

# **Cause-specific mortality among adolescents and young adults in Belgium: differences according to nationality of origin**

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## **Introduction**

This study probes into the relation between nationality of origin and cause-specific mortality among young adults in Belgium. Do (descendants of) migrants have a mortality advantage or disadvantage at young ages? And if so, are there different inequality patterns according to cause of death?

Mortality of adolescents and young adults is a topic that has often fallen beneath the radar of epidemiological and public health research. Young persons are considered to be in one of the healthiest stages of their lives (Blum, 2009), thus directing attention to other, more troubling stages, earlier and especially later in life. Yet, health and mortality of adolescents and young adults is of particular interest for both research and policy. Lifestyles adopted in these stages may have a significant impact later in life (Due et al., 2011). Healthy patterns established in adolescence may benefit health later in life, as much as risky behaviour, such as drinking, smoking and unsafe sex, may have a negative impact (van Lenthe et al., 2009).

An adult migrant mortality advantage has been found in Belgium (Deboosere & Gadeyne, 2005) as well as in other countries (Franzini, Ribble, & Keddie, 2000; Razum, Zeeb, Akgün, & Yilmaz, 1998). This observation remains somewhat puzzling, as a large share of migrants have a lower socioeconomic position, yet lower mortality rates than natives. Deboosere & Gadeyne (2005) concluded that the healthy migrant effect can only partly explain the differences, and that lifestyle effects, dietary patterns and medical infrastructure in the host country are other important determinants. For the period 2001-2005, De Grande et al. (2013) found lower mortality among first-generation Turks and Moroccans at young ages compared to natives in the Brussels-Capital Region. However, second-generation migrants of Turkish or Moroccan origin tended to have similar mortality rates as native young adults. Due to the small number of deaths, it was however not possible to look into cause-specific mortality patterns according to nationality of origin. By expanding the follow-up time to eight years and including two Belgian regions in the analyses, we are now able to conduct a more in-depth analysis of mortality profiles among native young Belgians and their foreign-origin counterparts.

## Data and methods

Our data consist of a record linkage between the Belgian census of 2001 and register data on death and emigration of 01/10/2001-01/01/2010. To enable the use of these data for cause-specific mortality analyses, a second linkage with death certificates of the Flemish (FL) and Brussels-Capital Region (BCR) was conducted, adding information on causes of death. Death certificates of the Walloon Region were not available for the same follow-up time. The analyses were restricted to adolescents and young adults aged 10-29 years ( $N_{FL}=1,689,716$ ;  $N_{BCR}=255,551$ ) at baseline.

### *Variables*

*Nationality of origin* – To construct nationality of origin, information on the nationality of birth of both parents of the respondent is used. When only one of the parents has a foreign nationality or the parents have different nationalities, the nationality of the mother is used. For those who already left their parental home, their own nationality of birth was used. Five categories were retained: 1) Native Belgians ( $N=1,347,711$ ; 82.8%), 2) Turks/Moroccans ( $N=135,037$ ; 8.3%), 3) Southern Europeans ( $N=50,637$ ; 3.1%), 4) Western Europeans (mainly neighbouring countries Germany, the Netherlands and France;  $N=76,533$ ; 4.7%) and 5) Sub-Saharan Africans (mainly consisting of persons originating from Congo, former colony of Belgium;  $N=18,113$ ; 1.3%). The rest category was excluded from the analysis (3.6% of total young population).

*Cause-specific mortality* – Causes of death are coded according to the International Classification of Diseases, 10<sup>th</sup> Revision (ICD-10) and are grouped into the eight most common cause categories: 1) Infectious diseases (A00-B99), 2) Cancers (C00-D48), 3) Other diseases and medical conditions (E00-R99, excl. disorders specified in (7)), 4) Suicide (X60-X84, Y870), 5) Traffic accidents (V00-V89), 6) Homicide (X85-Y09), 7) Drugs & disorders due to substance use (F10-F16, F18-F19, X40-X49, Y10-Y14, Y16) and 8) Other external causes not specified elsewhere.

