

## Social and ethnic inequalities in adolescent and young adult mortality in the Brussels-Capital Region

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### **Introduction**

Adolescence and young adulthood are among the most healthy life stages<sup>1</sup>, while adopting risky lifestyles is also a characteristic of these age periods. This risky behaviour affects current health status and often has a negative impact on adult health as well<sup>2</sup>. Little research mentions social inequalities in adolescent and young adult health, especially when looking at the most severe outcome: mortality. The studies that look into these social inequalities show inconsistent results, mostly finding no or rather small differences<sup>3</sup>. West<sup>4</sup> posits that there is social equalisation in youth, but when looking at age patterns in mortality, cause-composition is also important<sup>5</sup>.

Since the eighties, an important cause of death among young adults is aids. Besides this disease, most of the causes are external: motor vehicle accidents, suicide, homicide and drug overdose<sup>6,7</sup>. In many age groups mortality declined over the last decades, but in some European countries young adult mortality has risen or at best remained stable<sup>7</sup>. Most research on social inequalities in young adult mortality has to rely on socio-economic position (SEP) indicators of the parents; e.g. social class and/or education<sup>3,5</sup>. Some studies indicate that these measures appear not to be decisive for adolescent health<sup>4,8</sup>. Individual SEP, especially educational level<sup>9</sup>, is more adequate.

Another important indicator is nationality of origin. A migrant mortality advantage is often found when comparing first generation migrant adults with the host population<sup>10-12</sup>. However, the majority of our study population is born in the host country, and is susceptible to other mechanisms than first generation migrants. Convergence theories state that migrant groups become similar to the host population, when residing in the host country for a longer period of time and therefore, have more time to integrate into the norms and customs of the host society<sup>12</sup>. Following this theory, a large share of young adults of foreign descent will manifest similar health behaviour as the young host population. Other research emphasizes the influence of cultural/religious norms and beliefs to be quite robust over time, resulting in rather divergent health behaviour in adolescence and young adulthood<sup>13</sup>.

The objective of this paper is to explore the differences in all-cause and cause-specific mortality among adolescents and young adults living in the Brussels-Capital Region (BCR) in the period of 1991-1995 and 2001-2005. More specifically, we examine differences in mortality according to nationality of origin and own SEP measures (i.e. educational level and employment status), and how these differences may change over time.

The population of the BCR has rejuvenated over the last decades. Several factors have contributed to this trend, e.g. family reunification and marriage migration of Maghreb/Turkish young adults, economic migration and foreign students who stay to pursue an international career. Other important characteristics of the BCR are its diversity and growing polarisation. There are approximately 170 different nationalities living in the BCR<sup>14</sup>, of which a large share is located in the most deprived neighbourhoods of the capital. Young adults, often of foreign descent, grow up and stay in poverty; their school dropout is high and they are having difficulties finding jobs in a high demanding (international) work environment. These characteristics make it even more interesting and necessary to do research on social inequalities in health/mortality of adolescent and young adults in the BCR.

## Methods

### *Data*

The data are derived from record linkage between the Belgian censuses of 1991 and 2001, from which the young population living in the BCR is extracted, and emigration and mortality data. In a first stage, a direct link between the 2001 census and register data of all deaths and emigrations in the periods 01/03/1991-31/12/1995 and 01/10/2001-31/12/2005 was established. In a second stage, cause-specific mortality data were added using anonymous individual linkage with death certificates. This database is a unique source of information on the survival status, migration, causes of death and background characteristics such as nationality of origin and education. The young population, aged 15-34, consists of 281,221 persons in 1991 and 283,688 in 2001. Belgian, Maghreb, Turkish, Sub-Saharan African and Southern European young adults will be used in the analyses, comprising 83.5% of the young population in 1991 and 78% in 2001.

### *Variables*

*Nationality of origin* – To construct nationality of origin, information on the nationality of birth of both parents of the respondents who were still living at home is used. When only one of the parents is a foreigner or both are foreigners but with different nationalities, the nationality of the mother is used. For those who already left their parental home, their own nationality of birth was used.

