed in nearly every age group across all risk factors.

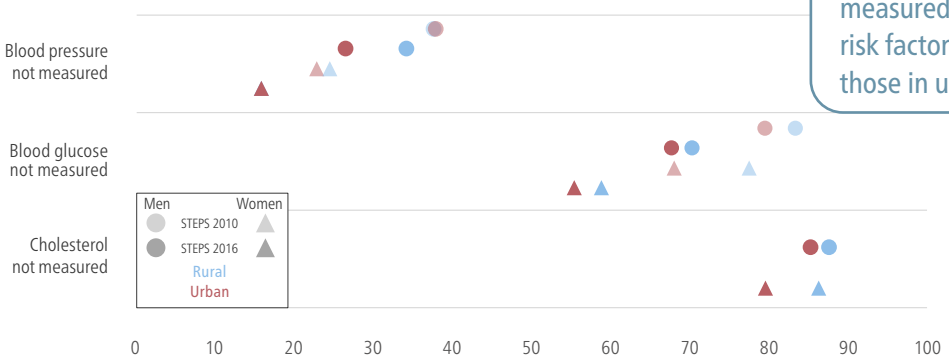
While more men have not been measured than women overall, it is only in the 18–29 and 30–44 age groups that a significantly higher percentage of men have not been measured than women in the corresponding age groups. More women therefore start being measured earlier, but the difference is less in the older age groups. The higher percentage of men not measured is observed generally across the age groups. Within the migrant population, however, there is no clear pattern of differences by age group, but variance between age groups is smaller than in the general population.

GEOGRAPHIC LOCATION – URBAN AND RURAL

Further differences can be seen when those not being measured for risk factors are examined by geographic location. Higher percentages of both men and women in rural areas have not been measured for risk factors than those in urban areas (Fig. 16 and Annex 1, Table A1.14).

Fig. 16. Percentage not measured for risk factors by geographic location

Men and women in rural areas are measured less for risk factors than those in urban



More men and women in rural areas generally have not been measured than those in urban areas, though it depends on the risk factor being measured. For example, more men in rural areas have not had their blood pressure measured (33.9%) than in urban (26.1%), but for women there is no difference (15.4% for urban and rural).

In both rural and urban areas, improvement can be seen between 2010 and 2016 for both men and women. The change in raised blood pressure for men is greater in urban areas than in rural. On the other hand, the urban/rural gap has narrowed considerably from the 2010 survey for women in relation to blood glucose testing (77.1% rural, 67.7% urban in 2010 and 58.5% rural, 55.0% urban in 2016).

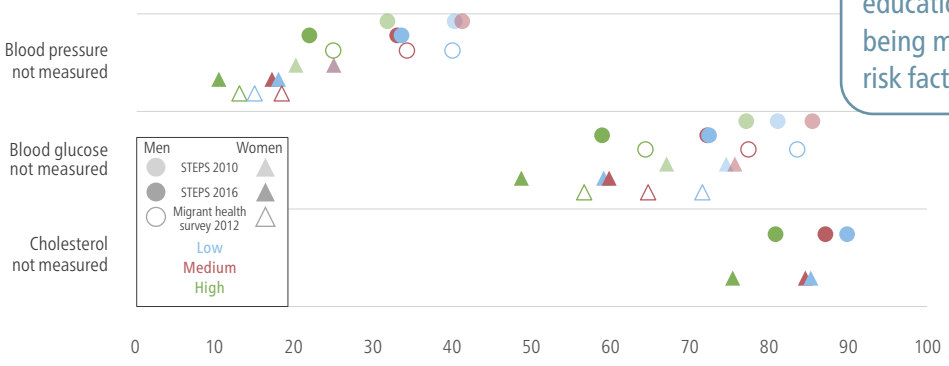
Only data from 2016 are available for women who have not had their cholesterol measured, and the percentage is higher in rural areas (86.0%) than urban (79.2%), making the percentage of rural women not measured for cholesterol comparable to both urban (85.0%) and rural (87.3%) men. The difference between men and women in relation to cholesterol not being measured is driven by urban women, with rural women's levels being just as high as both urban and rural men.

No data on migrants and risk factors measured disaggregated by geographical location are available.

EDUCATION LEVEL

Men and women with different education levels have not been measured for risk factors to the same extent. Both men and women with low and medium education levels have higher percentages of having not been measured than men and women with high levels of education (Fig. 17 and Annex 1, Table A1.15).

Fig. 17. Percentage not measured for risk factors by education level



Men in the low education level are being measured for risk factors least

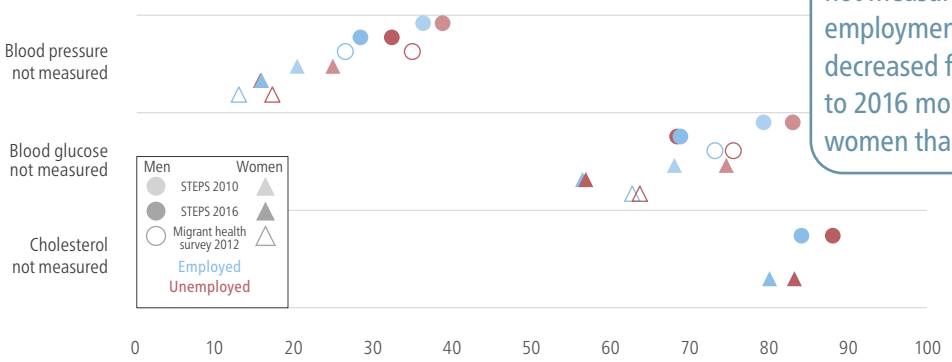
A consistent association between education level and not being measured for risk factors by a health-care professional is observed for both men and women. Higher percentages of both men and women in the low and medium education levels have not been measured across the different risk factors. Again, improvement from 2010 to 2016 can be seen at all education levels, but the improvement appears to be greater for those in the high education level.

While more men than women have not been measured for risk factors overall, men in the high education level are not significantly different than women in the low and medium education levels, and in some cases are even lower. While more men and women in the migrant population have not been measured for risk factors, similar associations between education level and not being measured for men and women are found within the general population.

EMPLOYMENT STATUS

Just as education level can present barriers in accessing services for men and women, employment status may also play a role. Higher percentages of men who are unemployed or not in the labour force tend not to have been measured for risk factors. This was also observed for women in the 2010 survey but not in the 2016 survey (Fig. 18 and Annex 1, Table A1.16).

Fig. 18. Percentage not measured for risk factors by employment status



Differences in groups not measured by employment status decreased from 2010 to 2016 more for women than for men

The differences from 2010 to 2016 by employment status among women not measured are observed to have lessened over time more than they have for men. The differences among migrant men and women by employment status are similar to those of the general population.

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 3) to examine more differences between sexes.

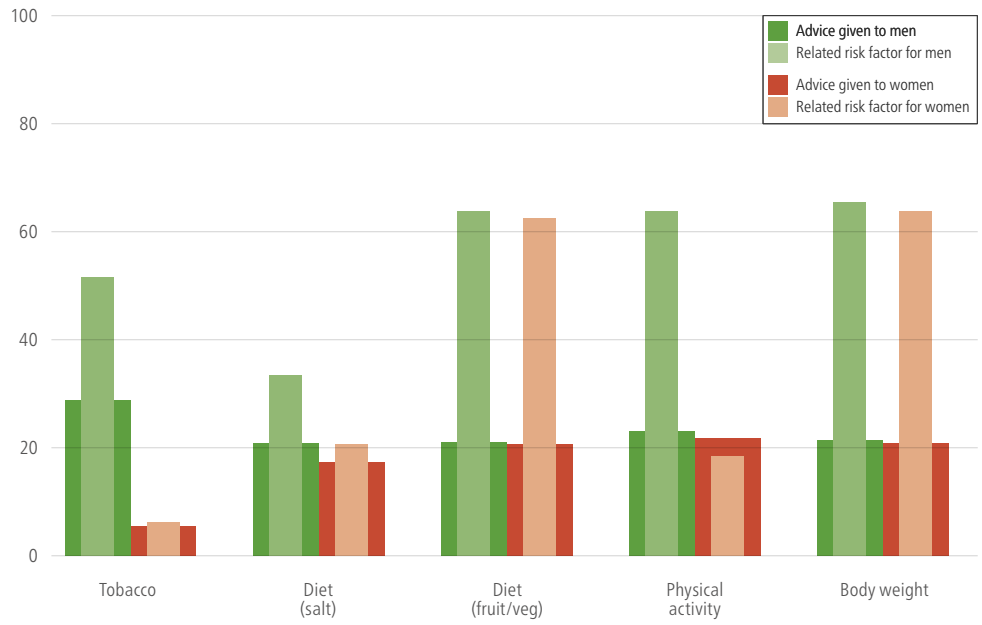
In two lifestyle topics (avoiding tobacco use and reducing salt in diet), a significantly higher percentage of men than women have been given advice. There are no significant differences in advice given between men and women in the remaining topics, which corresponds with the overall differences in prevalence of these risk factors.

