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The health profile of young persons in the Brussels-Capital Region

A focus on social inequalities in the transition to adulthood

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1   Introduction

Adolescence and young adulthood are the healthiest stages of the life course (Blum 2009). Most of the adolescents and young adults living in (post-)industrialised countries consider themselves in good to excellent health (Currie et al., 2012; Ozer & Irwin Jr, 2009). Similar results were found for Brussels' youth in the census of 2001 (De Grande, Vandenheede, Gadeyne & Deboosere, 2013). Yet, these generally positive findings conceal health problems that may be of great public-health concern.

Adolescence is one of the most critical stages to develop risky health behaviours (e.g. unhealthy eating patterns, binge drinking, smoking and unsafe sex) that influence premature morbidity and mortality, and health later in life (Brindis et al., 2004; Patel et al. 2007) . The threshold to and the beginning of young adulthood brings along changes that might trigger mental health problems as well (Aggleton, Hurry, & Warwick, 2000). Intervening in these life stages is necessary to garantuee children and adolescents a healthy start and to prevent morbidity later in life (Halfon, Inkelas, & Hochstein, 2000).

In this paper we approach health from a broad perspective. Young people's health cannot merely be delimited by the presence or absence of a disease or disability, but must be seen on a continuum in which not only physical aspects are important, but also one's mental health state, personal relationships and one's coping with life's tasks. This encompasses most characteristics of the positive health definition of the Institute of Medicine's Committee on Health and Behavior (Aggleton et al., 2000) and covers the idea that health is a state of complete physical, mental and social wellbeing (WHO 1986). The focus is centred on problems that rise or peak in frequency during the teenage years or in becoming an adult and can be quite different from the problems that are dealt with in childhood or later adulthood (Aggleton et al., 2000). For example: the first drug and/or alcohol use starts in puberty, and is often associated with social, behavioural and mental problems (DeWit et al. 2000). Next to alcohol and drug use, other relevant indicators in this respect are eating patterns, smoking, physical and sexual activity, mental health, road accidents and violence (see section on 'health risks in adolescence and early adulthood').

There is an uneven distribution of these health-related behaviours in the young population. Although some health differences are of genetic nature, many differences are socially determined, by social position (education, employment, income), gender and ethnicity (Solar & Irwin, 2007). A range of studies identified social inequalities in health among adolescents/young adults, for different health measures such as mental health, self-rated

health, overweight and premature mortality (De Grande et al., 2013, Due et al., 2011; Holstein et al., 2009; Kestilä et al., 2009; Koivusilta, Rimpela, & Kautiainen, 2006; Remes, Martikainen, & Valkonen, 2010).

We restrict our research to young persons living in an urban setting. A growing interest is given to specific health matters and needs in cities, as the majority of the world's population lives in cities nowadays (Kjellstrom 2008). While cities possess many opportunities through schooling possibilities and a high housing capacity, it also concentrates risks and hazards for health. Air pollution, lack of green areas or high criminality rates are important factors influencing the overall health status, but also unhealthy lifestyles are of concern (WHO 2010). Unhealthy fast-food diets, sedentary behaviour, substance abuse and homicide are often more common in urban than in rural areas. Even of greater concern is that social inequalities tend to be larger in cities, where the poor and disadvantaged are often concentrated in marginalised neighbourhoods (Diez Roux 2001). While more research concentrates on the risks and hazards in the city, not many studies have focussed specifically on the health of young persons in this context.

Brussels, the capital of Belgium, is an interesting metropolis in this context, as it contains sharp socioeconomic discrepancies despite its social welfare regime that offers a good safety net for the disadvantaged (Loopmans & Kesteloot, 2009). There is great variability in the spatial distribution of high- and low-income households. This socio-spatial polarisation is a reflection of the differential access to the labour market, with on the one hand a highly educated, multilingual workforce competing for highly qualified jobs and on the other a low educated group of which a high percentage is not able to speak most common-used languages for the labour market. A large share of the latter group is of foreign descent. As the BCR attracts a young population, both to study and to work, and the out-migration contains mostly older age groups, it is the only Belgian region that has rejuvenated in the last decades (Deboosere, Eggerickx, Van Hecke, & Wayens, 2009). Strong social inequalities exist among the Brussels' youth: on average 16,2% of the pupils in the first year of secondary education are already two years behind their educational track (Brussels-Capital Health & Social Observatory, 2014), school drop-out is high with an average of 20.1% in 2012 (BRIO 2013), and unemployment rates are towering with 30.3% unemployment among the 15-to-24-year olds in 2013 (Brussels-Capital Health and Social Observatory, 2014).

In this paper we want to draw a detailed picture of the health situation of the Brussels' young persons, differentiating where possible between late adolescents (18-24) and young adults (25-30). We will identify the magnitude of the health risks they encounter and if these risks

are socially determined. We will also briefly point to differences between the Brussels' youth and those of other Belgian regions. Before we go into detail about the data and materials used, we define our research population and scan the literature on the main health risks for young persons.

2   <u>Defining adolescence and the transition to adulthood</u>

Since the 2000s, much debate has been engaged on defining the age boundaries of adolescents and their transition to adulthood (Bynner, 2005; Tanner, 2012). Traditionally the onset into puberty has been the starting point of becoming an adolescent: a phase in which they gain more independence from their family, they get more self-critical, start to experiment with their beliefs and knowledge and are influenced by their close peers. While the onset is biologically determined and starts between 11 and 13 years, the upper boundary is not that easily drawn. Strictly speaking one becomes an adult by the age of majority, which differs between societies but in most Western countries this age is legally defined at 18. While this gives many legal rights and responsibilities, this threshold does not necessarily coincide with becoming independent, nor does it alter the cognitive and emotional state these young persons are in. Adolescence can last a while after becoming a legal adult. Many researchers and developmental specialists in the U.S.A. use the age span of 10 to 24 as a working definition of adolescence, which is further cut down into three phases: 1) early adolescence (10-13 years); 2) middle adolescence (14-18 years); and 3) late adolescence (19-24 years) (Office of Population Affairs 2013). Depending on the specific outcome, researchers restrict or broaden these boundaries (Geraci et al., 2007; Heuveline & Slap, 2002; Patel et al., 2007). The transition between adolescence and adulthood is a fluid one. This early adulthood is a continued exploration of the direction of one's life with respect to traditional adult commitments, such as marriage, children, and careers (Cobb 2010). Arnett (2000) even rephrased it as the distinct developmental period from the late teens onto the twenties (18-25 years) and called it 'emerging adulthood':

"Emerging adulthood is a time of life when many different directions remain possible,
when little about the future has been decided for certain, when the scope of independent
exploration of life's possibilities is greater for most people
than it will be at any other period of the life course."
(Arnett, 2000, p469)

Emerging adulthood is distinct in terms of demographics, school attendance, psychological development and also subjectively found to be hard to define precisely. While Arnett (2000) focused primarily on ages until 25, this stage goes on until 29. This work however has been challenged by different researchers (e.g. Bynner, 2005; Côté & Bynner, 2008), because it merely takes into account the situation of the lower educated among other objections. They are however not denying the specificities of this life stage, but would coin the stage as 'early adulthood' rather than emerging adulthood. It has traditionally been portrayed as a period of exploration and experimentation, which involves risks than can have adverse effects on health and even lead to premature death (Furlong & Cartmel, 2007). In the next paragraphs, who go into the most common health risks and behaviours in these age periods, and briefly point to the determinants and risk factors.

3   Health risks in adolescence and early adulthood

We do not claim to give an exhaustive overview of all the different health problems, disorders and their determinants among adolescents and young adults in this part. We wish to put emphasis on the risks of developing health problems in this life stage and its implications later in life.

3.1 Mental health

Mental health can mean a multitude of conditions and should not be restricted to the absence of a psychiatric illness or acute psychological disorder. As mentioned earlier, mental health is one dimension of a healthy status, together with physical and social wellbeing. The definition of the WHO (1999) covers different dynamics of this concept:

Mental health is a state of well-being in which the individual realizes his or her own abilities,
can cope with the normal stresses of life, can work productively and fruitfully, and is able to
make a contribution to his or her community (WHO,1999,p1).

It is not until recently that mental health is high on the public health agenda (Hermann, Saxena, & Moodie, 2005). Mental health is increasingly seen as fundamental to physical health and quality of life and thus needs to be addressed as an important component of improving overall health and wellbeing. A clear and dramatic increase in the prevalence of most mental health problems is apparent among young persons (Aggleton et al., 2000; Furlong & Cartmel, 2007). From an overview of Patel et al. (2007) we learn that at least one out of every four to five young persons in the general population will suffer from at least one mental disorder in any given year. Psychiatric disorders are common in early adulthood, with 40-50% of 18–29-year-olds meeting the criteria for a psychiatric disorder in the US, which are the highest levels compared to all other adult age groups (Tanner 2012). There is not that many detailed information on the prevalence in Belgium, except for the Health Interview Survey, which we will be using for our analysis (see section 4). Mental health problems include anxiety and mood disorders, suicidal ideation and attempts, depression, schizophrenia etc. These mental health problems are related to other health and development concerns in adolescence and young adulthood such as educational achievements, getting a job, substance use and sexual health. As there is a high degree of continuity between mental health problems at young ages and at older age (50% of those with mental health problems in adulthood, had the first signs before the age of 14), it is of utmost importance to intervene at young ages (WHO 2008).

There are several biological, psychological and social protective/risk factors that can lower/heighten the odds of developing a mental health problem. Poverty and social disadvantage are strongly associated with mental health problems (Patel et al, 2007). The association works in both ways: an adolescent growing up in poverty has a higher risk of being raised in a poor neighbourhood, being exposed to violence and other adversities such as poor nutritional habits and inadequate education. All of these factors are associated with an elevated risk of mental health problems (Wickrama, Conger, & Abraham, 2005). On the other hand, when an adolescent develops a mental disorder in early life, this might hinder its school completion, finding/maintaining a job, establishing a steady relationship and increases medical expenses (George, 1999; Patel et al. 2007). Mental health problems can expand after a trauma or be repeated over the life course. Acquisition and accumulation of social resources can curtail the risk of a recurring mental illness (George 1999), school achievement and supportive interpersonal relationships (such as high-quality marriage) should be especially effective to this end. Other social determinants such as gender and ethnicity are also important differentiators to consider. Girls and young women are reporting more mental problems than young men. Different management of/or exposure to stress, violence, cultural norms and workload may contribute to the higher levels of mental health problems observed

among girls (Afifi 2007; Hermann et al., 2005). Into early adulthood, these stressors can evolve to difficulties in combining work-family demands (Afifi 2007). Elevated risks among ethnic minorities are caused by cultural factors, social disadvantages, migration and family history and racism (Brown et al., 1999) and are not adolescent-specific per se.

3.2 Health behaviour

3.2.1 Nutrition

Unhealthy nutritional habits adolescents grow up with can cause substantial harm for their current and future health. An unhealthy diet consists of an abundance of sugared drinks, sweets and products containing a high percentage of fat, while the diet is lacking fruits and vegetables. These diets change over time, being influenced by many factors and complex interactions. Income, prices, individual preferences and beliefs, cultural traditions, as well as geographical, environmental, social and economic factors all interact in a complex manner to shape dietary consumption patterns (WHO 2003). These nutritional patterns can lead to overweight, obesity, type-2-diabetes and chronic heart diseases. In adolescent girls there is also an increased risk of developing eating disorders such as anorexia and bulimia nervosa (Karwautz & Janet, 2000), which are mental health problems rather than strict nutritional problems.

Underweight, overweight and obesity are three chronic conditions with an onset in adolescence and are mostly defined by the Body Mass Index (BMI) which is weight divided by squared height. Before the age of eighteen, this formula is adjusted because of the hormonal development during puberty. From eighteen years onwards, the following classification is used: 1) Underweight: BMI<18.5; 2) Overweight: $25.0 \geq BMI \leq 29.9$; 3) Obesity: BMI$\geq$30.0, further divided into severe, morbid and super obesity, but the last categories are rare at young ages. There is a worrying rise in the incidence and prevalence of overweight among the young in Western society (Cornette 2008). Considering socio-demographic characteristics; men, ethnic minorities and those with a low educational level have an elevated risk of being overweight (Wendel-Vos, Nooyens, & Schuit, 2004). Behavioral factors such as sedentary lifestyle, smoking and unhealthy diets are also associated with being overweight or obese (Gisle et al., 2009; Wendel-Vos et al., 2004). Being overweight or obese increases the risk for heart problems, high blood pressure, and other medical problems, and the psychological impact must not be overlooked (Eisenberg, Radunovich, & Brennan, 2012). Obesity can contribute to psychological problems, such as depression, social isolation, as well as poor self-esteem, self-image, academic performance,

and professional performance (Cornette 2008).

3.2.2 Physical activity

While the benefits of physical activity (PA) for health in adulthood are widely observed, less research has focused on its benefits in childhood and adolescence (Biddle, Gorely, & Stensel, 2004; Sallis, Prochaska, & Taylor, 2000). The WHO stresses the vital role of PA for youth: "It contributes to their short- and long-term physical, social, emotional and psychological development; it promotes independence and healthy growth, and it helps to develop fundamental movement skills (Kelly, Matthews, & Foster, 2012). A review of Biddle et al. (2004) showed that although there are no convincing studies linking PA in adolescence to health outcomes in adulthood (especially CVD), there are indirect links with obesity and type-2-diabetes, which are important risk factors to CVD. Also short-term positive effects are found in psychosocial outcomes when moderate levels of PA are maintained (Hallal et al., 2006). Studies of young adults have found associations between PA and a range of health-risk behaviours such as smoking and drinking (Timperio, Salmon, & Ball, 2004).

The declines in PA among adolescents and young adults found in different European countries are a worrying trend (Currie et al., 2012; Strong et al., 2005; Timperio et al., 2004). Strong et al. (2005) recommend at least 60 minutes of moderate to vigorous physical activity on a daily basis.

In a review of determinants of PA, socio-demographic determinants such as gender and age were a highly consistent finding (Biddle et al., 2004): young males tend to be more physically active than females. Older adolescents also tend to be more inactive than younger adolescents (Sallis et al., 2000). Socioeconomic status and ethnicity were not consistently associated with PA in these age groups (2000).

3.3 Risk behaviour

3.3.1 Sexual activity

Adolescent sexuality is often conceived in the context of risks and dangers, although it is a normative feature of adolescence to become sexually active (Tolman 2012). This negative connotation is ingrained because of the link with teen pregnancies and sexual transmitted infections (STI) through the misuse and/or lack of knowledge of contraceptives.