*Control variables in Poisson regression: Educational level* – The highest educational level obtained is coded into 4 groups: 1) no/primary education, 2) lower secondary education, 3) higher secondary education, 4) higher education. *Activity status* – Activity status in the census is coded as currently 1) employed; 2) studying; 3) not employed, nor studying. *Large cities* (>200,000 residents): 1) Brussels, 2) Antwerp, 3) Ghent, 4) No large cities.

### *Statistical analyses*

All-cause mortality and cause-specific differences are depicted by showing age-standardized mortality rates (ASMR), directly standardized to the WHO 2001 standard population, and mortality rate ratios (MRR) using Poisson regression. All analyses are conducted with STATA 12.0 and will be presented separately for men and women.

## Preliminary Results

In the observed period, large differences between men and women are found in all-cause mortality rates: 24.1 deaths per 100,000 PY among men compared to 10.0 deaths among women. The differences between nationality groups are only apparent among men: highest mortality rates are observed among Sub-Saharan Africans and lowest rates among Southern Europeans. Western Europeans, Turks/Maghrebins and Belgians have similar mortality rates (Table 1). No significant nationality differences are found among women: their mortality is generally quite low.

**Table 1: ASMRs per 100,000 PY for all-cause mortality 2001-2010 according to nationality of origin, by sex**

	men			women		
	PY	ASMR (95% CI)	N	PY	ASMR (95% CI)	N
Belgian	5,622,434	24.5 [23.8-25.3]	4226	5,404,869	10.1 [9.6-10.6]	1671
Turks/Maghreb	557,562	23.3 [21.0-25.6]	395	540,335	11.1 [9.5-12.7]	185
Southern European	197,615	15.4 [12.2-18.5]	91	186,968	7.5 [5.2-9.7]	43
Western European	277,208	21.7 [18.5-24.9]	179	272,235	7.5 [5.6-9.4]	61
Sub-Saharan African (SSA)	65,074	30.8 [23.0-38.6]	60	73,913	10.7 [6.4-15.0]	24

Interesting nationality differences in cause-specific mortality are observed among men. We will restrict the description to the most striking differences. Suicide mortality remains largely restricted to native Belgians, with only few deaths among other nationality groups. The same holds for women, although suicide rates are much smaller (2.1 versus 6.9 per 100,000 PY). Also mortality due to road accidents is more common among Belgians, although we must differentiate between the BCR and the Flemish Region. In the former, more deaths due to road accidents are found among Turks and Maghrebins ( $MRR_{T/M\ BCR} = 1.66 [1.02-2.72]$ ), while the reverse is true for Flanders ( $MRR_{T/M\ FL} = 0.70 [0.53-0.93]$ ). The MRRs among T/M in the BCR remain higher than Belgians after including educational level and activity status in the model, but are no longer significant. Homicide rates are highest among Turks/Maghrebins and Sub-Saharan Africans and remain quite high after taking confounding variables into account ( $MRR_{T/M} = 2.46 [1.33-4.54]$ ,  $MRR_{SSA} = 9.33 [3.71-23.45]$ ). Although mortality due to substance use is higher among Turks/Maghrebins and Sub-Saharan Africans, these differences are explained by the lower socio-economic position of these nationality groups ( $MRR_{T/M} = 1.09 [0.70-1.72]$  before controls,  $MRR_{T/M} = 0.79 [0.50-1.26]$  after controls).

## Conclusions

Mortality among women is not only much lower than among men, but there are also fewer differences according to nationality of origin, except for suicide mortality. The finding that suicide is largely a problem of native Belgians is in correspondence with theories that differentiate between individualistic and collectivist communities. In the latter, persons are more group-oriented and will less often choose an individualistic

act such as suicide (Langhinrichsen-Rohling, Friend & Powell, 2009). Persons from Mediterranean countries and Northern Africa originate from more collectivist communities. However, persons from other (individualistic) Western European countries also have a lower suicide rate than Belgians. Traditionally, mortality from suicide is very high in Belgium. High homicide rates among Turks/Maghrebins and Sub-Saharan Africans are also observed in the adult population (Brussels-Capital Health and Social Observatory, 2010) and are largely due to the metropolitan character of the BCR. Local prevention actions against violence and substance abuse should specifically target these nationality groups.

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