Table 3. 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)

On tobacco, a significantly higher percentage of men (28.8%) than women (5.4%) report being counselled, but that percentage is still almost half the prevalence of men who use tobacco (57.0%). Women, however, report being counselled at nearly the same percentage as their prevalence with the risk factor (7.0%). With regards to the other lifestyle advice topics and risk factors, there are no significant differences between men and women. Prevalence for both not eating enough fruit and vegetables and being overweight is three times as much for both men and women as the percentage of men and women receiving advice on these topics (Fig. 19 and Annex 1, Table A1.17).

Fig. 19. Percentage of lifestyle advice given for related risk factors



There are no data on the lifestyle advice/counselling given to migrants related to the investigated risk factors.

The percentages of those receiving lifestyle advice are in most cases lower than the prevalence of the related risk factors. Apart from tobacco use, the differences in receiving lifestyle advice for men and women are not significant.

CONCLUSIONS

This country profile presents the first gender analysis of NCD risk factor data for adults in Georgia. 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. The data from two surveys provide an additional richness to the analysis that allows observations of trends in inequalities over time.

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 focus on the most recent survey of 2016 while accounting for changes over time, so can be used to address specific needs and policy opportunities for Georgia.

Significantly higher percentages of men than women engage in all but one (insufficient physical activity) of the behavioural risk factors in most age groups, and significantly higher percentages of women than men are found with most of the biological risk factors in the older age groups. The percentage of men and women with multiple risk factors increases with each age group, but the increase for women is more drastic, causing the difference in percentage between men and women to lessen with each ascending age group. While the percentage of men nearly doubles from the 18–29 age group to the 60–69 group, the increase in the percentage of women is more than six times greater between comparable age groups. High prevalence of behavioural and biological risk factors for both men and women is concerning, but the greater prevalence for women in the older age groups, despite lower prevalence in behavioural risk factors, demands attention.

Differences between men and women in behavioural and biological risk factors overall and over the life-course are similar in migrant and general populations. Migrant women increase in risk with each ascending age group more than women in the general population, and migrant men increase in risk more dramatically than women through the 45–59 age group before decreasing to levels comparable to the STEPS surveys in the 60+ age group. The percentage of migrant women with multiple risk factors is nearly 10 times greater from the youngest to the oldest age group.

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, higher prevalence in biological risk factors is observed among women in the older age groups than men, while there is generally lower prevalence in the younger age groups among women than men. 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 also be explored. 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.

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 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 and employment status further showcases the differences across behavioural and biological risk factors not only between, but also among, men and women and the changes from 2010 to 2016.

Higher prevalence for behavioural risk factors is generally found in urban areas, but there is variance. For example, higher prevalence of insufficient physical activity is found in urban areas for men and women, but while tobacco use is higher for women in urban areas, eating fewer than five servings of fruit and vegetables per day is higher for men. The prevalence of obesity for women is significantly higher in rural areas, while there is no significant difference for men. The prevalence of overweight is significantly higher in urban areas for men but significantly higher in rural areas for women.

With biological risk factors, higher prevalence tends to be found in the low education level for women but in the high education level for men. There is less variance with employment status than geographic location or education, but a trend of those risk factors that reveal differences indicates more employed men and women engage in behavioural risk factors, while higher prevalence of biological risk factors is found among those who are unemployed or not in the labour force, especially for women.

Prevalence of some behavioural risk factors for men and women decreased from 2010 to 2016. Prevalence nevertheless is observed to increase with many biological risk factors, especially for groups more at risk, such as older age groups, urban men and rural women, low-education women and high-education men, and men and women who are unemployed or not in the labour force. While there are similarities between the migrant and general populations, risk factors tend to be higher with the migrant population and more variance is seen by demographic groupings such as education level, especially for men. There is also an opposite association by education level for overweight and obesity risk factors for migrant women than is observed for women in the general population.

Important differences between men and women are also observed in accessing services. A significantly higher percentage of men are not being measured for biological risk factors, while a significantly higher percentage of women than men are being given lifestyle advice on most behavioural risk factors. Despite accessing services more, the prevalence of biological risk factors as measured during the STEPS survey is still higher for women than men, or they are not significantly different. This may in part be due to the differences in accessing services among subgroups of men and women as observed through disaggregation by age, geographic location, education and employment status, among other reasons.

Though fewer men than women have been measured for risk factors, more women start being measured earlier, but the difference decreases in the older age groups. With the migrant population, however, the higher percentage of men not measured generally persists throughout the age groups.

Men and women also vary in accessing services by geographic location. Fewer men and women in rural areas than in urban have been measured for risk factors, though an increase has been seen from 2010 to 2016 in the percentage of rural men and women who have been measured. While fewer men have been measured than women overall, some groups of women have not been measured comparably to men. For example, the percentage of women in rural areas who have not been measured for raised cholesterol is not lower than the percentages of men not measured in rural and urban areas.

With education and employment status, sociodemographic groups present differences and trends that are similar for men and women. Higher percentages of both women and men in the low and medium education levels than the high level have not been measured for risk factors. For migrant men and women, higher percentages are also found in the low and medium education levels, and the percentages not measured are generally higher than they are for the general population at all levels. While not significant, a trend of higher percentages of men who are unemployed or not in the labour force than men who are employed not being measured for each risk factor is observed. This same trend is observable for women, but the percentages of women who are unemployed or not in the labour force who have not been measured has decreased from 2010 to 2016.

Differences observed among migrant men and women are similar to those in the general population, but the percentages not measured for risk factors are generally higher among migrant men and women. Migrants face various barriers to access, such as legal and administrative barriers, language and cultural barriers and physical barriers, depending on their place of residence or settlement. Improving access to services for women and men may therefore require that additional attention is paid to the following groups: migrant men and women overall, men in the younger age groups, men and (especially) women in rural areas, men and women in the low and medium education levels, and men who are unemployed or not in the labour force.

The percentages of men and women who have reportedly received lifestyle advice are not significantly different. Most primary health-care protocols and guidelines are for both men and women, and this could in part explain the lack of difference between men and women receiving lifestyle advice, apart from tobacco use. A higher frequency of interaction of women with health-care services and a higher proportion of women with biological risk factors, especially in the older age groups, nevertheless indicate that lifestyle advice may not be given as frequently to women as men.

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 *(20)*. 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. Additional investigations could include patient counselling in private and public facilities, time constraints in patient visits, how health teams can improve patient counselling on lifestyle and NCD risk factors (including strengthening the role of nurses in these activities), and the extent of adherence

to primary health-care guidelines. Gender-sensitive and culturally appropriate responses would then facilitate behavioural change, access and use of services. An analysis of the impact of gender inequalities requires further quantitative and qualitative information that cannot be retrieved from the STEPS data.

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 then be addressed through tailored interventions.