The mean age of first intercourse has decreased over time towards 14 years old, but there is strong variation between countries and gender (Avery & Lazdane, 2010). Boys tend to start earlier than girls but the gender gap is narrowing.

Teenage parenthood (giving birth at age 15-19 yrs) has been declining in most Western European countries. With 10 births per 1000 15-19 year old girls, Belgium has similar rates as Greece, Spain, France and Germany. There are however substantial regional differences with the highest rates in the BCR and Hainaut (in the Walloon Region (WR)) and the lowest rates in the Flemish Region (FR). The general decline in Europe can be explained by a number of factors, including better relational and sexual education at school, better access to contraceptives and a negative attitude towards having children at young ages (De Wilde 2013).

Condoms are widely used, with a higher frequency than before, but general understanding of contraceptive use can still be improved. The contraceptive pill is widely used among 15-year-old girls, especially in Western Europe (WHO 2009).

Syphilis, gonorrhoea and chlamydia are the most common STIs. The scientific Institute for public health (WIV-ISP) offers a yearly report and trend analysis of the situation in Belgium based on clinical and molecular registration of these diseases. The incidence is highest in the urban regions of the BCR, Antwerp and Charleroi. Chlamydia is the most common STI, and infections are highest among 15- to 29-year olds. For the first time, a decrease in registration of Chlamydia was found in 2012 in the BCR, while it is still increasing in the other regions. In contrast, the increase of syphilis is highest in the BCR and stabilises in the other regions. It is more common at older ages. There are no substantial regional differences concerning STI determinants, risk profiles and behaviour (Verbrugge, Crucitti, & Quoilin, 2013).

One of the targets of the commission against AIDS is to increase the knowledge on HIV transmission and protection against HIV to at least 90% among the 15-to 24-year olds (Avery & Lazdane, 2010). Not that many countries can provide this kind of information, and from what is available, the target is far from reached.

3.3.2 Alcohol use

Moderate alcohol use is not seen as detrimental to health in contrast to smoking and drug use, because of a general social acceptance of this behaviour. The age of onset of drinking and its adverse effect on health and social relations is extensively studied over the last decades (Grant, Stinson, & Harford, 2001). First use of alcohol at ages 11–14 greatly heightens the risk of progression to the development of alcohol and other mental health disorders (DeWit et al., 2000). Use of alcohol during adolescence can also affect brain development, impacting emotional regulation and motivation, during a critical time when abstract thinking and

reasoning become possible (Pasch 2012). It thus may have significant negative social, psychological, physical and neurological effects in the long term, but also in rather short term. Peer and parental factors are the most important to prevent excessive alcohol intake (2012). Also, access to alcohol, offers of alcohol, and normative expectations are related to alcohol use in adolescence. Young adults are identified as a high-risk group, not only because of their consumption, but the way they drink. Binge drinking or drinking heavily is quite high in this age group, not only found in the US (US DHHS, 2006) but also in Belgium among the 15-24-year olds (Gisle 2010a). It is the most consumed psychoactive substance by European youth (WHO 2009). Several interventions have been developed to prevent or reduce alcohol use but it remains a prevalent behavioural problem (DeWit et al., 2000; Pasch 2012).

3.3.3 Drug use

Next to alcohol use, drug abuse is also a common risk behaviour among adolescents (Winters 2012). *Cannabis* is the most popular drug among young persons aged 15-34 year olds (WHO 2009). Although it remains without harm for infrequent users, it increases the risk of substance abuse disorders (SUDs) and schizophrenia in adulthood among frequent users (Arseneault et al., 2002; Clark, Martin, & Cornelius, 2008). This risk is greater among early users (15-year-olds) compared to those with a later onset (18-year-olds). In Belgium, the mean onset is 19 years on the population level, and it is most common in urban areas and among 15- to 34-year olds (Gisle 2010b). There is great variation in cannabis use across Europe (Currie et al., 2012). Prevalence rates are in general higher among those living in countries in which the perceived availability of cannabis is high and where non-users associate fewer risks with use. As with alcohol use, peers and parents are very important in the relation between age and first onset of cannabis use (Chen, Storr, & Anthony, 2005). There is no clear association between substance use and socioeconomic status (Hanson & Chen, 2007).

3.3.4 Tobacco use

It has been widely documented that *smoking* is detrimental to health later in life, with lung cancer, other related cancers and CVD as the main causes of premature mortality. Evidence shows that many smokers begin during adolescence or early adulthood and continue through adulthood. During the early stages, smoking provides pleasurable sensations and thus serves as a source of positive reinforcement (Morris 2012). It has rather increased than decreased over the last decennia, despite several interventions specifically aimed at early smokers

(2012). HBSC research found that 5% of the 13-year-olds were smoking and already 19% among the 15-year-olds (WHO 2009). In Belgium, regular smoking is apparent from the age of 17, but first use is often earlier around 15 years (Gisle 2010c). HBSC research has shown that tobacco use is related to other risk behaviour and negative health outcomes in young people, including unhealthy dieting patterns, high levels of alcohol consumption, bullying, early sexual initiation, poor self-rated health and low life satisfaction, frequent multiple health complaints and injuries (Currie et al., 2012). It can therefore be considered part of a broader pattern of unhealthy behaviours that cluster in adolescence. Contrary to alcohol and drug use, tobacco use is socially determined: adolescents of low educated families have a higher odds of smoking at an early age (Hanson & Chen, 2007). Also other family factors, such as parental smoking, divorce and low family connectedness are associated with early smoking (Currie et al., 2012).

3.4   Use of and access to health care

As the physical health of adolescents is on average fairly unproblematic, there is only little and infrequent contact with health care services. However, since adolescence is a period in which several changes take place (biological, developmental, social and emotional), regular visits to general practitioners or clinicians could overcome several health risks that were discussed above such as unwanted pregnancies, obesity, mental health problems etc. Several interventions have tried to increase the routine preventive care utilisation among adolescents, but an integrated approach is needed that involves all relevant agencies (e.g. clinicians, parents, schools,…) if a significant increase is targeted (Coker et al., 2010). Also health care facilities specifically focussing on the mental health needs of adolescents, called mental health check-ups, become more important (Fox & Halpern, 2012). Online health care provision is another growing trend to get more in touch with the environment of adolescents (Levesque 2012).

There has been a consistent interest of medical sociologists in the (in)equity of health care services (Kronenfeld 2005), although less attention has been paid to inequalities among adolescents and young adults. Next to the fact that there is no general tendency of young persons to go on a routine check-up or that they are not eager to discuss health issues with health care providers, there is also a group of young persons who wants to gain access but is not able to because of a lack of knowledge or means.

4   Data & Methods

4.1   Health Interview Survey

To study health inequalities in the BCR, we make use of the *National Health Interview Survey* (HIS), carried out by the Scientific Institute of Public Health (WIV-ISP). The pooled data of the three last waves (2001, 2004 and 2008) will be analysed. The sampling frame consists of all households listed in the National Register. Within the selected households up to four members of the household are part of the sampling frame. The households are selected on the basis of a stratified clustered multi-stage design. Detailed information on this selection procedure can be found in the research protocols of each of the survey years (WIV-ISP, 2013).

The survey consists of three questionnaires: a small household questionnaire (containing information on medical expenses, housing, income and household composition), a face-to-face interview (with questions on medical consumption, education, employment, nutrition and chronic conditions) and a self-administered questionnaire (with personal and subjective questions on lifestyle behaviours (smoking habits and substance abuse), self-reported health and mental health). Not all questions are recurrent in each survey year. Each of the modules is evaluated and balanced against new questions for the next wave. The analysis will mainly be restricted to those indicators asked in all three survey years[1]. An overview of all indicators according to survey year and type of questionnaire is shown in Table 1.

The BCR is oversampled each survey year to reach a similar sample size as in the other Belgian regions. The present study is restricted to young persons aged 18 till 30 of the BCR (N=1,222) who completed both the face-to-face interview and the self-administered questionaire, and to all Belgian young persons aged 18 till 30 when comparisons between regions are made (N=4,573). This young population is further broken down into two age groups: late adolescents (18-24 years) and young adults (25-30 years).

In a data inventory of De Grande, Vandenheede & Deboosere (2014) the sample of young persons in the HIS is compared to the total young population living in the BCR concerning age and sex structure, current nationality and household composition. Although the age boundaries were wider than this study (15-34 years instead of 18-30), the results are fairly similar for our study population. An underrepresentation of young persons is found,

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[1] When an indicator is constructed on the basis of information in less than three survey years, this will be indicated in the text.

especially in the 2001 HIS. The sex distribution was similar over the years and the percentage of Belgians (current nationality) was comparable to that of the total young population. The proportion of singles was underrepresented, whereas the 'other household' types were overrepresented. There is some fluctuation between survey years, but when combining several survey years, the sample is fairly representative for the face-to-face questionnaire. There is however a significant and selective drop out towards the self-administered questionnaire, so this study concludes that results from the HIS for Brussels' youth need to be made with caution (De Grande, Vandenheede, & Deboosere, 2014).

Table 1: Overview of all included indicators according to type of questionnaire and survey year

Indicator	type of questionnaire			survey year		
	HH	FtF	SA	2001	2004	2008
Self-reported health			x	x	x	x
Longstanding illness or limitation		x		x	x	x
Mental health						
Self-reported mental health		x		x	x	x
GHQ-12			x	x	x	x
SF-36 vitality subscale			x		x	x
SCL-90-R			x	x	x	x
Suicidal ideation & attempt			x		x	x
Overweight & physical activity						
Underweight/Overweight/Obesity		x		x	x	x
Enough physical activity			x	x	x	x
Health behaviour						
Alcohol consumption in the last year			x	x	x	x
Lifetime cannabis use			x	x	x	x
Smoking habits			x	x	x	x
Knowledge on HIV			x		x	x
Medical consumption						
Contact with doctor (gp, specialist)		x		x	x	x
Problems with paying health expenses	x			x	x	x
Postponement of health expenses	x			x	x	x
Socio-demographic characteristics						
Educational level		x		x	x	x
Postponement of medical expenses	x			x	x	x
Activity status		x		x	x	x
Nationality of origin		x		x	x	x
Gender	x			x	x	x
Household position	x			x	x	x

HH=household
FtF=Face-to-Face interview
SA=Self-Administered Questionnaire

4.2 Socio-demographic indicators

To study social inequalities in the abovementioned health measures, different indicators were constructed to measure socioeconomic position and social/economic deprivation.

Educational level is coded into 5 categories: (1) up to lower secondary education, (2) vocational higher secondary, (3) technical/arts higher secondary, (4) general higher

secondary, (5) higher education. For one third of the study population, this educational level is not finished yet. Therefore, we make use of the study orientation (vocational, technical, general), as this can give an indication of pursuing further studies or not. In some analyses, educational level will be broken down in 7 categories: lower education is then split up into primary and lower secondary education, and for higher education a distinction is made between non-academic and academic higher education.

Activity status is coded into three categories: (1) Studying, (2) Working, (3) Not working.

Other questions assess the financial situation of the household: equivalent income of the household, financial hardship in general, the perception of the hardship to pay the health care expenses and the necessity to postpone any medical expenses. The reference person in each household provides this information. Information on the perception of financial hardship is not available in 2004 and the equivalent income of young persons is often not stable enough to be a good proxy for their socioeconomic position. Therefore, we make use of *postponement of medical expenses* as indicator to identify (economic) deprivation. If the reference person indicated that it was necessary to postpone any of the following medical expenses: medical visits or operations, dental care, mental health care or prescribed medicines, this was coded as '1' in the dummy variable "postponing medical expenses".

Household position the young person is living in is coded into five groups: (1) living with both parents, (2) living with one parent, (3) living with partner, (4) single, and (5) other.

Nationality of origin is obtained through combining current nationality, nationality of birth of the respondent and of the parents (where a link could be made between children and their parents). Four categories are distinguished: (1) Belgian, (2) Turkish/Moroccan, (3) European and (4) a rest category including mostly persons of African origin.

Table 2 shows the distribution of each of the above-mentioned indicators in adolescents and young adults. Only gender and educational level are similar in both age groups. Postponement of medical expenses is more prevalent among households containing late adolescents (26.4% [21.5-32.0] compared to 15.9% of the households with young adults [13.0-19.3]). While adolescents still live most with one or both parents (49.9%), most young adults live alone (39.4% [35.2-43.8]) or with a partner (41.7% [37.4-46.1]). While more than half of the adolescents are still studying (56.0% [50.5-61.4]), most of the young adults are working (71.0 [67.1-74.6]). There are less Belgian young adults (57.3% [53.1-61.4]) than late adolescents (67.3% [61.8-72.4]). Turks and Moroccans are however still underrepresented in this sample, as around 20% is of Turkish or Moroccan origin in the BCR. This has important repercussions for the results sections, as the possibility exists that a share of the Belgians are in fact second or third generation Turks or Moroccans. We will come back to this point, especially in the section concerning risk behaviours. For some health indicators, there are also

important differences between Turkish and Moroccan respondents. The number of Turks is however quite limited (N=33), therefore, these results need to be interpreted with caution.