*Educational level* – The highest educational level obtained is coded into 6 groups: 1) no/primary education, 2) vocational/technical lower secondary education, 3) general lower secondary education, 4) vocational/technical higher secondary education, 5) general higher secondary education and 6) higher education.

*Activity status* – Activity status in the census is coded as currently 1) employed; 2) studying; 3) not employed, nor studying.

*All-cause mortality* – During the period of 01/03/1991-31/12/1995, 2.3% of all deaths (N=1,280) took place among adolescents or young adults. During the period of 01/10/2001-31/12/2006, this was 1.6% of all deaths (N=637).

*Causes of death* – The causes of death are grouped into the six most common cause categories: 1) Infectious diseases, 2) Cancers, 3) Other diseases, 4) Suicide, 5) Traffic accidents and 6) Other external causes, mainly consisting of homicide and drug overdose.

### *Analysis*

First, all-cause mortality differences are depicted through showing both age-standardized rates (ASMR) with direct standardisation (of which the Belgian population anno 2001 is used as standard) and mortality rate ratios with Poisson regression. Second, cause-specific mortality differences are discussed, again through using direct standardisation and Poisson regression. All analyses are carried out with STATA 12.0.

## Preliminary Results

### *All-cause mortality*

All-cause mortality has dropped between 1991 and 2001. While the SMR for men is 152.9 [142.7-161.6] (per 100,000 PY) in the period of 1991-1995, the SMR is almost halved in the period of 2001-2005 (84.5 [77.1-92.0]). The same trend can be observed among women, of whom the SMR were already a lot lower than those of men (from 63.8 [57.2-69.3] to 39.4 [34.2-44.4]). The SMRs also dropped equally for the different ethnic groups (Belgians, Maghrebins/Turks, Southern Europeans). Southern European men

have lower mortality rates than Belgian men, while Maghreb and Turkish men have similar mortality rates. After controlling for education, and especially activity status, Maghreb and Turkish men have lower mortality rates than their Belgian counterparts. Among women we find similar results, although they are not statistically significant. These findings do not change over the observed period.

#### *Cause-specific mortality*

In both periods suicide is the leading cause of death among adolescents and young adults, followed by traffic accidents and other external causes. Infectious diseases were much higher in the period of 1991-1995 than in 2001-2005. The share of cancers is higher in the period 2001-2005. Southern European youngsters have higher mortality rates due to cancer than Belgian youngsters, even after controlling for education and activity status. Maghreb and Turkish youth have similar cancer mortality rates as Belgians. Southern Europeans have lower mortality from all other causes than Belgians, except for infectious diseases. For this disease group they have similar mortality rates as Belgians, whereas Maghrebins and Turks die more from infectious diseases. After controlling for education and activity status, mortality becomes comparable to Belgians. The same observation is made for Maghreb and Turkish mortality from other external causes and other diseases than cancer and infections. After controlling they no longer differ from the native Belgian youngster population. Most of these patterns are similar in the two periods. Suicides in the young are still mainly a problem among native Belgians, with almost no suicides in other nationalities. There are more traffic accidents among Maghreb and Turkish youth than among Belgians in the period of 2001-2005, while there was no difference in the other period. Also, Belgians have higher mortality rates from infectious diseases in the last period after statistical control.

#### **Conclusions**

There is a positive evolution towards lower mortality rates among adolescents and young adults living in the BCR. This is remarkable as findings in other European cities suggested a reverse trend<sup>6</sup>. There are ethnic differences in some cause-specific deaths, which are largely due to lower educational levels and higher unemployment among those of foreign descent. Some differences remain after controlling, i.e. higher cancer rates among Southern Europeans, higher rates for traffic accidents among Maghreb/Turkish youth and lower suicide rates in both groups. The finding that suicide is largely a problem among native Belgians, is in correspondence with theories emphasizing diverging cultures as a more important explanatory factor in cause-specific mortality than SEP. Suicides are fewer in collectivist oriented communities than in individualistic oriented communities<sup>15</sup>. Both nationality groups can be counted as more collectivistic, and among Maghrebins and Turks, suicide is still a taboo. Risk behaviour, e.g. speeding in traffic, is more common among Maghreb/Turkish young adults, which might explain the larger mortality rates on traffic accidents.

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