Accompanying this country profile is a synthesis report with key findings and commonalities across the initial six 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 comprehensive insights. Studies that specifically examine 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 *(21)* should be prioritized and tailored to the country-specific context 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 – STEPS		Year	Men % (CI 95%)	Women % (CI 95%)
Behavioural				
Current tobacco use		2010	55.5 (52.7–58.4)	4.8 (3.7–5.8)
		2016	57.0 (53.6–60.3)	7.0 (5.8–8.2)
Alcohol consumption	Currently drink	2010	59.4 (55.5–63.4)	23.4 (20.6–26.2)
		2016	58.9 (55.2–62.5)	20.7 (18.6–22.9)
	Heavy episodic drinking[a]	2010	49.8 (45.7–53.9)	10.3 (8.5–12.0)
		2016	35.3 (31.2–39.4)	2.6 (1.7–3.5)
Unhealthy diet	< 5 fruits or vegetables per day	2010	70.7 (66.8–74.6)	68.6 (65.6–71.5)
		2016	63.8 (59.6–67.9)	62.4 (59.5–65.3)
	Always or often add salt	2010	–	–
		2016	33.4 (29.4–37.3)	20.6 (18.6-22.7)
	Always or often eat processed foods	2010	–	–
		2016	18.9 (15.3–22.5)	10.1 (8.7-11.5)
Insufficient physical activity		2010	17.5 (14.7–20.4)	18.4 (16.1–20.8)
		2016	16.2 (13.6–18.9)	18.4 (16.3–20.4)
Biological				
Overweight (BMI ≥ 25)		2010	58.6 (55.5–61.7)	54.2 (52.0–56.4)
		2016	65.5 (61.4–69.7)	63.8 (61.4–66.3)
Obesity (BMI ≥ 30)		2010	21.8 (19.3–24.3)	28.5 (26.6–30.3)
		2016	30.2 (26.9–33.6)	36.0 (33.7–38.2)
Raised blood pressure (BP)	Raised BP (or on medication for raised BP)	2010	37.1 (34.0–40.3)	29.8 (27.9-31.8)
		2016	38.6 (35.1–42.2)	36.9 (34.7-39.1)
	Raised BP (NOT on medication)	2010	30.0 (26.7–33.2)	16.4 (14.8-18.1)
		2016	28.7 (25.2–32.3)	21.6 (19.4-23.8)
Raised blood glucose (or on medication)		2010	19.7 (17.3–22.1)	13.0 (11.5–14.4)
		2016	4.7 (3.5–6.0)	4.3 (3.4–5.2)
Raised cholesterol (or on medication)		2010	14.9 (12.1–17.7)	20.9 (18.5–23.3)
		2016	21.9 (18.6–25.2)	33.0 (30.4–35.6)
Migrant health survey (2012)			**Men** % (CI 95%)	**Women** % (CI 95%)
Behavioural				
Current tobacco use			44.5 (32.3–56.7)	1.0 (0.3–1.6)
Alcohol consumption	Currently drink		55.1 (41.2–69.0)	21.8 (14.2–29.5)
	Heavy episodic drinking[a]		20.9 (9.2–32.5)	3.5 (1.8–5.2)
Unhealthy diet	< 5 fruits or vegetables per day		88.8 (83.0–94.6)	90.5 (88.1–93.0)
Insufficient physical activity			25.1 (16.9–33.2)	28.2 (14.8–41.7)
Biological				
Overweight (BMI ≥ 25)			55.7 (46.5–65.0)	57.3 (49.0–65.7)
Obesity (BMI ≥ 30)			18.5 (12.6–24.4)	29.1 (22.2–36.1)
Raised blood pressure (BP)	Raised BP (or on medication for raised BP)		49.0 (34.9–63.1)	48.6 (36.5–60.6)
	Raised BP (NOT on medication)		41.4 (26.7–56.1)	29.9 (19.5–40.2)

CI: confidence interval. [a] 2010 STEPS and migrant health survey measured for men as 5+ drinks, for women as 4+ drinks; 2016 STEPS measured as 6+ drinks for both.

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

Age group	Year	Men % (CI 95%)	Women % (CI 95%)
18–29	2010	31.2 (25.9–36.5)	6.3 (4.2–8.4)
	2016	29.2 (21.7–36.8)	7.9 (4.5–11.3)
30–44	2010	49.7 (44.0–55.3)	19.5 (16.4–22.5)
	2016	44.9 (37.8–52.0)	15.9 (12.7–19.1)
45–59	2010	57.4 (52.3–62.4)	39.9 (36.9–43.0)
	2016	57.2 (50.8–63.5)	38.9 (35.2–42.7)
60+	2010	58.7 (51.6–65.9)	54.3 (49.3–59.3)
	2016	50.8 (43.5–58.0)	51.2 (46.4–56.1)
Migrant health survey		**Men**	**Women**
18–29		23.8 (10.4–37.1)	6.6 (4.3–8.9)
30–44		55.9 (42.8–69.0)	29.4 (23.9–34.8)
45–59		74.4 (62.7–86.1)	52.6 (46.4–58.9)
60+		57.4 (42.3–72.5)	62.1 (46.7–77.5)

CI: confidence interval.

Table A1.3. Total mortality per 1000

Age group	Men	Women
18–29	2.94	0.90
30–44	6.90	2.08
45–59	26.05	8.70
60+	60.32	25.34

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

Risk factor – STEPS		Aged 18–29 % (CI 95%)		Aged 30–44 % (CI 95%)		Aged 45–59 % (CI 95%)		Aged 60+ % (CI 95%)	
		2010	2016	2010	2016	2010	2016	2010	2016
Current tobacco users	Men	52.2 (46.8–57.6)	59.5 (52.2–66.9)	64.8 (59.6–69.9)	62.0 (55.8–68.2)	55.7 (51.1–60.2)	58.0 (52.3–63.7)	33 (27.1–38.9)	38.4 (31.7–45.1)
	Women	4.8 (2.9–6.7)	7.0 (3.8–10.1)	4.7 (3.3–6.0)	8.8 (6.4–11.1)	5.3 (3.3–7.3)	7.1 (5.3–8.9)	2.6 (1.5–3.6)	3.9 (2.2–5.6)
Alcohol	Men	58.6 (52.5–64.7)	61.3 (54.1–68.5)	62.9 (56.3–69.5)	68.5 (62.5–74.5	60.2 (55.0–65.4)	54.8 (48.5–61.1)	46 (38.6–53.3)	41.4 (34.9–48.0)
	Women	28.2 (23.3–33.0)	29.8 (24.0–35.6)	26 (22.2–29.8)	22.1 (18.6–25.5)	18.5 (15.5–21.4)	17.3 (14.5–20.1)	13.5 (10.3–16.7)	12.4 (9.4–15.3)
Alcohol (heavy episodic)[a]	Men	50.7 (44.0–57.3)	33.2 (25.8–40.6)	52.3 (45.6–59.0)	45.3 (38.7–52.0)	50 (45.1–54.8)	33.8 (27.6–40.0)	33.7 (26.9–40.4)	20.2 (14.1–26.2)
	Women	14.5 (10.9–18.2)	4.5 (1.7–7.3)	10.1 (7.7–12.6)	2.9 (1.3–4.5)	7.8 (5.9–9.7)	1.9 (0.9–3.0)	4 (2.2–5.7)	0.8 (0.0–1.5)
Unhealthy diet (< 5 fruit/veg per day)	Men	70.8 (64.4–77.3)	64.3 (55.8–72.7)	70.7 (64.8–76.6)	63.6 (57.1–70.1)	68.9 (64.2–73.7)	64.6 (58.7–70.6)	76.6 (70.4–82.8)	61.2 (54.0–68.5)
	Women	67.9 (62.9–72.9)	64.2 (58.1–70.3)	67.4 (63.3–71.5)	62.6 (58.0–67.3)	69.2 (65.7–72.6)	61.5 (57.4–65.6)	73.9 (68.9–78.9)	61.0 (55.4–66.6)
Unhealthy diet (add salt)	Men	– (–)	29.2 (22.6–35.8)	– (–)	34.0 (27.0–41.0)	– (–)	35.6 (30.4–40.9)	– (–)	34.9 (27.8–42.0)
	Women	– (–)	22.3 (17.6–27.1)	– (–)	22.5 (18.8–26.2)	– (–)	21.3 (18.2–24.5)	– (–)	13.9 (11.0–16.9)