Table 2: Socio-demographic profile of late adolescents (18-24) and young adults (25-30)

		late adolescents		young adults		95% sig
		N	%	N	%	
sex	men	263	48.4 [43.2-53.6]	301	45.1 [41.4-48.7]	
	women	258	51.6 [46.4-56.9]	400	54.5 [51.3-58.6]	
educational level	lower sec	98	18.9 [14.9-23.7]	113	15.7 [13.0-18.9]	
	voc higher sec	53	10.0 [7.4-13.4]	48	7.5 [5.5-10.0]	
	tech higher sec	50	8.2 [6.0-11.2]	45	6.7 [4.9-9.1]	
	gen higher sec	54	10.9 [8.0-14.7]	80	10.9 [8.6-13.7]	
	higher	237	46.8 [41.4-52.2]	387	55.7 [51.4-59.9]	
	missing	29	5.2 [3.5-7.7]	28	3.5 [2.4-5.1]	
postponement	no	385	73.6 [68.0-78.5]	583	84.1 [80.7-87.0]	***
	yes	126	26.4 [21.5-32.0]	113	15.9 [13.0-19.3]	
nationality of origin	Belgian	336	67.3 [61.8-72.4]	405	57.3 [53.1-61.4]	
	Turkish/Moroccan	48	8.8 [6.2-12.4]	76	10.4 [8.1-13.2]	*
	European	81	14.9 [11.0-19.8]	147	21.8 [18.4-25.5]	
	Other	56	9.0 [6.7-12.0]	71	10.6 [8.2-13.5]	
household position	with parents	148	32.1 [26.8-37.9]	33	4.7 [3.1-6.9]	***
	with one parent	104	17.8 [14.0-22.3]	18	2.4 [1.5-3.9]	
	with partner	82	12.2 [9.3-15.9]	338	41.7 [37.4-46.1]	
	single	108	22.7 [18.3-27.8]	220	39.4 [35.2-43.8]	
	other	79	15.3 [11.4-20.2]	92	11.9 [9.4-11.9]	
activity status	studying	277	56.0 [50.5-61.4]	62	8.8 [6.8-11.4]	***
	working	135	26.3 [21.8-31.3]	483	71.0 [67.1-74.6]	
	not working	97	17.7 [14.1-22.0]	139	20.2 [17.0-23.7]	

% are weighted to provide representative results and are controlled for clustering on household level

4.3 The remaining chapters

In the results section, each of the health dimensions introduced in Table 1 will be thoroughly defined. Attention will be especially focused on the relationship of each of the proxies for SEP (educational level, postponement of health expenses and activity status) on each of the health measures. The relationship with other of the above-mentioned socio-demographic indicators will be assessed, when this is relevant in the context of this health measure. If there are relevant differences between adolescents (18-24 years) and young adults (25-30 years) according to one of the socio-demographic indicators, this will be detailed as well. When no further division of age groups is necessary, the study population will be referred to as "young persons", otherwise "adolescents" and/or "young adults" will be specified. Statistically significant relations will be referred to with an asterisk (*) or with confidence intervals that are not overlapping. Some results will be mentioned although these are not statistically significant, because we think it can also indicate a certain trend or inequality, but lacks statistical power due to a low number of respondents for example. These results should be dealt with cautiously. To conclude the result section, a comparison will be made with the health status of young persons in the other Belgian regions.

5   Results

5.1 Self-reported health

The first indicator that will be discussed is self-reported or subjective health. *Self-reported health* is an internationally comparative measure for the perception of the health status, assessed by the question: "How would you consider your health situation in general?" and rescaled to two groups (0: bad health (moderate, (very) bad), 1: good health (good to very good)) (Idler & Benyamini, 1997).

The vast majority is in rather good or very good health (87.2% [CI 95%: 84.8-89.2]). In general 89.4% [86.1-91.9] of the young men and 85.2% [81.7-88.2] of the young women rates its own health as good. There are important educational differences between the lowest educated and the rest of the study population (Figure 1). 31.0% [18.9-46.5] of the primary educated feel themselves in rather bad health while this is 5.1% [2.2-11.2] of the technical higher secondary educated and 8.1% [5.4-12.2] among the highest educated. The only significant differences are observed between the primary/lower secondary educated and the other educational groups.

One in four young persons (25.7% [19.3-33.4]) who live in households that postpone medical expenses are not feeling healthy, while this is only one in ten of those without such financial difficulties (9.2% [7.4-11.4]). Also those who do not work or study are feeling less healthy (21.4% [15.7-28.4]) than those who are working (9.5% [7.2-12.5]). No evolution over time could be observed: on average the subjective health state of young adults did not differ between 2001 and 2008. While a higher percentage of Turks and Moroccans indicate to feel in bad health (18.1% [11.7-26.8]), this difference is not statistically significant. There are no significant differences in subjective health between late adolescents and young adults. There are also no differences according to household position, even after differentiating between adolescents and young adults.

Figure 1: Bad self-reported health by educational level
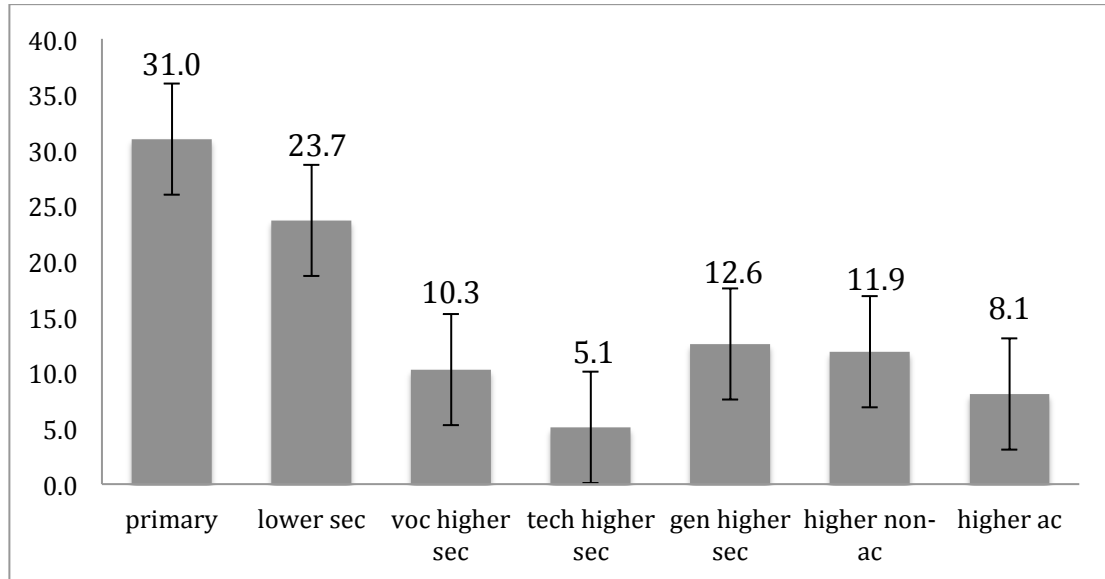
5.2 Mental health

5.2.1 Mental Health Indicators

Mental health is assessed through different sets of questions. First of all, self-reported depression was asked in a list of long-term illnesses having suffered from for at least two weeks in the last 12 months.

Secondly, additional sets of questions probe into the mental health status of the respondents in the self-administered questionnaire. The GHQ-12 (General Health Questionnaire) consists of a list of 12 items of health complaints, such as 'Did you feel like you were constantly under pressure the last weeks?"; "Are you able to face problems?"; "Did you loose confidence in yourself?" etc. The construction of this and following indicators can be read through in the codebook of the WIV-ISP (2010). A score of 2+ on this measure indicates *psychological distress*; a score of 4+ indicates *psychological impairment*.

The *SF-36 Vitality Index (from the Short Form Health Survey)* gives a score from 0-100 on positive mental health based on the following questions: How often did you feel full of pep/full of energy/worn out/tired in the past four weeks?

Additionally, four sub dimensions of psychological problems can be discerned on the basis of Symptom Check List (SCL-90-R subscale): (1) the likelihood of presenting a *somatisation disorder* on the basis of symptoms such as dizziness, having trouble to breath normally, chest pains etc; (2) *depressive disorder* based on symptoms such as crying without knowing why, feeling desperate about the future and feeling worthless etc.; (3) *anxiety disorder* based on symptoms such as being nervous, hart palpitations and not being able to sit still because of restlessness, and (4) *sleeping disorder* based on symptoms such as finding it hard to fall

asleep, waking up early and having troubled sleep.

Information on lifetime *suicidal ideation* and *attempts* is available for the last two survey years.

We observe that there are considerable differences in the results of each of these indicators: not only in frequency, but also in effect of the socio-demographic factors.

5.2.2 Descriptive results

Approximately one in three young adults have psychological distress (34.8 [95% CI 31.6-38.1] – Figure 2), and is the most common mental health problem in our study population. The least commonly found mental problems were somatisation disorders (5.3% [4.0-7.1]), suicide attempts (5.3% [3.8-7.4]) and self-reported depression (6.0% [4.4-8.1]). The other measures are in-between, ranging from 7.4% (5.9-9.3) young adults with a likelihood of presenting an anxiety disorder to around one in five having a high risk of going through a period of severe mental problems, calling for professional help (GHQ4+; 18.1% [15.8-20.8]).

The only mental health indicator that is not shown in Figure 1 is the vitality index, as this is a normally distributed indicator between 0 and 100. The higher the score, the greater the vitality of the young person, or in other words, the better its mental wellbeing. The mean score on this index is 55, which is a bit below the general average of 60 (Ware, n.d.). There are no significant differences between educational levels, nationality groups or age groups. Men have a higher vitality score than women (57.5 [55.2-60.0] compared to 52.9 [51.0-54.7]). Those postponing medical expenses have a lower vitality score 49.8 [46.1-53.5] than those who don't have to postpone (55.8 [54.3-57.3]). Herafter, these will be called the postponers versus the non-postponers.

Figure 2: Prevalence (%) of mental health problems by indicator
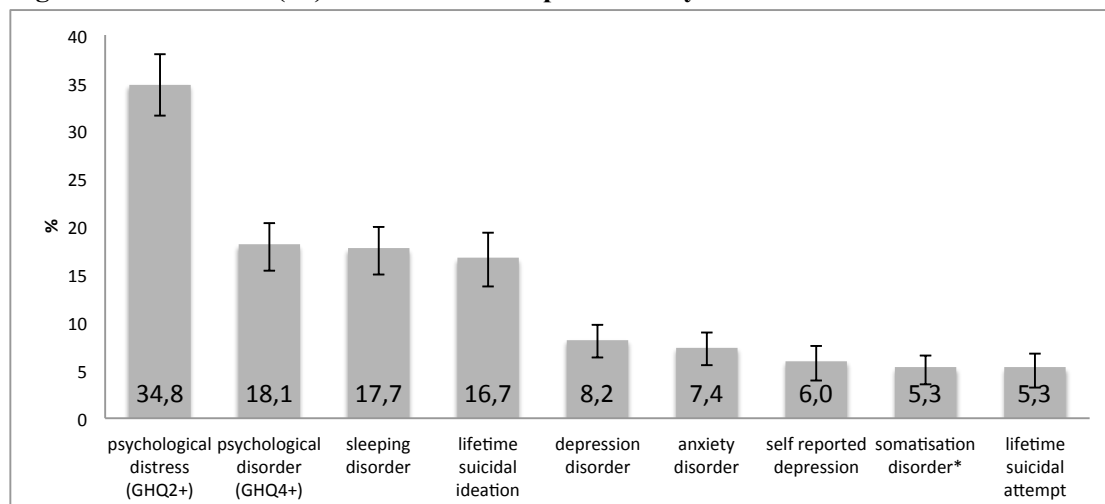
% are weighted to provide representative results and are controlled for clustering on household level

The most substantial differences in other mental health indicators are found between postponers and non-postponers (Table 3). Significant differences are found for all indicators, with postponers having a higher prevalence of mental health problems than non-postponers. For example: 16.2% [11.5-22.4] have a likelihood of presenting anxiety disorders, compared to 5.2% [3.9-6.9] of the non-postponers.

There are some differences between educational levels, but these are less marked than with the postponement indicator. Significant educational differences are found in suicide attempts, somatisation disorder and anxiety disorders. Those having finished or pursuing higher education have the lowest prevalence in each of these indicators; those ending up in lower secondary education show the highest prevalence. There is however no clear social gradient in-between, as a higher percentage of those in general secondary education (10.9%[5.3-21.3]) have tried to commit suicide compared to those in higher education (3.0% [1.9-5.5]), but these show more similar percentages for somatisation disorders (gen higher sec=5.3% [2.5-10.6] compared to higher=2.9 [1.8-4.7]).

Activity status is not significantly related to any of the mental health indicators. Unemployed young persons show more mental health problems than students concerning somatisation, anxiety and sleeping disorders, but these differences are all borderline non-significant (e.g. anxiety: 11.4% [7.5-16.9] compared to 5.8% [3.7-9.0]).

There are no significant differences between late adolescents and young adults, although for some measures, the percentage in late adolescents was higher than in young adults (e.g. self-reported depression 7.4% [4.7-11.5] compared to 4.9 [3.3.7.1] – not in Table). We observe differences in educational inequalities in self-reported depression between these age groups. Overall, self-reported depression does not differ between educational levels, but there are obvious differences for adolescents: 19.3% [9.4-35.5] of all low-educated adolescents had been feeling depressed, compared to 2.8% [1.3-6.0] of the highest educated. Also activity status is significantly related to some mental problems when differentiating between adolescents and young adults. Sleeping disorders are more common among the unemployed (29.7% [19.5-42.3]) compared to the adolescent student (16.5% [12.3-21.9]). There are no significant differences in young adults. Suicidal attempts in contrast are only different between employed and unemployed among young adults (3.6% [2.0-6.5] compared to 12.1% [5.9-23.2]).

There are also some differences between men and women, concerning psychological distress and impairment and the likelihood of presenting depressive or anxiety disorders. Contrary to the expectations, there are no gender differences in suicidal ideation or attempts.

There is an increase in sleeping and depressive disorders over the survey years, but in most mental health indicators, there are no significant differences over time.

Concerning differences in nationality of origin, only psychological impairment presents significant differences, with Belgians (20.2% [17.0-23.8]) and the rest group (24.2 [17.0-33.2]) showing a higher likelihood for presenting psychological impairment than Europeans (11.4% [7.5-16.9]) or Turks/Moroccans (11.3% [6.5-19.1]). When differentiating between men and women, two other mental health indicators show significant differences: sleeping disorders and suicidal ideation. While the former is more prevalent among Turkish and Moroccan women (30.4% [19.2-44.6]) than other nationalities, the latter is almost non-existent among these women (1.2% [0.2-7.8] – see Figure 3a). Furthermore, none of the Turkish/Moroccan women in this sample indicated having tried to commit suicide in 2004 or 2008. In Figure 3b you can observe that there are no substantial differences in sleeping disorders in men, and that differences in suicidal ideation are less pronounced and not significant.

Figure 3a: Percentage of those having thought about suicide and those with a likelihood of presenting sleeping disorders according to nationality of origin, WOMEN
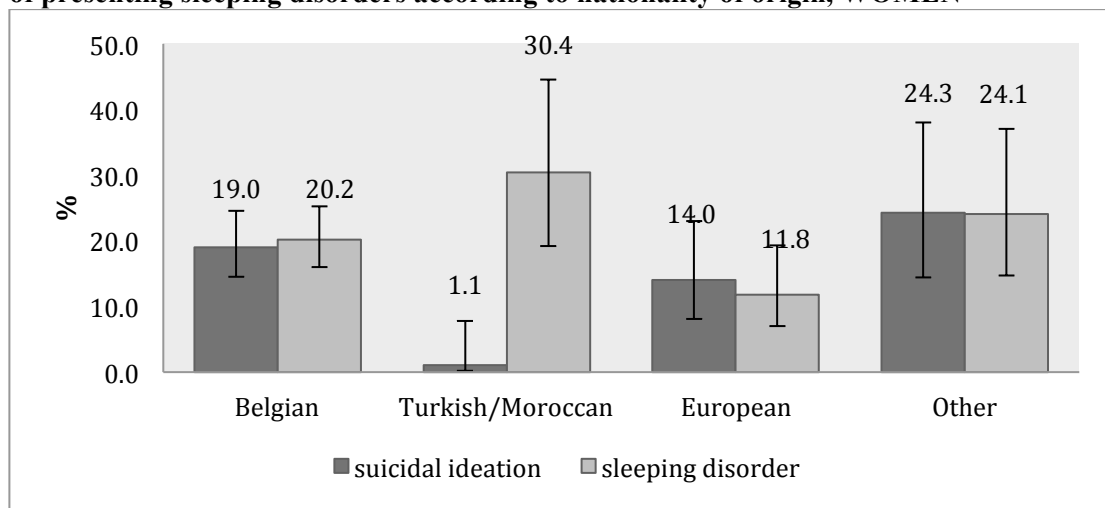
Figure 3b: Percentage of those having thought about suicide and those with a likelihood of presenting sleeping disorders according to nationality of origin, MEN
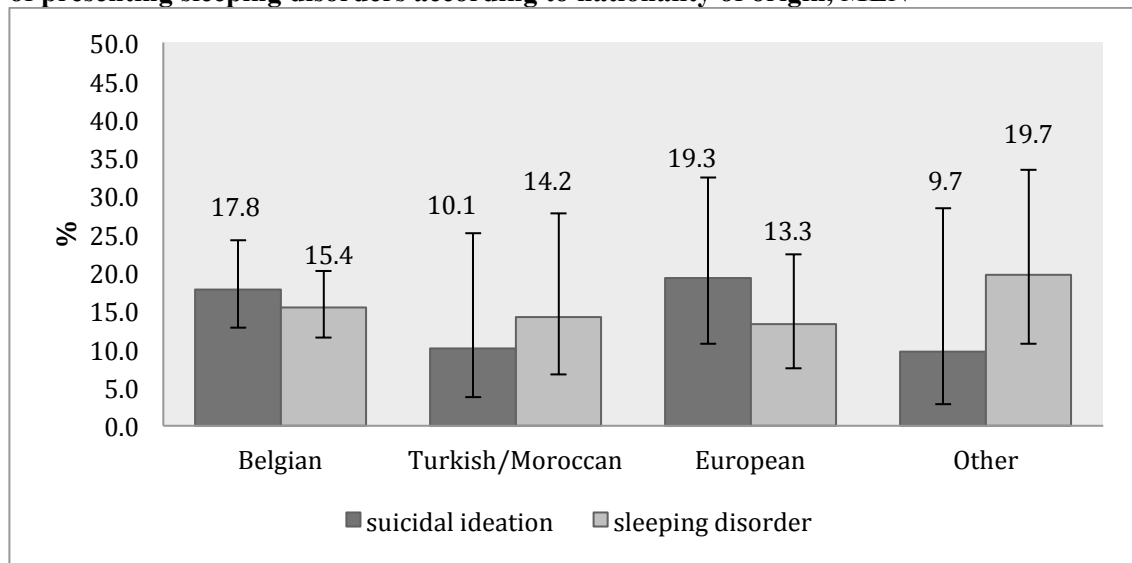
Table 3: Mental health indicators by sex, educational level and postponement of medical expenses: number of persons showing signs of mental health problems, percentages and confidence intervals between brackets

		sex			educational level						Postponing medical expenses			total
		men	women	sig.	lower sec	voc higher sec	tech higher sec	gen higher sec	higher	sig	No	Yes	sig	
GHQ	psychological distress (GHQ2+)	154	250		59	40	29	51	208		292	106	**	1199
		29.2% [24.9-33.9]	39.6% [35.3-44.1]	**	32.0% [24.3-40.8]	38.5% [28.4-49.8]	32.0% [22.3-43.6]	40.6% [31.1-50.9]	34.4% [30.2-38.9]		32.2% [28.8-35.8]	44.8% [37.1-52.7]		34.8% [31.6-38.1]
	psychological disorder (GHQ4+)	80	133		30	20	18	26	108		154	57	**	1199
		14.6% [11.6-18.2]	21.8% [17.9-25.2]	**	16.4% [10.9-23.8]	22.0% [13.8-33.1]	20.4% [12.4-31.6]	21.3% [13.9-31.2]	16.9% [13.9-20.4]		16.3% [13.8-19.1]	25.8% [19.5-33.2]		18.1% [15.8-20.8]
SCL-90-R	sleeping disorder	87	126		43	23	16	26	96		157	55	**	1188
		15.3% [12.2-18.9]	19.9% [16.6-23.6]		23.1% [16.8-30.9]	24.3% [15.7-35.5]	16.2% [9.9-25.5]	17.2% [11.2-25.3]	15.3 [12.4-18.8]		16.1% [13.7-18.8]	25.0% [18.9-32.4]		17.7% [15.4-20.4]
	depression disorder	30	70		22	7	9	16	40		65	34	***	1196
		5.4% [3.7-7.9]	10.7% [8.4-13.5]	**	10.5% [6.8-15.9]	9.4% [4.1-20.3]	10.1% [5.1-19.1]	11.7% [6.9-19.3]	6.2% [4.8-8.5]		6.6% [5.1-8.5]	14.5% [10.2-20.4]		8.2% [6.7-10.1]
	anxiety disorder	32	57		23	9	6	12	35	*	50	38	***	1193
		5.7% [4.0-8.2]	8.9% [6.7-11.6]	*	12.6% [8.1-19.1]	10.0% [4.7-20.2]	5.3% [2.3-11.7]	8.2% [4.5-14.2]	5.4% [3.8-7.5]		5.2% [3.9-6.9]	16.2% [11.5-22.4]		7.4% [5.9-9.3]
	somatisation disorder	19	43		17	9	6	9	18	**	33	28	***	1199
		3.9% [2.4-6.2]	6.6% [4.7-9.2]		10.1% [5.9-16.7]	10.1% [4.7-20.5]	6.1% [2.7-13.3]	5.3% [2.5-10.6]	2.9% [1.8-4.7]		3.5% [2.4-5.0]	12.6% [8.2-18.9]		5.3% [4.0-7.1]
Suicide	lifetime suicidal ideation	59	78		25	11	12	14	67		96	40	**	824
		16.4% [12.6-21.2]	16.9% [13.5-20.8]		17.7% [11.7-25.9]	17.1% [9.6-28.8]	17.6% [9.9-29.4]	14.2% [8.0-24.1]	16.2% [12.7-20.4]		14.7% [11.9-18.0]	25.0 [18.3-33.1]		16.7% [14.0-19.7]
	lifetime suicidal attempt	16	26		12	4	4	8	12		25	17	**	813
		5.2% [3.0-8.7]	5.5% [3.6-8.1]		8.5% [4.6-15.4]	6.5% [2.3-16.9]	6.1% [2.0-16.7]	10.9% [5.3-21.3]	3.0% [1.6-5.5]		4.1% [2.7-6.2]	10.8% [6.4-17.7]		5.3% [3.8-7.4]
Self-report	self reported depression	19	41		16	5	5	10	22	*	32	28	***	1580
		4.6% [2.7-7.8]	7.1% [5.0-10.1]		12.4% [6.8-21.6]	5.4% [1.7-15.5]	5.4% [2.0-13.5]	8.4% [4.2-15.9]	3.6% [1.3-5.5]		3.8% [2.5-5.7]	15.0% [9.9-22.3]		6.0% [4.4-8.1]

Included: years 2001,2004,2008; participants answering both FtF & SA questionnaire, 18-30-year olds in BCR

[a]: years 2004,2008

% are weighted to provide representative results and are controlled for clustering on household level

* p<0.050,**p<0.010; *** p<0.001

5.3 Physical health

5.3.1 Longstanding illness and/or impairment

Around 15% of the young persons have a chronic disease or impairment. For a significant share of this impaired group, this does not hinder their daily physical activities (41.9% [33.7-50.5]). The rest indicates mild to severe restrictions. Only postponement of medical expenses and nationality of origin significantly differ in being restricted in daily activities. Almost one in five of the young persons living in households that have to postpone medical expenses, have a chronic or physical impairment (19.0% [13.4-26.3]), while this is 5.6% [4.2-7.4] among the non-postponers. Physical impairment is also more common among the unemployed (13.5% [9.2-19.2]) compared to the employed (7.4% [5.3-10.1]). Belgian youth also shows a slightly higher percentage of impairment (10.8% [8.4-13.8]) compared to the other nationality groups (e.g. Europeans= 4.5% [2.4-8.5]). Although there is quite some difference in prevalence among the lower educated (13.3 [8.7-19.8]) and the higher academic educated (5.0 [2.9-8.5]), this is not statistically significant.

5.3.2 Physical activity

As young persons are in one of the healthiest phases of their life and only a limited number is hindered in their daily activities, not many medical obstructions are in their way to have enough weekly physical activity to be healthy. In the survey, a division can be made between those who perform professional or intensive sports (more than 4h of training per week), light training (sport less than 4h per week or non-intensive activities such as walking or cycling) and those who have a sedentary lifestyle (those who do not sport or do light activities such as walking).

While men do more intensive training (29.9% [25.4-34.8]) and are less sedentary (20.4 [16.8-24.6]), women do more light weekly activities (59.2% [54.9-63.3]) (Figure 4). As physical activity is quite different in men and women, all analyses are run separately.

Figure 4: Percentage of sedentary to intensive physical activity among men and women
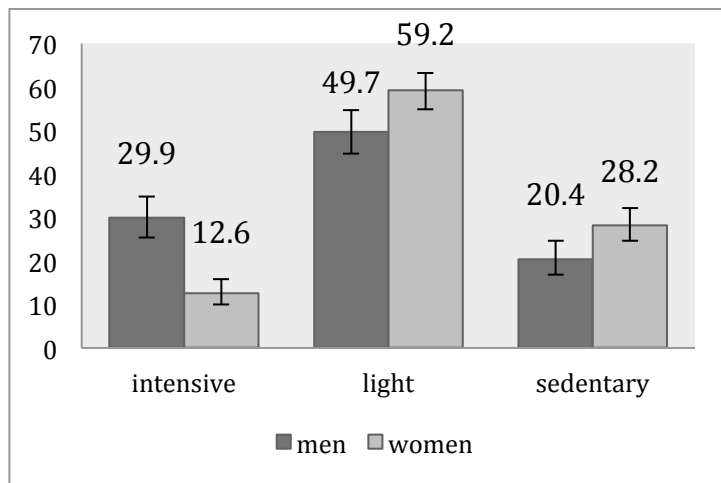
Included: years 2001,2004,2008; participants answering both FtF & SA questionnaire, 18-30-year olds in BCR
% are weighted to provide representative results and are controlled for clustering on household level

Because it is especially important to perform at least light physical activity on a weekly basis rather than do intensive training, we compare sedentary young persons with active ones (intensive + light training). While physical activity increased both in men and women in 2004 compared to 2001 and had a backdrop in 2008 again, this rise is more substantial in men than in women. Postponement of medical expenses is not related to this. There are however pronounced educational differences in physical activity among women that are absent in men (Figure 5). We observe that the differences between men and women are situated among the lower secondary educated.

Figure 5: Physical activity according to maximum household education, for men and women separately
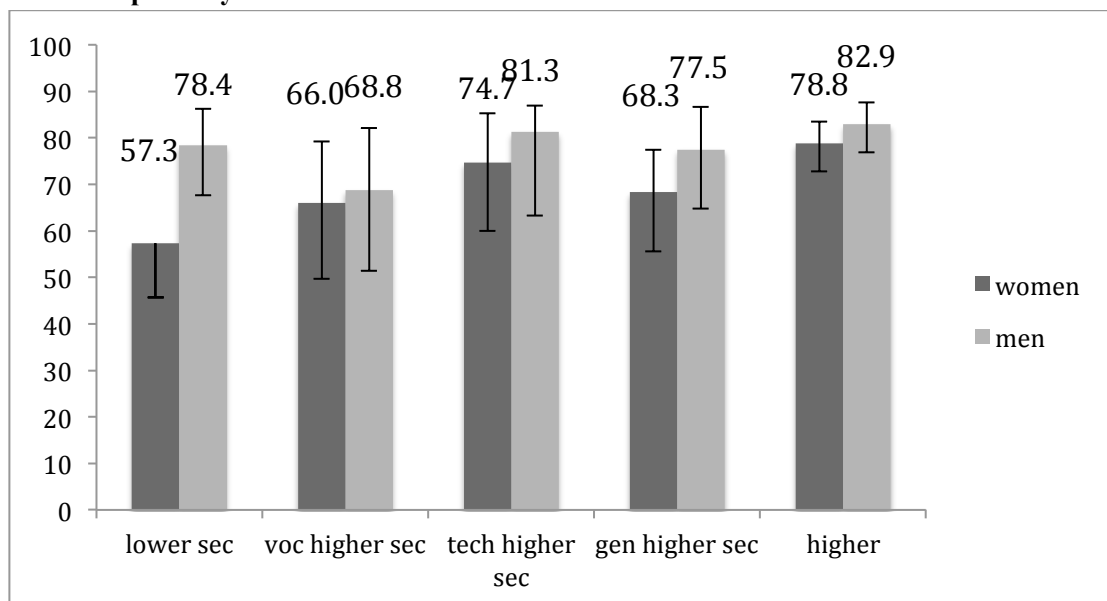
These educational differences are strongly intertwined with nationality of origin. Women of Turkish/Moroccan origin are often lower educated and perform less weekly physical activity (58.3% [44.1-71.2]) compared to Belgian women (71.7% [66.4-76.4]). The odds of doing enough weekly physical activity among Turkish/Moroccan women is 0.55 [0.30-1.03] compared to Belgian women, but is borderline non-significant and becomes smaller after inclusion of education (0.82 [0.42-1.61]).

Also activity status is related to physical activity among women: 4 in 10 unemployed women (40.6% [31.5-50.0]) lack enough physical activity, while this is only 1 in 5 of the studying women (20.1% [14.5-27.2]). The same percentage of unemployed and studying men lack physical activity, similar to the percentage of studying women.