Table A1.4. contd

Risk factor – STEPS		Aged 18–29 % (CI 95%)		Aged 30–44 % (CI 95%)		Aged 45–59 % (CI 95%)		Aged 60+ % (CI 95%)	
		2010	2016	2010	2016	2010	2016	2010	2016
Unhealthy diet (processed foods)	Men	– (–)	20.3 (14.1–26.5)	– (–)	21.9 (15.6–28.1)	– (–)	15.5 (10.7–20.4)	– (–)	16.8 (11.4–22.1)
	Women	– (–)	11.2 (7.7–14.6)	– (–)	12.9 (10.0–15.7)	– (–)	8.3 (6.3–10.2)	– (–)	7.1 (4.9–9.2)
Insufficient physical activity	Men	14.4 (10.1–18.7)	8.6 (4.5–12.7)	19.6 (14.7–24.4)	18.2 (13.0–23.3)	18.6 (14.6–22.6)	20.0 (14.6–25.4)	21.7 (16.5–26.9)	18.0 (12.1–23.8)
	Women	19.0 (15.0–23.0)	20.5 (15.7–25.3)	16.9 (13.7–20.1)	14.8 (11.7–18.0)	17.4 (14.5–20.2)	17.8 (14.9–20.8)	27.4 (23.0–31.7)	22.6 (18.6–26.6)
Migrant health survey		**Aged 18–29** % (CI 95%)		**Aged 30–44** % (CI 95%)		**Aged 45–59** % (CI 95%)		**Aged 60+** % (CI 95%)	
Current tobacco use	Men	33.1 (6.1–60.1)		63.8 (54.0–73.5)		58.3 (47.6–69.1)		35.5 (12.4–58.7)	
	Women	0.6 (0.0–1.8)		2.6 (0.1–5.1)		0.7 (0.1–1.3)		0.0 (0.0–0.0)	
Alcohol (current drinker)	Men	41.1 (19.0–63.2)		65.0 (40.2–89.9)		64.9 (54.4–75.4)		63.9 (43.3–84.5)	
	Women	16.6 (3.1–30.1)		29.4 (13.8–45.0)		30.3 (21.9–38.8)		15.5 (7.5–23.5)	
Alcohol (heavy episodic)[a]	Men	31.3 (3.6–59.1)		54.5 (33.7–75.4)		56.1 (47.9–64.3)		48.7 (30.1–67.2)	
	Women	2.4 (0.0–5.9)		9.0 (0.2–17.7)		2.1 (0.5–3.8)		2.1 (0.0–4.6)	
Unhealthy diet (< 5 fruits/ vegetables)	Men	91.3 (86.0–96.6)		89.3 (83.1–95.5)		92.4 (87.5–97.3)		77.3 (56.0–98.5)	
	Women	89.2 (84.9–93.6)		90.0 (85.8–94.2)		88.7 (85.9–91.5)		89.8 (82.9–96.7)	
Insufficient physical activity	Men	18.2 (0.7–35.7)		17.5 (5.0–30.0)		26.6 (15.9–37.3)		23.9 (6.0–41.9)	
	Women	25.9 (14.0–37.8)		16.6 (3.2–30.0)		20.2 (10.2–30.1)		27.6 (7.0–48.1)	

CI: confidence interval. [a] 2010 STEPS and migrant health survey measured for men as 5+ drinks, for women as 4+ drinks; 2016 STEPS measured as 6+ drinks for both.

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

Risk factor – STEPS		Aged 18–29 % (CI 95%)		Aged 30–44 % (CI 95%)		Aged 45–59 % (CI 95%)		Aged 60+ % (CI 95%)	
		2010	2016	2010	2016	2010	2016	2010	2016
Overweight (BMI ≥ 25)	Men	41.6 (35.5–47.8)	45.9 (37.8–54.0)	64.4 (59.0–69.8)	66.3 (59.3–73.4)	71.9 (67.7–76.1)	78.3 (72.7–83.8)	73.4 (67.4–79.5)	73.0 (65.4–80.5)
	Women	21.7 (17.9–25.5)	26.8 (21.5–32.1)	55.3 (51.8–58.8)	60.5 (55.8–65.2)	76.4 (73.8–78.9)	79.1 (76.1–82.1)	78.6 (75.3–82.0)	88.5 (85.5–91.4)
Obesity (BMI ≥ 30)	Men	11.4 (7.4–15.4)	18.3 (11.9–24.6)	26.0 (21.5–30.5)	29.1 (23.1–35.1)	30.4 (26.3–34.4)	38.7 (33.0–44.4)	26.5 (20.7–32.3)	37.2 (28.7–45.6)
	Women	6.1 (3.8–8.4)	9.2 (5.2–13.1)	27.0 (24.2–29.8)	28.0 (24.0–31.9)	46.9 (43.7–50.1)	50.0 (46.3–53.8)	42.7 (38.4–47.0)	57.7 (53.4–62.0)
Raised blood pressure (or on medication)	Men	18.5 (13.9–23.2)	16.7 (10.3–23.1)	37.6 (32.2–43.0)	32.7 (26.4–39.1)	53.7 (48.6–58.8)	48.3 (43.1–53.4)	70.1 (63.7–76.5)	71.2 (64.0 –78.3)
	Women	6.5 (4.5–8.6)	7.0 (4.3–9.7)	20.4 (17.7–23.1)	19.6 (16.3–22.8)	51.8 (48.6–55.0)	54.4 (50.8–57.9)	74.4 (70.7–78.2)	74.5 (70.8–78.2)
Raised blood pressure NOT on medication	Men	17.4 (12.7–22.1)	15.4 (9.2–21.6)	33 (27.5–38.5)	26.6 (20.6–32.6)	42.9 (37.5–48.4)	35.7 (30.2–41.2)	51.4 (42.6–60.3)	54.6 (44.2–65.0)
	Women	5.1 (3.2–7.0)	5.8 (3.5–8.2)	13.0 (10.5–15.5)	15.3 (12.1–18.5)	31.4 (28.0–34.9)	36.3 (32.0–40.5)	47.4 (41.1–53.7)	46.4 (40.4–52.4)
Raised blood glucose (or on medication)	Men	9.5 (6.2–12.8)	0.3 (0.0–0.8)	21.4 (17.0–25.7)	1.9 (0.0–3.9)	28.1 (23.8–32.4)	10.4 (7.0–13.9)	34.9 (28.2–41.5)	7.3 (4.3–10.4)
	Women	5.3 (3.0–7.7)	0.0 (0.0–0.0)	9.5 (7.3–11.6)	1.6 (0.6–2.6)	19.0 (16.4–21.5)	6.8 (4.9–8.7)	33.8 (29.8–37.7)	10.2 (7.4–13.1)
Raised cholesterol (or on medication)	Men	11.3 (6.2–16.5)	8.4 (2.7–14.1)	15.4 (10.2–20.6)	22.9 (16.2–29.5)	17.3 (12.7–21.9)	30.6 (24.8–36.4)	18.6 (11.7–25.4)	26.5 (20.2–32.7)
	Women	11.7 (7.5–15.9)	9.9 (5.8–14.1)	19.2 (15.7–22.8)	23.9 (19.6–28.2)	26.7 (23.5–30.0)	46.9 (42.9–50.8)	32.4 (28.0–36.7)	55.0 (50.1–59.9)