The reason why enough physical activity is an important public health concern is also because a sedentary lifestyle is often associated with being overweight or obese, and indirectly linked to chronic diseases later in life. While no relation was found among men, enough physical activity among women lowered the odds of being overweight (OR=0.66 [0.47-1.04]). This brings us to the risk profile for being overweight or obese in the next section.

5.3.3 Overweight and obesity

The Body Mass Index (BMI) can be calculated as both the height and weight of the respondents is measured (on the basis of self-report). The following indicators can be discerned: *underweight* (BMI<18.5), *overweight* (25≤BMI<30) and *obesity* (BMI≥30).

On average 69.7% [66.4-72.7] have a normal body weight, one in five are overweight (18.0 [15.6-20.7]) and the rest group is equally divided between being underweight (6.2% [4.6-8.3]) and obese (6.2% [4.6-8.2]).

Overweight is more common among young adults (20.3% [17.1-23.9]) than among adolescents (15.1% [11.6-19.4]), and less among young women (14.4% [11.7-17.6]) than among men (22.1% [18.2-26.6]). One in three young persons with a lower secondary diploma (34.9 [27.6-43.0]) have troubles with overweight compared to 19.8% [16.3-23.9] of the higher educated. Educational inequality is however quite different between men and women. Among men, there is a two times higher odds of being overweight in the lower secondary and general higher secondary educated (the latter is not statistically significant), while among women it is two times higher in the lower educated and more than three times higher in vocational higher secondary education (Figure 6a & b). We observe that nationality of origin is more important in this context than education, at least for lower secondary educated women. Especially young Turkish/Moroccan women are having problems with overweight: there is a 1.92 [0.97-3.84] times higher odds of being overweight, after controlling for education. The odds of

being overweight among lower educated women decreases from 2.2 to 1.8 [1.06-3.16] higher odds than higher educated women when nationality is taken into account (see model 2 – Figure 6b). Vocational higher secondary educated women are more at risk, which is also robustly found after controlling for nationality of origin (OR=3.35 [1.61-6.96]). Among men, there are no substantial nationality differences, and model 2 is thus largely similar as model 1 (Figure 6a).

Similar to the results on physical activity, activity status is significantly related to being overweight among women only: 1 in 3 of the unemployed women is overweight (32.8% [24.9-42.0]), while this is less than 2 in 5 of the studying women (14.3% [9.7-20.7]). Postponing medical expenses is less relevant as predictor of being overweight.

Figure 6a: Odds ratios and confidence intervals of educational differences in overweight among men, reference category: higher educated
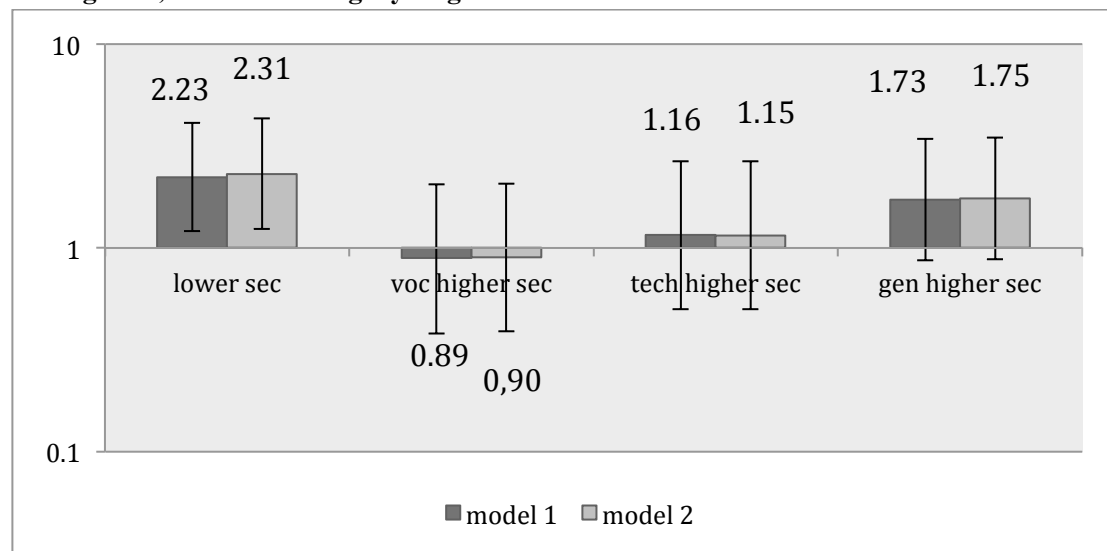
Model 1: controlled for age
Model 2: controlled for age and nationality of origin

Figure 6b: Odds ratios and confidence intervals of educational differences in overweight among women, reference category: higher educated
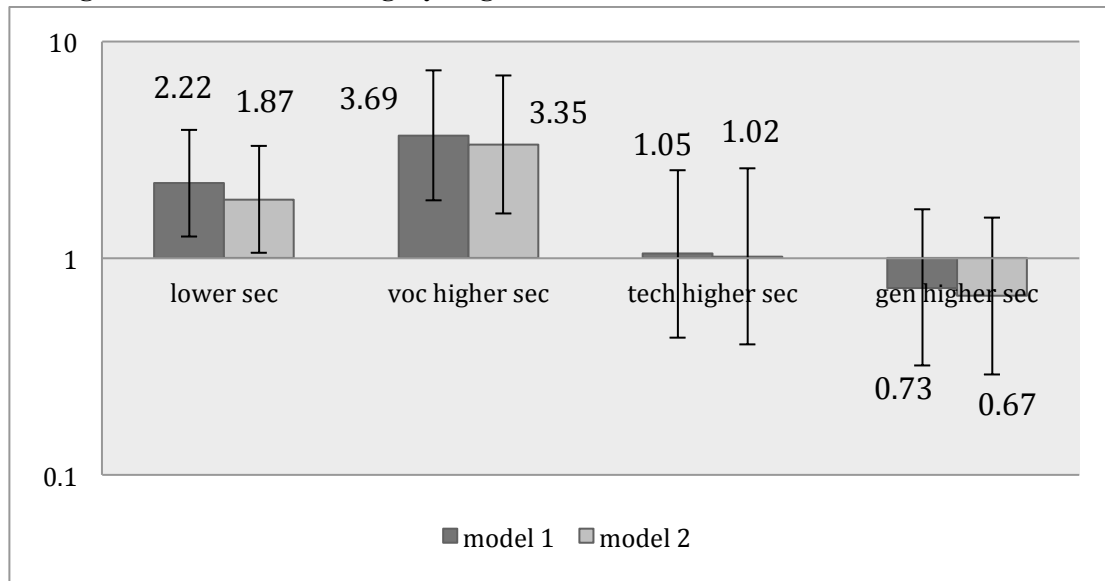
Model 1: controlled for age
Model 2: controlled for age and nationality of origin

In contrast to being overweight, being obese – or the opposite: being underweight - is rather rare among 18 till 30 year-olds. Being underweight is found more among young women (8.8% [6.1-12.4]) than among men (3.3% [2.0-5.1]) and more in adolescents (8.1% [5.2-12.5]) than young adults (4.6% [3.2-6.6]). There are no substantial differences according to educational level, activity status, postponement of medical expenses or household position. In obesity, no significant differences are found according to all socio-demographic indicators considered. Again, there are differences according to nationality of origin, but these are not statistically significant (Figure 7). We observe no differences over time, both concerning overweight and obesity.

Figure 7: Nationality of origin and being overweight/obese among young women (in %)
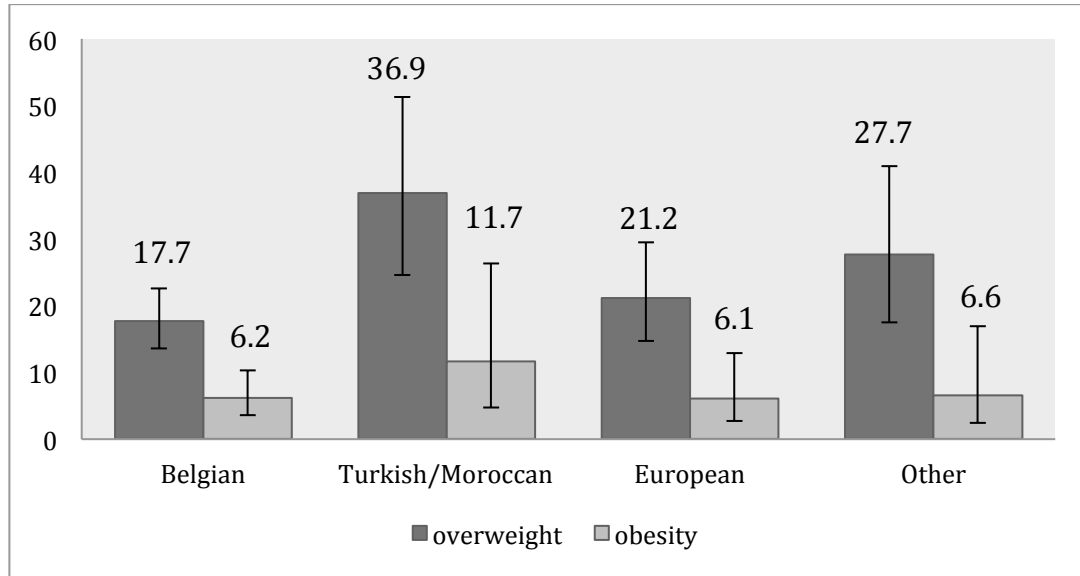
5.4 (Knowledge on) risky health behaviour

5.4.1 Indicators

Asking questions on risk behaviour such as smoking, alcohol and drug use is often very sensitive matter, especially in households with an ethnic minority background. The results of these questions should be interpreted with caution. In this section, we take a closer look at alcohol use, cannabis use, smoking prevalence and knowledge on HIV.

5.4.2 Alcohol use

Several sets of questions were asked concerning alcohol consumption. Attention will be focused on last-year alcohol consumption, quantity of consumption, and identifying problematic drinking behaviour with the CAGE-questionnaire. This is a set of the following four questions: (1) Have you ever felt you should **C**ut down on your drinking? (2) Have people **A**nnoyed you by criticizing your drinking? (3) Have you ever felt bad or **G**uilty about your drinking? (4) Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (**E**ye opener)? A cut-off of 2 is used to identify someone as alcohol dependent (Ewing 1984). For quantity of alcohol consumption, the mean is used as a cut-off point: for women this is 7 drinks per week, for men this is 13 drinks. When referring to 'more than average' drinkers, we thus mean women who had more than 7 drinks and men more than 13 drinks.

One third of the young population (33.3% [30.1-36.7]) did not drink any alcoholic beverage in the last year before the survey took place. There are however strong variations, especially

according to maximum household education and nationality of origin. Contrary to other health indicators, the highest educated are divergent from the general pattern: among higher educated there is a higher prevalence of drinking above the average (18.7% [16.4-23.5]) and a lot less abstaining (18.0% [14.6-22.0]) compared to the other educational groups (Figure 8).

Figure 8: Percentage abstainers and more than average alcohol consumers according to educational level
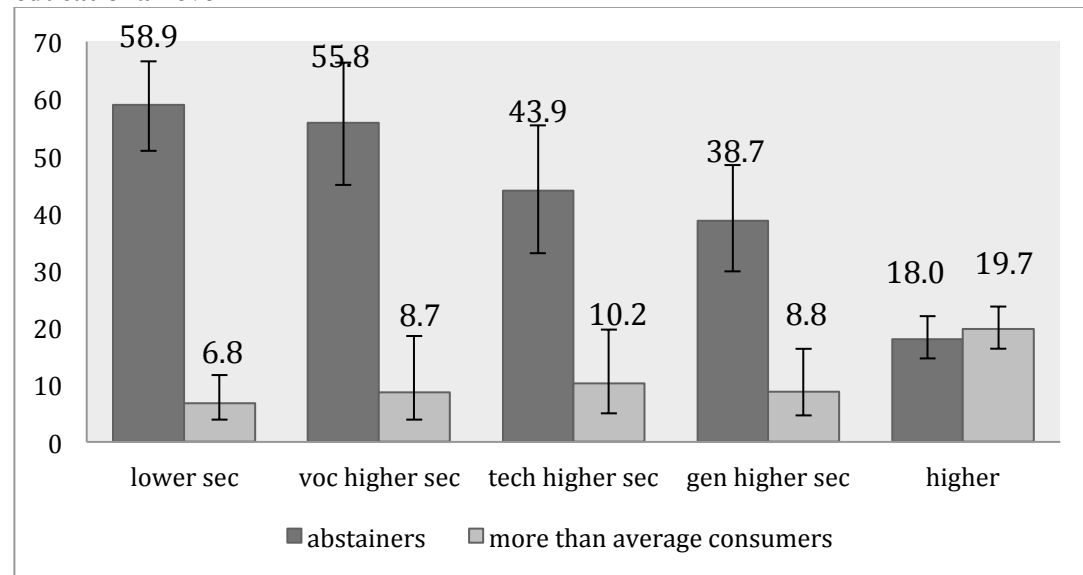
While only one quarter of the Belgian young persons abstained from alcohol (28.0 [23.9-32.4]), this is 82.3% of the Turks and Moroccans (73.5-88.6) (Table 4). Two third of the unemployed (64.5% [57.4-71.1]) did not consume any alcohol in the last year, compared to one in five of the employed (21.5% [18.0-25.5]). There is also a significant relation between the postponement of medical expenses and abstaining from alcohol: 49.1% [41.0-57.2] of the postponers did not drink alcohol the last year, while this is 28.8% [25.5-32.5] among the non-postponers.

Abstaining is also less common in young adults (28.3 [24.6-32.2]) than in adolescents (39.8 [34.3-45.4] – Table 4). As this difference is quite substantial, we ran the analyses separately for adolescents and young adults, with similar but sometimes more pronounced differences (not in table). Household position was significantly related to abstinence among young adults, with only 14.8% [10.5-20.7] of the singles being abstainers compared to 34.5% [28.4-40.4] of those living with a partner. Abstinence levels increased over time among young adults: from 23.8% [18.5-30.0] in 2001 to 34.7% [28.0-42.0] in 2008. Gender differences are also more pronounced: 33.2% [28.4-38.4] of the young women did not drink any alcohol, compared to 22.3% [17.5-28.1] of the young men.