Table A1.5. contd

Migrant health survey		Aged 18–29 % (CI 95%)	Aged 30–44 % (CI 95%)	Aged 45–59 % (CI 95%)	Aged 60+ % (CI 95%)
Overweight (BMI ≥ 25)	Men	32.6 (25.1–40.1)	56.9 (43.8–70.0)	73.8 (61.8–85.8)	66.0 (59.8–72.2)
	Women	21.8 (18.5–25.1)	54.5 (50.2–58.7)	83.1 (80.1–86.1)	74.4 (66.1–82.8)
Obesity (BMI ≥ 30)	Men	8.8 (3.9–13.7)	19.5 (8.1–30.9)	27.3 (18.5–36.1)	30.5 (17.2–43.7)
	Women	7.1 (4.5–9.6)	24.9 (16.7–33.2)	47.8 (32.8–62.8)	42.7 (27.2–58.2)
Raised blood pressure (or on medication)	Men	19.1 (10.5–27.8)	46.1 (26.8–65.3)	66.1 (48.9–83.2)	67.6 (45.0–90.1)
	Women	6.5 (1.3–11.8)	36.4 (27.0–45.8)	59.3 (51.1–67.4)	73.4 (64.0–82.8)
Raised blood pressure NOT on medication	Men	17.8 (9.3–26.3)	44.2 (23.4–65.0)	58.3 (36.9–79.7)	53.3 (26.9–79.8)
	Women	3.7 (0.4–7.0)	28.5 (19.0–38.0)	40.9 (27.7–54.2)	51.9 (41.4–62.3)

CI: confidence interval.

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

Risk factor – STEPS		Rural % (CI 95%)		Urban % (CI 95%)	
		2010	2016	2010	2016
Current tobacco users	Men	53.8 (49.9–57.7)	55.6 (50.2–61.0)	57.7 (53.6–61.7)	58.6 (54.3–62.9)
	Women	1.2 (0.6–1.9)	3.2 (2.0–4.4)	8.9 (6.7–11.0)	10.6 (8.6–12.7)
Alcohol	Men	58.1 (52.7–63.5)	61.5 (56.2–66.8)	61.0 (55.3–66.8)	56.2 (51.3–61.0)
	Women	22.4 (18.4–26.3)	18.1 (15.1–21.2)	24.6 (20.6–28.6)	23.1 (20.1–26.1)
Alcohol (heavy episodic)[a]	Men	51.0 (45.5–56.6)	38.5 (32.2–44.8)	49.2 (43.1–55.4)	32.0 (26.8–37.2)
	Women	9.9 (7.7–12.1)	2.8 (1.4–4.2)	10.7 (7.9–13.5)	2.4 (1.3–3.5)
Unhealthy diet (< 5 fruit/veg per day)	Men	69.3 (64.1–74.5)	58.1 (51.8–64.4)	72.4 (66.5–78.2)	69.7 (64.6–74.7)
	Women	65.2 (60.9–69.5)	58.8 (54.4–63.2)	72.5 (68.6–76.4)	65.7 (61.9–69.4)
Unhealthy diet (add salt)	Men	– (–)	32.8 (26.2–39.4)	– (–)	33.9 (29.6–38.3)
	Women	– (–)	20.9 (17.8–23.9)	– (–)	20.4 (17.8–23.1)
Unhealthy diet (processed foods)	Men	69.3 (64.1–74.5)	58.1 (51.8–64.4)	72.4 (66.5–78.2)	69.7 (64.6–74.7)
	Women	65.2 (60.9–69.5)	58.8 (54.4–63.2)	72.5 (68.6–76.4)	65.7 (61.9–69.4)
Insufficient physical activity	Men	12.9 (9.5–16.4)	11.4 (8.2–14.7)	23.1 (18.5–27.7)	21.4 (17.4–25.4)
	Women	15.5 (12.5–18.5)	14.9 (12.1–17.6)	21.9 (18.2–25.6)	21.5 (18.7–24.4)

CI: confidence interval. [a] 2010 STEPS and migrant health survey measured for men as 5+ drinks, for women as 4+ drinks; 2016 STEPS measured as 6+ drinks for both.

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

Risk factor – STEPS		Rural % (CI 95%)		Urban % (CI 95%)	
		2010	2016	2010	2016
Overweight (BMI ≥ 25)	Men	57.6 (53.4–61.8)	61.4 (54.9–68.0)	59.7 (55.0–64.4)	69.7 (65.2–74.2)
	Women	56.0 (53.0–59.0)	67.1 (63.6–70.6)	52.1 (48.9–55.3)	60.7 (57.4–64.1)
Obesity (BMI ≥ 30)	Men	21.0 (17.4–24.6)	28.3 (23.2–33.5)	22.8 (19.4–26.1)	32.2 (28.1–36.3)
	Women	30.4 (27.7–33.1)	38.4 (35.0–41.8)	26.2 (23.8–28.7)	33.7 (30.8–36.7)
Raised blood pressure (or on medication)	Men	39.2 (34.6–43.8)	39.6 (34.5–44.7)	34.6 (30.4–38.8)	37.6 (32.7–42.5)
	Women	30.9 (28.0–33.7)	40.8 (37.5–44.1)	28.6 (26.0–31.2)	33.3 (30.3–36.4)
Raised blood pressure (NOT on medication)	Men	31.5 (26.7–36.2)	30.2 (25.3–35.2)	28.2 (23.7–32.6)	27.2 (22.2–32.1)
	Women	17.0 (14.6–19.4)	26.0 (22.8–29.3)	15.7 (13.4–18.0)	17.5 (14.7–20.4)

Table A1.7. contd

Risk factor – STEPS		Rural % (CI 95%)		Urban % (CI 95%)	
		2010	2016	2010	2016
Raised blood glucose (or on medication)	Men	18.8 (15.8–21.9)	4.7 (3.1–6.4)	20.8 (17.1–24.5)	4.8 (2.7–6.9)
	Women	12.4 (10.3–14.5)	4.2 (2.9–5.5)	13.7 (11.6–15.7)	4.4 (3.2–5.6)
Raised cholesterol (or on medication)	Men	8.1 (5.5–10.6)	19.8 (15.0–24.6)	23.2 (18.1–28.4)	24.2 (19.3–29.2)
	Women	14.3 (11.6–17.0)	32.0 (28.0–36.1)	29.1 (25.0–33.1)	33.9 (30.5–37.4)

CI: confidence interval.