Table 4: Prevalence of abstaining from alcohol in the last year and problematic alcohol behaviour

		abstainers			problematic drinkers (CAGE)		
		N / % [95%CI]	total N[a]	p	N / % [95%CI]	Total N[b]	p
sex	men	159	559	0.01	51	300	0.12
		29.0 [24.5-34.0]			17.8 [13.0-23.8]		
	women	244	654		31	273	
		37.0 [32.8-41.4]			12.0 [7.9-17.8]		
postponing	no	286	962	0.00	69	492	0.16
		28.9 [25.5-32.5]			14.0 [10.6-18.2]		
	yes	110	236		13	74	
		49.1 [41.0-57.2]			23.9 [12.7-40.6]		
activity status	student	113	334	0.00	14	144	0.77
		34.8 [28.5-41.7]			12.9 [6.4-24.3]		
	working	137	615		55	355	
		21.5 [18.0-25.5]			15.4 [11.4-20.4]		
	not working	147	235		9	57	
		64.5 [57.4-71.1]			17.6 [8.8-32.1]		
nationality of origin	Belgian	195	738	0.00	61	386	0.35
		28.0 [23.9-32.4]			16.5 [12.5-21.4]		
	T/M	100	122		1	13	
		82.3 [73.5-88.6]			3.3 [0.4-21.7]		
	Eur	45	225		17	140	
		17.1 [12.5-22.8]			13.8 [7.3-24.6]		
	Other	61	126		3	34	
		49.6 [39.8-59.5]			7.4 [2.3-21.7]		
age group	late adolescents	199	514	0.00	24	210	0.89
		39.8 [34.3-28.3]			14.6 [8.6-23.7]		
	young adults	204	699		58	363	
		28.3 [24.6-32.2]			15.2 [11.6-19.7]		
YEAR	2001	117	385	0.17	18	190	0.13
		29.3 [24.1-35.1]			10.8 [6.2-18.2]		
	2004	140	400		26	180	
		33.6 [28.0-39.8]			14.5 [9.5-21.5]		
	2008	146	428		38	203	
		37.0 [31.5-42.9]			20.1 [13.7-28.5]		

[a]: total sample
[b]: among weekly alcohol consumers

Problematic use of alcohol measured by CAGE is found for 15.0 % [11.7-19.1] of those drinking alcohol at least on a weekly basis (Table 4). It is clear that this is a totally different profile than that of the non-abstainers. Since our sample is reduced to 573 persons and only a small part is identified as a problematic drinker, none of the relations are statistically significant. We can however identify more prominent differences between postponers and non-postponers, gender and nationality. For example, while a higher percentage of the postponers abstained from alcohol, we observe a higher percentage of problematic drinkers as well (23.9% [12.7-40.6] compared to 14.0 [10.6-18.1]).

5.4.3 Cannabis use

In this section, we observe cannabis prevalence. Two thirds of the young adults in the BCR have never used cannabis (67.9% [64.5-71.1]), one in five have tried it at least once (20.9% [18.1-23.9]) and 11.2% [9.3-13.5] have smoked cannabis in the last month.

Most associations with lifetime cannabis use are similar to those of alcohol use. Less young women (28.3% [24.3-32.7]) have had experience with cannabis than men (36.5% [31.8-41.4]) (Table 5). There are clear educational differences, with more higher educated persons (38.2% [33.6-43.0]) having used cannabis compared to young persons from vocational higher secondary (19.1% [12.0-29.0]) and lower secondary education (22.8% [16.2-31.1]). Cannabis use among Turks and Moroccans is rare (8.9% [4.9-15.4]) compared to Belgians (35.6% [31.6-40.0]) (Figure 9), while Europeans show a similar prevalence as Belgians (41.5% [33.4-50.1]). Having tried cannabis is more common among employed (37.2% [32.8-41.8]) than among non-employed (23.6% [17.6-30.9]). More singles (45.6% [39.7-51.8]) have tried cannabis compared to any other household position, both in adolescents and young adults. Contrary to the results in alcohol use, no significant differences could be found between adolescents and young adults, nor between postponers and non-postponers.

The pattern changes for those who used cannabis in the last month (among those who used it at least once in their life (Table 5)). Sex differences remain similar, but the differences between educational levels are less pronounced and not significant. The most important differences can be found in nationality of origin. While Europeans had a similar prevalence of having used cannabis at least once in their life, less of them used cannabis in the last month (19.2% [11.5-30.4]). The percentage of Turks and Moroccans however is similar to that of Belgians. The numbers are however that small, that a few more cases can change this pattern instantly, thus caution is needed when interpreting these results.

Table 5: Prevalence of lifetime and last month cannabis use

		lifetime cannabis use			last month cannabis use		
		N / % [95%CI]	total Nᵃ	p	N / % [95%CI]	Total Nᵇ	p
sex	men	204 36.5 [31.8-41.4]	554	0.01	83 39.4 [32.1-47.2]	204	0.08
	women	175 28.3 [24.3-32.7]	642		52 29.9 [22.4-38.6]	175	
postponing	no	307 32.1 [28.6-35.9]	949	0.97	104 32.3 [26.5-38.7]	307	0.23
	yes	68 32.4 [25.2-40.5]	233		29 44.8 [30.7-59.8]	68	
nationality of origin	Belgian	266 35.6 [31.6-39.9]	726	0.00	104 39.9 [33.1-47.1]	266	0.01
	T/M	12 8.9 [4.9-15.4]	118		5 42.2 [17.8-71.1]	12	
	Eur	82 41.5 [33.4-50.1]	225		18 19.2 [11.5-30.4]	82	
	Other	19 14.5 [9.1-22.4]	125		8 41.4 [20.5-65.9]	19	
educational level	lower sec	42 22.8 [16.2-31.1]	166	0.00	18 50.4 [32.4-68.3]	34	0.32
	voc higher sec	19 19.1 [12.0-29.0]	105		5 30.3 [12.6-56.7]	29	
	tech higher sec	29 32.7 [22.7-44.5]	113		12 40.8 [22.9-61.5]	34	
	gen higher sec	34 27.1 [19.3-36.7]	97		13 39.4 [23.1-58.6]	19	
	higher	237 38.2 [33.6-43.0]	669		81 31.6 [25.2-38.8]	248	
activity status	student	97 27.8 [21.9-34.5]	333	0.00	40 34.2 [23.9-46.1]	97	0.41
	working	220 37.2 [32.8-41.8]	606		71 33.2% [26.5-40.5]	220	
	not working	50 23.6 [17.6-30.9]	229		20 44.8% [29.0-61.7]	50	
household position	with both parents	41 20.1 [13.9-28.2]	178	0.00	13 26.9 [15.8-42.1]	41	0.08
	with one parent	31 25.9 [17.7-36.3]	119		16 53.2 [33.4-72.1]	31	
	with partner	115 28.1 [23.0-33.9]	410		29 24.8 [16.4-35.7]	115	
	single	144 45.7 [39.7-51.8]	324		55 37.8 [29.2-47.3]	144	
	other	48 32.1 [28.9-35.5]	165		22 41.2 [23.5-61.4]	48	

5.4.4 Smoking

In this section, we have a closer look at smoking in the BCR: what is the profile of current smokers, what is the prevalence of heavy smoking and how many tried to quit smoking?

Around half of the Brussels youth have smoked in their life (47.4% [44.0-50.8]), while around one third is currently smoking (33.9% [30.8-37.9]). Most of these current smokers are daily smokers. Of the total sample, 7.2% [5.8-9.1] smokes at least 20 cigarettes a day, which will further be referred to as 'heavy smokers'. This also means that one in five of all current

smokers is a heavy smoker (21.8% [17.6-26.6]). Two thirds of the current smokers tried to quit smoking at least once (64.8% [58.9-70.3]).

Around half of the young adults have smoked (52.0% [47.0-55.2]), while the prevalence is slightly smaller among late adolescents (42.7% [37.4-48.1]). There are some differences in the profile of smoking between late adolescents and young adults, therefore we will show a separate profile for these age groups (Table 6).

First of all, we depict the profile of "ever smokers", both former smokers and current smokers. The prevalence has dropped over the survey years, and is most substantial among late adolescents: while almost two out of three late adolescents had smoked in 2001 (62.2% [52.4-71.1]), this is around one in three in 2008 (35.0% [27.5-43.3]). More men than women smoke, although this is more substantial in young adults (60.1% [53.8-66.0] compared to 43.8 [38.6-49.2]). There are no apparent educational differences in young adults, while we observe a higher percentage in lower educated (51.6% [38.9-64.2]) and technical secondary educated adolescents (51.0% [35.7-66.1]) compared to higher educated ones (35.1% [28.1-42.7]). Late adolescent postponers do not differ in their smoking behaviour from non-postponers, but among young adults we observe that more postponers (61.5% [51.4-70.7]) have smoked compared to non-postponers (49.2% [44.7-53.7]).

For household composition and activity status, the relation with smoking is similar among adolescents and young adults. In both age groups we observe a higher tendency to smoke towards singles (57.6% [50.6-64.3]) compared to those living at home with their parents (33.0% [17.8-52.8]) and among employed (56.3% [51.8-60.6]) compared to both students (34.8% [29.0-41.1]) and unemployed young persons (40.8% [33.8-48.3]).

Secondly, we observe the profile of heavy smokers. For adolescents we observe that lower secondary educated have a higher prevalence heavy smoking (12.2% [6.7-21.2]) compared to higher educated persons (3.7% [2.0-7.0]). Similar but less pronounced differences are found for young adults. More single adolescents smoke heavily than adolescents living with both parents. There are however no gender differences in heavy smoking among adolescents, while these are apparent among young adults (10.3% [7.1-14.8] compared to 5.9% [3.7-9.3]). Heavy smoking did not decrease substantially in adolescents, while it did among young adults (from 11.9% [7.9-17.5] in 2001 to 5.6% [3.3-11.4]). 12.3% [7.1-20.6] postponers are heavy smokers compared to 6.9% [4.8-9.7] non-postponers. More employed late adolescents (12.0% [7.3-19.2]) are heavy smoking compared to students (2.4% [1.2-5.0]), while for young adults heavy smoking is more common both among the employed (8.7% [6.2-12.0]) and unemployed (7.0% [3.3-14.2]) compared to students (0.9% [0.1-6.2]). Among young adults we also observe similar educational differences in heavy smoking as found among adolescents: 17.9% [10.3-29.1] lower secondary educated young adults are heavy smokers compared to 5.8% higher educated ones.

Table 6: Profile of smokers, separately for late adolescents and young adults

	late adolescents	young adults
ever smoker	decreased over time*** men (p=0.07) more lower and technical higher secundary educated than higher educated (p=0.12) more employed than unemployed or students*** more singles than living with parents ***	decreased over time** men*** more employed than unemployed or students** postponers (p=0.08) more singles than living with parents (p=0.07)
heavy smokers	 more lower secondary educated than higher educated *** more employed than students*** more singles than living with parents ***	decreased over time* men (p=0.06) more lower secondary educated than higher educated* more (un)employed than student (p=0.11) postponers (p=0.07)

* p<0.050,**p<0.010; *** p<0.001

Thirdly, there are not many differences in the profile of the current smokers who tried quitting (not in Table): there are slightly more women (69.1% [60.2-76.8]) than men (61.6% [53.8-68.8]) and more with a general higher secondary diploma (73.9% [52.8-87.8]) and more young adults (69.5% [61.8-76.3]) than late adolescents (58.6% [49.2-67.3]) but these differences are not statistically significant. The only substantial differences are found between household types: those living together (72.6% [62.1-81.1] or being single (67.3% [57.2-75.9]) having a higher odds of trying to stop than those living with their parents (43.7%[27.5-61.2]), both among adolescents and young adults.

Concerning differences according to nationality of origin, we need to differentiate between Turks and Moroccans, as the former smokes more than average while the latter smokes a lot less than average. Although there is a higher prevalence of ever smokers in Turks (62.6% [45.3-77.1]), this is not significantly different from Belgians (50.4% [46.1-54.7]). Less Moroccans indicate that they have ever smoked (32.2% [22.0-44.5]). In daily smoking we observe significant differences between Belgians (30.5% [26.7-34.6]) and both Turks (54.0% [36.9-70.1]) and Moroccans (19.8% [12.3-30.3]). There are also more heavy smokers among Turks (18.6% [7.7-38.3]) than among Moroccans (2.2% [0.5-8.8]). These differences remain significant after controlling for age. Daily smoking among Turks is however no longer significantly different from Belgians after controlling for education.

5.4.5 Knowledge on HIV

The sets of questions to identify the knowledge on HIV were not included in the survey year of 2001, so for these questions we rely on data of two survey years only (2004,2008).

The respondents were asked if you could get contaminated with aids when you kiss someone on the mouth, by a mosquito bite or through giving blood in Belgium. Only half of the Brussels' youngsters (48.7% [44.1-53.3]) can rightly identify two non-contaminating contacts for HIV. Adolescents (47.0% [40.5-53.5]), postponers (41.7% [33.1-50.8]), unemployed (42.4% [34.1-51.3]) and Turks/Moroccans (36.4% [24.3-50.5]) have less knowledge on HIV. There is also clearly less understanding of HIV among the lower secondary educated (35.5 [26.7-45.5]) and the vocational higher secondary educated (37.2% [24.7-51.7]) compared to 64.8% [59.1-70.1] of the highest educated (Figure 9).

Figure 9: Percentage that can identify two non-contaminating contacts for HIV (contact) and two protective sex measures (protective sex) according to educational level
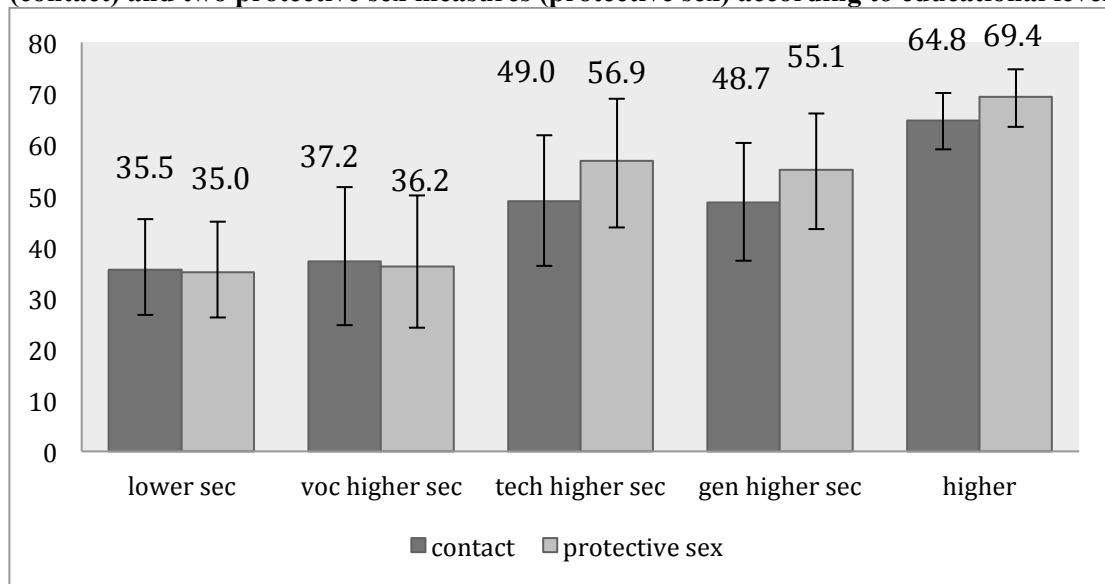
The next set of questions assessed knowledge on protective sex. The respondents were asked if the following methods protect you against getting HIV: choosing a partner that looks healthy and withdraw before ejaculation. This knowledge is somewhat better than the knowledge on non-contaminating contact: in general 57.4% [53.2-61.5] answered both questions correctly. In 2008 however, knowledge is worse than in 2004 (49.2% [43.6-54.9] compared to 65.8% [59.6-71.5]). There are no differences between men and women. For the remaining socio-demographic indicators, we observe similar results as the correct knowledge on non-contaminating contacts: less adolescents (48.4% [41.9-54.9]), postponers (41.1% [32.5-50.3]), unemployed (41.1% [33.0-49.8]) and Turks and Moroccans (39.3% [28.2-51.6]),

although nationality of origin is again more pronounced among women than among men. For education, both lower secondary educated (35.0% [26.2-44.9]) and vocational higher secondary educated (36.2% [24.2-50.1]) are at risk (Figure 9).

To conclude, respondents had to indicate if they had been tested for HIV: almost half of the respondents have been tested at least once (45.6% [41.6-49.6]). This also increased over time (from 41.7% [36.1-47.6] to 49.2% [43.7-54.7]). It is less common among adolescents (31.6 [26.1-37.6]), Turks/Moroccans (18.1% [11.0-28.3]), students (29.8% [23.0-37.5]) and lower secondary educated (29.0 [21.3-38.2]). No differences were found in gender, nor between postponers and non-postponers.

5.5 Medical consumption

In this part we shed some light on medical consumption of young adults. Having a regular general practitioner (GP) practice, visits to a GP and specialist in the last year are recorded on the individual level. On the household level, information is given on the perception of hardship to pay the personal contribution to medical expenses.

Around three quarters (77.5% [74.5-80.3]) have a regular GP. This is more common among women (81.0% [77.4-84.2]) than among men (73.5% [68.9-77.7]), and less common among the lowest educated (72.9% [65.2-79.5]) compared to the general higher secondary educated (86.2% [79.4-91.0]). Concerning household position, those living alone (70.2% [64.2-75.7]) indicate less to have a general practitioner than those living at home with both parents (85.2% [76.5-91.0]). It is a less common practice among those with a foreign nationality of origin (e.g. Turks/Moroccans: 72.2% [62.2-80.4]) than among native Belgians (84.4% [80.9-87.4]) to have a regular GP practice.

The contact and frequency of visits to general practitioners and specialists is lower than in other life stages. In general, two thirds of the young persons (65.9% [62.7-69.0]) had at least one visit to the GP (prior to the survey uptake) and around half visited a specialist (55.5% [52.1-58.8]). Some of the relationships between the socio-demographic factors and visiting the GP are different for adolescents and young adults. While there are no educational differences among young adults, there are some substantial differences among adolescents. Less than half of the lowest educated adolescents went to visit the GP in the last year (48.0% [35.6-60.4]), while this is two thirds of the higher educated (66.8% [59.2-73.6]). There are also significant differences between nationality groups for adolescents that are absent among young adults. Less adolescents of European/Turkish or Moroccan origin (37.7% [24.0-53.8]) have visited a GP compared to native Belgians (66.3% [60.0-72.2]) and Europeans (70.3 [56.4-81.2]) (Figure 10). These differences remain after controlling for educational level.

Figure 10: Percentage of visiting general practitioner (GP) or specialist in the last year according to nationality of origin for late adolescents (18-24 yrs)
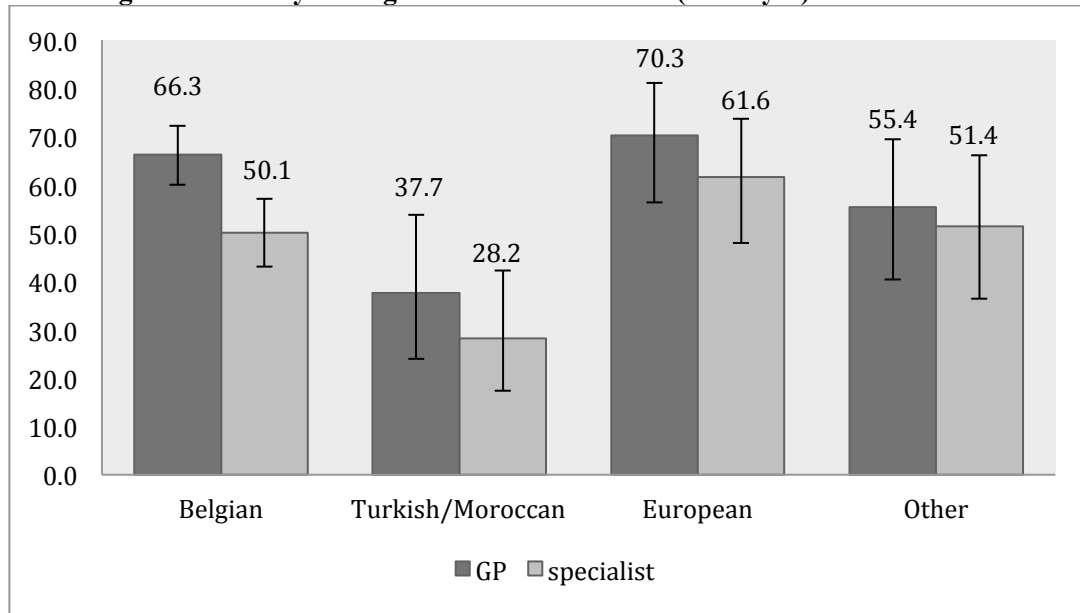
Gender and postponement differences in visiting a GP are similar in adolescents and young adults: more women (73.3% [57.3-61.9]) than men (57.3% [52.4-61.9]) and more postponers (78.8% [69.4-85.9]) have visited a GP in the last year compared to non-postponers (%).

Most of those who stated that they didn't feel healthy (based on self-reported health) did pay a visit to a GP (77.6% [68.8-84.4]) or specialist (74.1% [65.1-81.5]).

There are similar gender differences in contact with a specialist as in contacts with a general practitioner (68.3% [64.0-72.2]) women compared to 40.4% [35.7-45.4] of the men. There is no association with postponing medical expenses. The differences between educational levels are substantial for young adults only: between the vocational higher secondary educated (42.7% [28.3-58.6]) and the highest educated (64.1% [58.9-69.0]). Differences in nationality of origin are again only significant among adolescents: lower prevalence is found among Turks/Moroccans (28.2% [17.4-42.3]) than among Europeans (61.6% [48.0-73.7]) and non-significant differences with Belgians (50.1% [43.1-57.1]) (Figure 10).

To conclude we observe a clear negative association between educational level and the perception of hardship to pay medical expenses (Figure 11). Only one in four higher academic educated young persons (24.5% [19.2-30.8]) live in households who have the perception that it is hard to pay medical expenses, while this is around half of those in higher secondary education and even more than two third of those with only lower secondary education (69.9% [53.9-82.1]). Unemployment is also clearly related to this financial

hardship: more than half of the unemployed (55.6% [47.9-63.0]) are having this perception, while this is one in three of the employed (34.8% [30.3-39.7]).

Figure 11: Perception of hardship to pay medical expenses according to educational level (%)
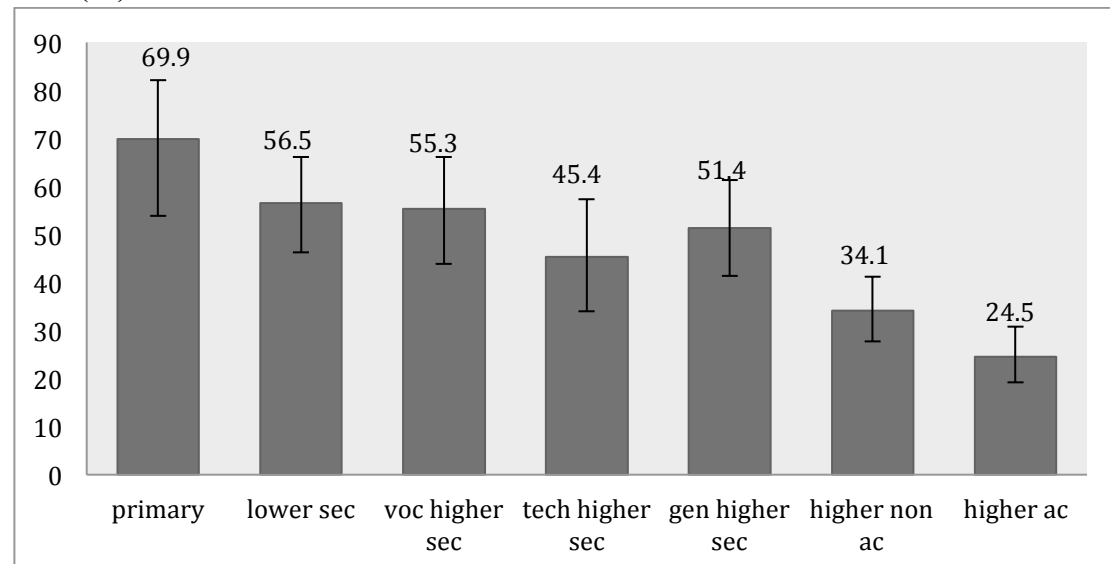
5.6 Regional differences

In this part, we compare the main findings in the BCR to the other Belgian regions. First, we zoom in on the background characteristics, in order to keep this information in the back of our mind to interpret the differences for the main health indicators.

5.6.1 Socio-demographic profile

The socio-demographic characteristics of young persons are quite different between the regions (Table 7). Only the sex ratio is more or less the same, with an equal division of men and women in each region. There are more young adults in the BCR than in the other regions. Educational differences are wide at both ends of the educational continuum: the BCR both has an overrepresentation at the bottom (compared to the FR) and the top of the educational level (compared to the WR). The overrepresentation at the bottom is most substantial among adolescents (not in table): while only 8.7% [6.6-11.3] of the adolescents in the FR are lower secondary educated, this is 13.6% [10.8-17.0] in the WR and 18.9% [14.9-23.7] in the BCR. Among the highest educated, there are no differences between adolescents and young adults: while around half of the young persons in the FR and BCR have a diploma in higher education (FR=49.7% [45.3-54.8], BCR=46.8% [41.4-52.2]), this is only 37.2% [32.8-41.7] in the WR. Concerning activity status, we observe that there is a similar proportion of students in each region, but there are more young persons employed in the FR (64.8 [61.7-

67.7]) than in the WR (52.4% [49.0-55.7]) or the BCR (51.2% [47.7-54.6]). There are also less young persons in the FR who live in households where they have to postpone medical expenses (6.1% [4.7-8.1]) compared to the WR (15.5% [13.0-18.4]) and especially the BCR (20.5% [17.7-23.7]). While the overall majority is Belgian in the WR and the FR, there is clearly a higher share of non-Belgian origin living in the BCR. To conclude, we also observe differences in household position: with more singles in the BCR (32.0% [28.8-35.4]) compared to the FR (8.4% [7.1-9.8]) and the WR (12.3% [10.4-14.6]). At the same time, there are less young persons living with both parents in the BCR (16.8% [14.1-20.0]), especially compared to the FR (40.7% [37.2-44.2]).

Table 7: Socio-demographic profile according to region

		Flemish Region		Brussels-Capital Region		Walloon Region		95% sig
		N	%	N	%	N	%	
sex	men	809	50.9 [48.3-53.5]	564	46.5 [43.5-49.6]	810	47.4 [44.6-50.2]	
	women	835	49.1 [46.5-51.7]	658	53.5 [50.4-56.5]	897	52.6 [49.8-55.4]	
age group	adolescent (18-24)	837	52.0 [48.8-55.2]	521	44.3 [40.9-47.9]	867	50.0 [46.5-53.5]	*
	young adult (25-30)	807	48.0 [44.8-51.2]	701	55.7 [52.1-59.1]	840	50.0 [46.5-53.5]	
educational level	lower sec	182	10.8 [9.1-12.9]	211	17.1 [17.1-19.9]	253	15.8 [13.5-18.5]	***
	voc higher sec	189	10.8 [9.1-12.8]	101	8.6 [7.0-10.6]	247	14.0 [12.0-16.3]	
	tech higher sec	285	16.9 [14.8-19.3]	95	7.4 [5.9-9.2]	299	19.0 [16.3-22.1]	
	gen higher sec	146	9.0 [7.4-11.0]	134	10.9 [9.0-13.2]	169	8.8 [7.3-10.5]	
	higher	771	48.4 [45.3-51.6]	624	51.7 [48.3-55.1]	644	37.1 [34.0-40.4]	
	missing	71	4.0 [3.0-5.2]	57	4.3 [3.2-5.6]	95	5.2 [4.06.8]	
postponement	no	1502	93.9 [91.9-95.3]	968	79.5 [73.3-82.3]	1439	84.5 [81.6-87.0]	***
	yes	95	6.1 [4.7-8.1]	239	20.5 [17.7-23.7]	225	15.5 [13.0-18.4]	
nationality of origin	Belgian	1511	92.0 [90.0-93.7]	741	61.7 [58.3-65.0]	1504	88.3 [86.0-90.3]	
	Turkish/Moroccan	30	2.0 [1.2-3.5]	124	9.7 [7.9-11.9]	14	0.9 [0.5-1.7]	***
	European	62	3.6 [2.5-5.1]	228	18.7 [16.1-21.7]	140	7.8 [6.2-9.7]	
	Other	39	2.4 [1.7-3.5]	127	9.9 [8.1-11.9]	48	3.0 [2.1-4.4]	
household position	with parents	577	40.7 [37.2-44.2]	181	16.8 [14.1-20.0]	440	28.2 [24.9-31.8]	***
	with one parent	137	8.1 [6.4-10.2]	122	9.2 [7.3-11.5]	162	9.1 [7.4-11.2]	
	with partner	548	33.4 [30.1-36.8]	420	28.6 [25.5-31.9]	592	34.8 [31.4-38.4]	
	single	229	8.4 [7.1-9.8]	328	32.0 [28.8-35.4]	264	12.3 [10.4-14.6]	
	other	153	9.5 [7.7-11.6]	171	13.4 [11.1-16.1]	249	15.6 [13.2-18.3]	
activity status	studying	387	27.7 [24.8-30.7]	339	29.7 [26.5-33.2]	413	25.9 [23.0-29.0]	***
	working	1108	64.8 [61.7-67.7]	618	51.2 [47.7-54.6]	939	52.4 [49.0-55.7]	
	not working	134	7.6 [6.2-9.2]	236	19.1 [16.6-21.8]	343	21.8 [19.2-24.7]	

* p<0.050,**p<0.010; *** p<0.001

5.6.2 Mental health

First of all, we take a closer look at regional differences in mental health problems (Table 8). Overall, we can observe that Brussels and Walloon adolescents and young adults have a higher likelihood of presenting mental health problems than youth in the FR. The strongest relations are found in psychological distress/disorder and sleeping/anxiety disorders. For example, one third of the young persons in the Brussels or Walloon region have psychological distress, while this is one-fourth in the FR (23.1% [20.7-25.7]). Suicidal attempts in the BCR (5.3 [3.8-7.4]) are in-between the proportion in other regions, but is not statistically different from the WR (6.1 [4.5-8.3]) or the FR (3.0 [2.0-4.5]). No significant differences are found in somatisation and depression disorders. For the vitality index, we observe a higher mean score for young persons in the FR (66.8 [65.6-68.0]) than in the BCR (55.0 [53.5-56.5]) or the WR (57.1 [55.6-58.6] – not in table).