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

Risk factor – STEPS		Low % (CI 95%)		Medium % (CI 95%)		High % (CI 95%)	
		2010	2016	2010	2016	2010	2016
Current tobacco users	Men	55.0 (48.5–61.6)	57.4 (50.8–63.9)	54.7 (50.2–59.3)	57.9 (53.1–62.7)	56.8 (51.8–61.8)	55.1 (49.1–61.2)
	Women	2.5 (1.4–3.6)	6.1 (4.0–8.2)	3.7 (2.4–4.9)	6.3 (4.6–8.1)	5.3 (3.3–7.3)	7.1 (5.3–8.9)
Alcohol	Men	54.8 (47.0–62.6)	52.6 (45.0–60.2)	61.3 (55.9–66.8)	59.1 (54.2–64.1)	60.5 (54.6–66.4)	64.6 (58.5–70.8)
	Women	17.3 (13.6–21.0)	15.4 (12.2–18.5)	25.7 (21.8–29.6)	23.1 (19.8–26.5)	25.1 (21.4–28.8)	22.4 (18.7–26.1)
Alcohol (heavy episodic)[a]	Men	47.5 (39.8–55.2)	31.8 (24.2–39.4)	50.4 (44.7–56.1)	35.1 (29.8–40.3)	50.7 (45.0–56.4)	39.3 (32.5–46.2)
	Women	7.3 (4.8–9.8)	2.6 (1.0–4.3)	10.9 (8.6–13.3)	3.0 (1.5–4.4)	11.7 (9.0–14.4)	1.9 (0.5–3.3)
Unhealthy diet (< 5 fruit/veg per day)	Men	69.2 (63.4–75.0)	67.4 (60.1–74.7)	70.2 (64.6–75.9)	64.0 (58.4–69.6)	72.2 (66.6–77.8)	59.6 (53.1–66.2)
	Women	69.9 (65.6–74.1)	62.0 (57.2–66.8)	67.9 (64.2–71.6)	64.3 (60.4–68.2)	68.6 (64.3–72.9)	59.1 (54.1–64.1)
Unhealthy diet (add salt)	Men	– (–)	39.9 (33.3–46.5)	– (–)	34.0 (28.8–39.3)	– (–)	25.7 (20.3–31.2)
	Women	– (–)	25.7 (21.9–29.5)	– (–)	19.3 (16.4–22.2)	– (–)	17.5 (13.9–21.0)
Unhealthy diet (processed foods)	Men	– (–)	20.2 (14.1–26.3)	– (–)	20.4 (15.1–25.7)	– (–)	14.9 (10.3–19.5)
	Women	– (–)	12.7 (9.7–15.7)	– (–)	8.4 (6.3–10.4)	– (–)	10.4 (7.7–13.1)
Insufficient physical activity	Men	19.3 (14.2–24.4)	15.5 (10.0–21.1)	12.6 (8.8–16.4)	15.1 (11.2–19.0)	21.7 (16.7–26.7)	18.9 (13.7–24.2)
	Women	19.6 (15.7–23.5)	20.8 (17.3–24.4)	16.9 (14.1–19.7)	16.3 (13.3–19.2)	19.8 (16.2–23.5)	19.6 (15.5–23.7)
Migrant health survey		**Low** % (CI 95%)		**Medium** % (CI 95%)		**High** % (CI 95%)	
Current tobacco users	Men	47.4 (39.1–55.8)		42.4 (23.9–61.0)		8.3 (0.0–28.2)	
	Women	0.3 (0.0–0.6)		1.6 (0.0–3.1)		16.7 (16.7–16.7)	
Alcohol (current drinker)[a]	Men	36.5 (22.7–50.2)		56.6 (41.5–71.8)		64.1 (45.9–82.3)	
	Women	18.1 (11.2–25.0)		21.6 (14.1–29.2)		24.4 (8.0–40.7)	
Alcohol (heavy episodic)	Men	18.0 (6.7–29.4)		45.7 (28.1–63.3)		54.6 (42.0–67.2)	
	Women	2.9 (0.0–6.9)		3.5 (1.9–5.2)		3.9 (0.7–7.1)	

Table A1.8. contd

Migrant health survey		Low % (CI 95%)	Medium % (CI 95%)	High % (CI 95%)
Unhealthy diet (< 5 fruit/veg per day)	Men	95.6 (89.4–100.0)	89.2 (84.5–94.0)	83.3 (71.9–94.7)
	Women	97.1 (94.5–99.8)	92.2 (89.5–94.9)	83.0 (76.3–89.7)
Insufficient physical activity	Men	41.1 (30.1–52.1)	22.0 (11.7–32.3)	21.6 (10.7–32.6)
	Women	41.0 (16.2–65.8)	27.5 (15.8–39.3)	22.5 (11.2–33.8)

CI: confidence interval. [a] 2010 STEPS and migrant health survey measured for men as 5+ drinks, for women as 4+ drinks; 2016 STEPS measured as 6+ drinks for both.

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

Risk factor – STEPS		Low % (CI 95%)		Medium % (CI 95%)		High % (CI 95%)	
		2010	2016	2010	2016	2010	2016
Overweight (BMI ≥ 25)	Men	64.4 (58.8–69.9)	63.2 (56.5–69.8)	48.3 (43.5–53.0)	61.8 (55.9–67.7)	66.0 (60.7–71.3)	74.7 (68.8–80.6)
	Women	64.8 (60.9–68.6)	72.3 (68.5–76.2)	51.2 (47.9–54.4)	62.3 (58.6–66.0)	49.7 (45.7–53.7)	57.0 (51.9–62.1)
Obesity (BMI ≥ 30)	Men	25.0 (20.3–29.7)	24.2 (19.0–29.4)	18.3 (14.7–22.0)	27.7 (22.8–32.7)	23.4 (19.5–27.3)	41.0 (34.8–47.1)
	Women	37.4 (33.4–41.4)	45.5 (41.6–49.5)	27.5 (25.0–30.0)	35.6 (32.0–39.1)	22.1 (19.0–25.3)	25.8 (22.0–29.5)
Raised blood pressure (or on medication)	Men	36.2 (30.6–41.9)	38.5 (32.1–45.0)	36.4 (31.7–41.0)	38.0 (32.7–43.2)	38.6 (33.5–43.7)	39.9 (33.0–46.9)
	Women	37.4 (33.3–41.4)	48.1 (44.2–52.0)	28.5 (25.5–31.5)	33.3 (30.1–36.5)	25.2 (22.3–28.0)	30.8 (26.8–34.8)
Raised blood pressure NOT on medication	Men	28.8 (23.2–34.4)	29.3 (22.8–35.7)	30.9 (26.2–35.7)	28.3 (23.0–33.6)	29.7 (24.5–34.9)	29.0 (22.3–35.8)
	Women	21.5 (17.8–25.1)	27.9 (23.4–32.4)	15.3 (12.7–17.9)	19.9 (16.9–22.9)	14.0 (11.7–16.2)	18.4 (14.6–22.2)
Raised blood glucose (or on medication)	Men	24.3 (19.6–29.0)	4.1 (2.0–6.3)	16.5 (13.1–19.9)	4.3 (2.4–6.2)	20.0 (16.3–23.6)	6.2 (3.0–9.3)
	Women	16.5 (13.6–19.4)	6.5 (4.4–8.5)	11.8 (9.7–13.8)	3.6 (2.5–4.8)	11.7 (9.7–13.8)	3.0 (1.6–4.4)
Raised cholesterol (or on medication)	Men	11.4 (6.5–16.3)	17.7 (12.3–23.1)	14.1 (9.5–18.7)	22 (17.1–26.9)	18 (13.0–22.9)	26.0 (19.4–32.6)
	Women	17.4 (14.1–20.8)	34.1 (29.8–38.4)	18.8 (16.0–21.6)	32.1 (28.5–35.8)	27.3 (22.6–32.0)	33.1 (28.0–38.2)

Migrant health survey		Low % (CI 95%)	Medium % (CI 95%)	High % (CI 95%)
Overweight (BMI ≥ 25)	Men	47.9 (35.6–60.1)	53.0 (40.6–65.3)	67.6 (60.7–74.4)
	Women	47.6 (37.1–58.1)	58.3 (44.3–72.2)	60.5 (55.0–65.9)
Obesity (BMI ≥ 30)	Men	12.9 (3.0–22.7)	15.2 (8.8–21.6)	30.0 (23.9–36.0)
	Women	20.4 (13.1–27.7)	29.9 (20.0–39.9)	32.1 (26.1–38.2)
Raised blood pressure (or on medication)	Men	52.6 (40.8–64.5)	44.7 (27.9–61.5)	56.3 (42.6–70.1)
	Women	64.8 (50.4–79.1)	45.6 (30.2–61.0)	45.9 (36.3–55.5)
Raised blood pressure NOT on medication	Men	44.5 (31.3–57.7)	36.4 (20.0–52.8)	50.7 (35.4–65.9)
	Women	41.3 (24.3–58.2)	28.0 (15.2–40.7)	28.8 (20.0–37.7)
Raised blood glucose (or on medication)	Men	47.9 (35.6–60.1)	53.0 (40.6–65.3)	67.6 (60.7–74.4)
	Women	47.6 (37.1–58.1)	58.3 (44.3–72.2)	60.5 (55.0–65.9)
Raised cholesterol (or on medication)	Men	12.9 (3.0–22.7)	15.2 (8.8–21.6)	30.0 (23.9–36.0)
	Women	20.4 (13.1–27.7)	29.9 (20.0–39.9)	32.1 (26.1–38.2)

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

Risk factor – STEPS		Employed % (CI 95%)		Unemployed or not in the labour force % (CI 95%)	
		2010	2016	2010	2016
Current tobacco users	Men	58.8 (54.6–63.0)	59.1 (54.2–63.9)	52.6 (48.1–57.1)	54.7 (50.4–59.1)
	Women	6.1 (4.1–8.1)	10.8 (7.9–13.7)	4.2 (3.1–5.4)	5.7 (4.4–7.0)
Alcohol	Men	63.6 (58.4–68.7)	61.3 (56.5–66.0)	55.6 (50.9–60.4)	57.0 (52.0–62.0)
	Women	26.5 (22.8–30.2)	23.9 (20.2–27.7)	22.2 (19.1–25.3)	19.6 (17.2–22.0)
Alcohol (heavy episodic)[a]	Men	53.9 (48.8–59.1)	37.2 (32.3–42.1)	46.0 (41.0–51.0)	33.8 (28.6–39.0)
	Women	10.8 (8.0–13.5)	2.8 (1.2–4.3)	10.1 (8.1–12.0)	2.6 (1.4–3.7)
Unhealthy diet (< 5 fruit/veg per day)	Men	69.8 (65.0–74.7)	64.2 (58.9–69.5)	71.4 (66.7–76.2)	63.8 (58.7–68.9)
	Women	66.7 (62.9–70.6)	60.1 (55.6–64.7)	69.3 (66.0–72.6)	63.2 (60.0–66.4)
Unhealthy diet (add salt)	Men	– (–)	33.3 (28.2–38.3)	– (–)	33.7 (28.5–38.9)
	Women	– (–)	21.8 (18.4–25.3)	– (–)	20.2 (17.8–22.6)
Unhealthy diet (processed foods)	Men	– (–)	19.9 (15.8–24.0)	– (–)	18.1 (13.0–23.2)
	Women	– (–)	11.9 (9.2–14.7)	– (–)	9.4 (7.8–11.1)
Insufficient physical activity	Men	17.5 (13.6–21.4)	17.2 (13.4–21.0)	17.6 (14.1–21.1)	15.5 (12.0–19.0)
	Women	17.1 (13.6–20.5)	14.4 (11.2–17.6)	19.0 (16.4–21.5)	19.7 (17.3–22.1)
Migrant health survey		**Employed** % (CI 95%)		**Unemployed or not in the labour force** % (CI 95%)	
Current tobacco users	Men	56.5 (50.3–62.7)		40.4 (26.6–54.3)	
	Women	0.8 (0.4–1.3)		1.0 (0.2–1.8)	
Alcohol (current drinker)	Men	69.7 (57.4–82.1)		50.5 (35.7–65.2)	
	Women	23.1 (14.6–31.6)		21.5 (13.5–29.6)	
Alcohol (heavy episodic)[a]	Men	63.9 (52.6–75.1)		36.7 (22.6–50.9)	
	Women	4.3 (0.0–10.2)		3.4 (1.3–5.4)	
Unhealthy diet (< 5 fruit/veg per day)	Men	87.5 (79.5–95.6)		89.3 (83.6–95.0)	
	Women	83.0 (77.4–88.7)		92.1 (89.6–94.5)	
Insufficient physical activity	Men	11.3 (3.8–18.8)		30.1 (21.6–38.6)	
	Women	18.4 (11.7–25.1)		30.3 (15.8–44.8)	

CI: confidence interval. [a] 2010 STEPS and migrant health survey measured for men as 5+ drinks, for women as 4+ drinks; 2016 STEPS measured as 6+ drinks for both.

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

Risk factor – STEPS		Employed % (CI 95%)		Unemployed or not in the labour force % (CI 95%)	
		2010	2016	2010	2016
Overweight (BMI ≥ 25)	Men	67.9 (63.9–72.0)	68.5 (62.8–74.2)	49.8 (45.3–54.2)	62.5 (57.5–67.6)
	Women	57.8 (54.0–61.5)	64.7 (60.3–69.1)	52.8 (50.2–55.3)	63.5 (60.7–66.3)
Obesity (BMI ≥ 30)	Men	25.8 (21.9–29.6)	32.6 (28.1–37.1)	18.0 (14.9–21.0)	28.1 (23.6–32.5)
	Women	28.7 (25.5–31.9)	31.5 (27.5–35.6)	28.4 (26.3–30.4)	37.5 (34.8–40.1)
Raised blood pressure (or on medication)	Men	39.0 (34.8–43.1)	35.3 (30.5–40.0)	35.3 (31.2–39.4)	41.8 (37.0–46.6)
	Women	29.8 (26.7–33.0)	32.0 (28.1–36.0)	29.8 (27.5–32.2)	38.6 (36.0–41.1)
Raised blood pressure NOT on medication	Men	32.1 (27.9–36.2)	26 (21.2–30.7)	28.0 (23.7–32.3)	31.4 (26.5–36.3)
	Women	15.4 (12.8–18.1)	19.3 (15.7–23.0)	16.8 (14.8–18.8)	22.4 (19.8–25.0)
Raised blood glucose (or on medication)	Men	20.0 (16.6–23.3)	5.0 (2.9–7.2)	19.4 (15.8–23.0)	4.5 (2.8–6.1)
	Women	13.7 (11.0–16.5)	3.2 (1.5–4.8)	12.7 (11.0–14.3)	4.6 (3.6–5.6)
Raised cholesterol (or on medication)	Men	17.2 (13.3–21.1)	24.1 (18.7–29.5)	12.7 (9.2–16.2)	19.8 (15.9–23.8)
	Women	24.7 (20.1–29.3)	36.1 (31.4–40.9)	19.3 (16.7–21.9)	32.0 (29.1–34.8)

Table A1.11. contd

Migrant health survey		Employed % (CI 95%)	Unemployed or not in the labour force % (CI 95%)
Overweight (BMI ≥ 25)	Men	56.5 (50.3–62.7)	40.4 (26.6–54.3)
	Women	0.8 (0.4–1.3)	1.0 (0.2–1.8)
Obesity (BMI ≥ 30)	Men	69.7 (57.4–82.1)	50.5 (35.7–65.2)
	Women	23.1 (14.6–31.6)	21.5 (13.5–29.6)
Raised blood pressure (or on medication)	Men	63.9 (52.6–75.1)	36.7 (22.6–50.9)
	Women	4.3 (0.0–10.2)	3.4 (1.3–5.4)
Raised blood pressure NOT on medication	Men	87.5 (79.5–95.6)	89.3 (83.6–95.0)
	Women	83.0 (77.4–88.7)	92.1 (89.6–94.5)

CI: confidence interval.

Table A1.12. Percentages not measured for risk factors by a health-care professional (%)

Risk factor measurement – STEPS	Men % (CI 95%)		Women % (CI 95%)	
	2010	2016	2010	2016
Raised blood pressure (NOT on medication)	37.4 (32.8–41.9)	30.1 (26.9–33.3)	23.3 (20.4-26.3)	15.4 (13.6-17.3)
Raised blood glucose (or on medication)	81.3 (78.7–84.0)	68.7 (65.6–71.7)	72.8 (70.8-74.7)	56.7 (54.2-59.1)
Raised cholesterol (or on medication)	– (–)	86.2 (84.0–88.3)	– (–)	82.5 (80.6-84.3)

Migrant health survey	Men % (CI 95%)	Women % (CI 95%)
Blood pressure not measured	32.7 (25.2–40.2)	16.2 (12.5–20.0)
Blood glucose not measured	75.0 (70.3–79.7)	63.4 (58.9–67.9)

CI: confidence interval.

Table A1.13. Percentages not measured for risk factors by age group

Risk factor measurement – STEPS		Aged 18–29 % (CI 95%)		Aged 30–44 % (CI 95%)		Aged 45–59 % (CI 95%)		Aged 60+ % (CI 95%)	
		2010	2016	2010	2016	2010	2016	2010	2016
Blood pressure not measured	Men	50.5 (43.5–57.4)	54.7 (47.0–62.3)	36.9 (30.4–43.4)	29.3 (23.0–35.6)	25.5 (20.6–30.5)	18.4 (13.5–23.3)	13.7 (8.7–18.6)	10.0 (6.1–13.8)
	Women	34.6 (28.4–40.9)	23.9 (18.5–29.2)	22.4 (18.8–26.0)	15.4 (12.4–18.4)	17.2 (14.4–20.1)	13.7 (11.2–16.3)	7.8 (5.5–10.1)	7.1 (5.0–9.2)
Blood glucose not measured	Men	95.0 (92.7–97.3)	81.3 (75.2–87.3)	82.1 (77.6–86.7)	74.5 (69.1–80.0)	66.9 (62.3–71.5)	58.7 (53.6–63.8)	58.5 (51.6–65.5)	52.7 (45.7–59.6)
	Women	83.7 (79.8–87.7)	66.0 (60.7–71.4)	76.1 (73.3–78.9)	60.8 (56.5–65.2)	63.5 (60.4–66.6)	53.8 (49.9–57.6)	52.2 (47.9–56.5)	41.9 (37.8–45.9)
Cholesterol not measured	Men	– (–)	95.1 (92.4–97.8)	– (–)	89.1 (85.3–92.9)	– (–)	78.7 (74.5–83.0)	– (–)	78.4 (72.0–84.8)
	Women	– (–)	88.7 (85.2–92.3)	– (–)	88.2 (85.6–90.8)	– (–)	78.2 (75.1–81.3)	– (–)	71.6 (67.2–76.0)

Migrant health survey		Aged 18–29 % (CI 95%)	Aged 30–44 % (CI 95%)	Aged 45–59 % (CI 95%)	Aged 60+ % (CI 95%)
Blood pressure not measured	Men	40.6 (27.6–53.7)	36.3 (27.2–45.4)	27.5 (19.7–35.3)	30.9 (8.5–53.3)
	Women	27.5 (23.1–32.0)	15.5 (12.6–18.5)	13.5 (11.5–15.6)	13.6 (4.6–22.5)
Blood glucose not measured	Men	76.0 (71.2–80.8)	80.4 (68.0–92.8)	75.9 (72.4–79.4)	71.1 (54.4–87.8)
	Women	69.0 (61.0–77.1)	67.3 (65.2–69.4)	57.8 (48.1–67.4)	59.6 (45.1–74.0)

CI: confidence interval.

Table A1.14. Percentages not measured for risk factors by geographic location

Risk factor measurement – STEPS		Rural % (CI 95%)		Urban % (CI 95%)	
		2010	2016	2010	2016
Blood pressure not measured	Men	37.3 (30.2–44.4)	33.9 (28.8–38.9)	37.5 (32.2–42.7)	26.1 (22.0–30.2)
	Women	24.1 (20.2–28.0)	15.4 (12.7–18.2)	22.4 (17.9–26.9)	15.4 (13.0–17.9)
Blood glucose not measured	Men	83.1 (79.3–86.9)	69.9 (65.6–74.2)	79.2 (75.5–82.9)	67.4 (63.2–71.7)
	Women	77.1 (74.8–79.5)	58.5 (54.9–62.1)	67.7 (64.5–70.8)	55.0 (51.6–58.4)
Cholesterol not measured	Men	– (–)	87.3 (84.3–90.3)	– (–)	85.0 (81.9–88.0)
	Women	– (–)	86.0 (83.5–88.6)	– (–)	79.2 (76.8–81.6)

CI: confidence interval.

Table A1.15. Prevalence of behavioural risk factors by education level

Risk factor measurement – STEPS		Low % (CI 95%)		Medium % (CI 95%)		High % (CI 95%)	
		2010	2016	2010	2016	2010	2016
Blood pressure not measured	Men	40.1 (33.5–46.7)	33.4 (26.5–40.3)	41.0 (34.9–47.1)	32.8 (27.8–37.9)	31.5 (25.5–37.6)	21.6 (15.9–27.4)
	Women	24.7 (19.9–29.6)	17.6 (14.3–20.9)	24.7 (21.1–28.3)	16.9 (14.1–19.8)	19.8 (15.8–23.9)	10.1 (7.3–12.9)
Blood glucose not measured	Men	81.0 (76.1–85.9)	72.3 (66.7–77.8)	85.4 (82.0–88.7)	72.1 (67.6–76.7)	77.1 (73.2–81.1)	58.7 (52.5–64.9)
	Women	74. (71.5–77.3)	58.9 (54.2–63.6)	75.5 (72.7–78.3)	59.6 (56.3–62.8)	66.9 (63.4–70.4)	48.4 (43.8–53.0)
Cholesterol not measured	Men	– (–)	89.9 (86.6–93.3)	– (–)	87.1 (84.1–90.0)	– (–)	80.8 (76.2–85.4)
	Women	– (–)	85.1 (82.0–88.2)	– (–)	84.5 (82.1–87.0)	– (–)	75.3 (71.6–79.0)
Migrant health survey		**Low** % (CI 95%)		**Medium** % (CI 95%)		**High** % (CI 95%)	
Blood pressure not measured	Men	39.8 (10.8–68.7)		34.0 (26.9–41.0)		24.7 (18.3–31.0)	
	Women	14.7 (4.7–24.7)		18.1 (12.2–24.0)		12.7 (9.8–15.6)	
Blood glucose not measured	Men	83.5 (78.3–88.8)		77.3 (71.2–83.4)		64.2 (54.6–73.8)	
	Women	71.4 (65.2–77.7)		64.5 (59.3–69.7)		56.4 (51.0–61.7)	

CI: confidence interval.

Table A1.16. Percentages not measured for risk factors by employment status

Risk factor measurement – STEPS		Employed % (CI 95%)		Unemployed or not in the labour force % (CI 95%)	
		2010	2016	2010	2016
Blood pressure not measured	Men	36.1 (30.6–41.6)	28.2 (23.6–32.9)	38.6 (33.2–44.1)	32.1 (27.2–37.1)
	Women	20.0 (16.0–24.0)	15.5 (11.8–19.1)	24.6 (21.3–27.9)	15.4 (13.3–17.5)
Blood glucose not measured	Men	79.5 (75.7–83.3)	68.8 (64.2–73.5)	83.1 (80.1–86.0)	68.5 (64.2–72.8)
	Women	68.0 (64.3–71.6)	56.4 (52.2–60.7)	74.6 (72.4–76.8)	56.7 (53.9–59.6)
Cholesterol not measured	Men	– (–)	84.2 (80.9–87.5)	– (–)	88.2 (85.2–91.1)
	Women	– (–)	80.1 (77.1–83.1)	– (–)	83.3 (81.1–85.5)
Migrant health survey		**Employed** % (CI 95%)		**Unemployed or not in the labour force** % (CI 95%)	
Blood pressure not measured	Men	26.3 (16.3–36.2)		34.7 (23.5–46.0)	
	Women	12.7 (6.8–18.6)		16.9 (12.8–21.0)	
Blood glucose not measured	Men	73.3 (60.3–86.3)		75.6 (69.0–82.2)	
	Women	62.7 (54.0–71.5)		63.6 (57.3–69.9)	

CI: confidence interval.

Table A1.17. Percentages of lifestyle advice given for related risk factors

		Advice given % (CI 95%)	**Prevalence of related risk factor** % (CI 95%)
Tobacco	Men	28.8 (25.6–32.0)	57.0 (53.6–60.3)
	Women	5.4 (4.0–6.8)	7.0 (5.8–8.2)
Diet – added salt	Men	20.9 (18.2–23.5)	33.4 (29.4–37.3)
	Women	17.4 (15.5–19.3)	20.6 (18.6–22.7)
Diet – fruits and vegetables	Men	21.0 (18.2–23.8)	63.8 (59.6–67.9)
	Women	20.6 (18.3–22.9)	62.4 (59.5–65.3)
Physical activity	Men	23.1 (20.1–26.1)	16.2 (13.6–18.9)
	Women	21.8 (19.6–24.0)	18.4 (16.3–20.4)
Body weight	Men	21.4 (18.6–24.3)	65.5 (61.4–69.7)
	Women	20.8 (18.7–22.9)	63.8 (61.4–66.3)

CI: confidence interval.

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