Table 8: Regional differences in mental health indicators: number of persons showing signs of mental health problems, percentages and confidence intervals between brackets

| | | Region | | | |
		FR	BCR	WR	sig.
GHQ	**psychological distress (GHQ2+)**	387	404	583	4522
		23.1 [20.7-25.7]	34.8 [31.6-38.1]	33.9 [30.9-37.0]	***
	psychological disorder (GHQ4+)	192	213	296	4522
		11.1 [9.34-13.0]	18.2 [15.8-20.8]	15.8 [13.7-18.2]	***
SCL-90-R	**sleeping disorder**	197	213	256	4513
		11.6 [9.9-13.5]	17.7 [15.4-20.4]	16.4 [14.0-19.0]	***
	depression disorder	95	100	120	4524
		5.4 [4.2-6.9]	8.2 [6.7-10.1]	6.9 [5.4-8.7]	
	anxiety disorder	61	89	107	4520
		3.6 [2.6-4.8]	7.4 [5.9-9.3]	6.3 [4.9-8.0]	***
	somatisation disorder	74	62	71	4533
		4.0 [3.0-5.4]	5.3 [4.0-7.0]	3.4 [2.6-4.6]	
Suicide	**lifetime suicidal ideation**	131	137	183	2839
		12.6 [10.2-15.4]	16.7 [14.0-19.7]	16.7 [13.6-20.3]	*
	lifetime suicidal attempt	31	42	71	2803
		3.0 [2.0-4.5]	5.3 [3.8-7.4]	6.1 [4.5-8.3]	**
Self-report	**self reported depression**	65	60	97	4538
		3.5 [2.6-4.7]	6.0 [4.4-8.1]	5.6 [4.3-5.3]	*

* p<0.050,**p<0.010; *** p<0.001
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region

Some of the excess in mental health problems in the BCR is related to deprivation, through the indicator of postponing medical expenses (model 2 in Table 9). After controlling for this postponement, the difference between the FR and the BCR lowers significantly for most mental health indicators. For example: the odds of presenting anxiety disorders are 2.20 (1.48-3.26) in the BCR compared to the FR, but after controlling for postponement the odds decreases towards 1.61 (1.05-2.47). In some instances, the difference is levelled out or no longer significant: there is a 75% higher odds of self-reported depression in the BCR (OR=1.75 [1.13-2.72]), and after inclusion of postponement this is 14% (1.14 [0.70-1.85]). This means that if the composition of the young population in the FR and the BCR were more similar in terms of deprivation, there would be no significant difference in self-reported depression. In order to lower the current mental health problems, deprivation should not be underestimated.

For some health indicators, household position is an even more important contributor to regional differences than postponement of medical expenses: differences in suicidal attempts decreases from a 87% [1.06-3.18] higher odds in the BCR to a non-significant 37% [0.80-2.33] higher odds because singles, overrepresented in the BCR, have a two times higher odds of having tried to commit suicide compared to those living together with a partner.

For self-reported depression, the differences between the FR and BCR even reverse after controlling for both household position and postponement of medical expenses (model 4): while young persons in the BCR show a 70% higher odds of self-reported depression (model

1), the odds is lower than in the FR in model 4 (OR=0.81 [0.51-1.31]), although this difference is not statistically significant.

The higher odds in the WR and the BCR in sleeping disorders and mental health problems measured through the GHQ-questionnaire are robustly found after controlling for postponement and household position. For example: the odds of presenting signs of psychological impairment are 1.52 (1.18-1.95) times higher in the WR than in the FR, and after all controls (model 4) the odds remain higher (1.35 [1.05-1.74]).

Table 9: Odds ratios (OR) and 95% confidence intervals (CI) for mental health indicators (reference=Flemish Region)

		model 1	model 2	model 3	model 4
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
psychological distress (GHQ2+)	BCR	1.80 [1.47-2.20]***	1.67 [1.36-2.05]***	1.62 [1.32-1.99]***	1.46 [1.18-1.81]***
	WR	1.71 [1.40-2.07]***	1.63 [1.34-1.98]***	1.62 [1.33-1.97]***	1.58 [1.29-1.93]***
psychological disorder (GHQ4+)	BCR	1.81 [1.41-2.33]***	1.62 [1.25-2.11]***	1.64 [1.27-2.12]***	1.44 [1.10-1.88]**
	WR	1.52 [1.18-1.95]**	1.41 [1.09-1.81]**	1.43 [1.22-1.84]**	1.35 [1.05-1.74]*
sleeping disorder	BCR	1.66 [1.30-2.12]***	1.48 [1.15-1.91]**	1.61 [1.26-2.07]***	1.43 [1.10-1.86]**
	WR	1.50 [1.16-1.93]**	1.39 [1.07-1.80]*	1.46 [1.13-1.88]**	1.35 [1.04-1.76]*
depression disorder	BCR	1.55 [1.11-2.18]*	1.19 [0.82-1.71]	1.31 [0.93-1.86]	1.04 [0.72-1.50]
	WR	1.28 [0.90-1.84]	1.07 [0.74-1.55]	1.19 [0.82-1.72]	0.97 [0.66-1.43]
anxiety disorder	BCR	2.20 [1.48-3.26]***	1.61 [1.05-2.47]*	1.93 [1.30-2.87]**	1.46 [0.96-2.21]
	WR	1.82 [1.22-2.73]**	1.48 [0.97-2.27]	1.72 [1.14-2.59]**	1.39 [0.90-2.14]
somatisation disorder	BCR	1.33 [0.87-2.23]	0.93 [0.59-1.47]	1.15 [0.74-1.78]	0.82 [0.51-1.32]
	WR	0.84 [0.55-1.29]	0.65 [0.42-1.01]	0.77 [0.49-1.20]	0.57 [0.36-0.90]*
lifetime suicidal ideation	BCR	1.39 [1.02-1.91]*	1.30 [0.94-1.80]	1.13 [0.82-1.54]	1.06 [0.76-1.49]
	WR	1.39 [1.00-1.94]	1.33 [0.94-1.88]	1.29 [0.92-1.82]	1.24 [0.87-1.76]
lifetime suicidal attempt	BCR	1.84 [1.06-3.18]*	1.50 [0.86-2.62]	1.37 [0.80-2.33]	1.17 [0.67-2.04]
	WR	2.12 [1.24-3.64]**	1.85 [1.08-3.17]*	1.86 [1.11-3.12]	1.58 [0.94-2.64]
self reported depression	BCR	1.70 [1.09-2.64]*	1.14 [0.70-1.85]	1.13 [0.73-1.76]	0.81 [0.51-1.31]
	WR	1.62 [1.08-2.42]*	1.23 [0.79-1.90]	1.45 [0.97-2.16]	1.10 [0.71-1.69]

Model 1: Controlled for age
Model 2: Model 1+ postponement of medical expenses
Model 3: Model 2+ household position
Model 4: Controlled for age+ postponement of medical expenses+household position
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region
* p<0.050,**p<0.010; *** p<0.001

5.6.3 Physical health

The BCR (8.5 [6.8-10.5]) has a slightly higher proportion of young persons with a physical impairment limiting their daily activities, but this does not significantly differ from either of the other regions (WR=6.0% [4.8-7.5]; FR=9.1% [7.3-11.1] - Table 10).

Less young persons are physically active in the BCR or in the WR compared to the FR, but this difference is more pronounced among women than among men, and more substantial between the FR and the WR. These differences are robustly found after controlling for nationality of origin, educational level and household position (Figure 12a): BCR is in-between position, and the differences are borderline significant: there is a 42% higher odds of lack of physical activity among women in the BCR compared to the FR. In the WR there is a 85% higher odds of being not enough physically active on a weekly basis, and this is still 75% after controlling for education and nationality of origin. The. In Figure 12b we observe that the differences between regions for men are a lot less pronounced and not significant.

Figure 12a: Odds ratios and confidence intervals of lack of weekly physical activity among WOMEN by region
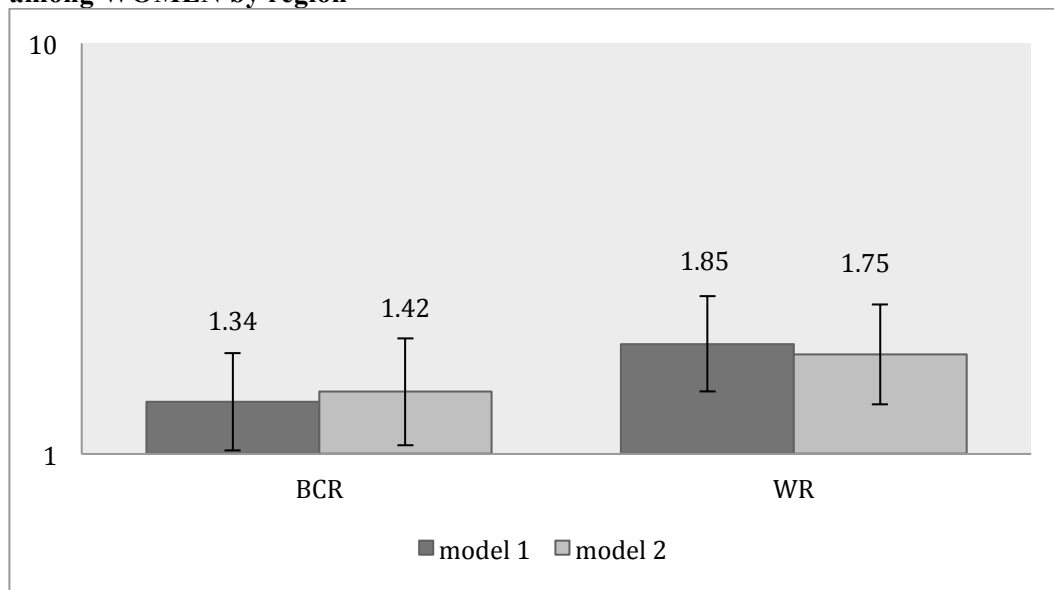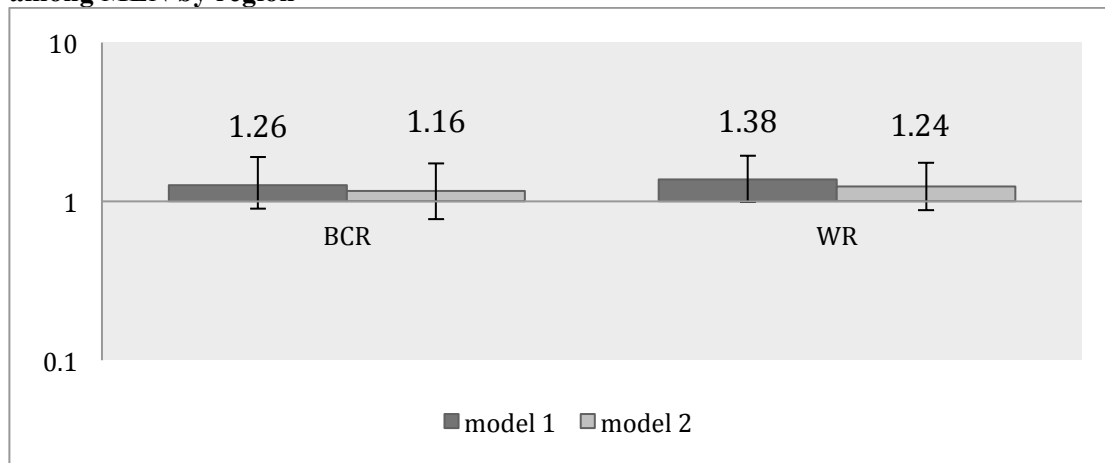
Figure 12b: Odds ratios and confidence intervals of lack of weekly physical activity among MEN by region

Model 1: Controlled for age
Model 2: Controlled for age, educational level, nationality of origin and household position
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region

There are no statistically significant differences in overweight between the BCR and the other regions, only between the WR and the FR (Table 10). Obesity is rare in all regions, but the prevalence is higher in the BCR (6.2% [4.6-8.1]) and the WR (6.8% [5.4-8.7]) compared to the FR (3.8% [2.8-5.1]), both among men and women. Only the difference between the FR and the WR are statistically significant. After inclusion of nationality of origin, education, postponement of medical expenses and gender, the odds is 52% (OR=1.52 [0.95-2.43]) higher in the BCR and 56% (OR=1.56 [1.01-2.42]) higher in the WR.

Table 10: Prevalence of physical impairment, activity and BMI by region

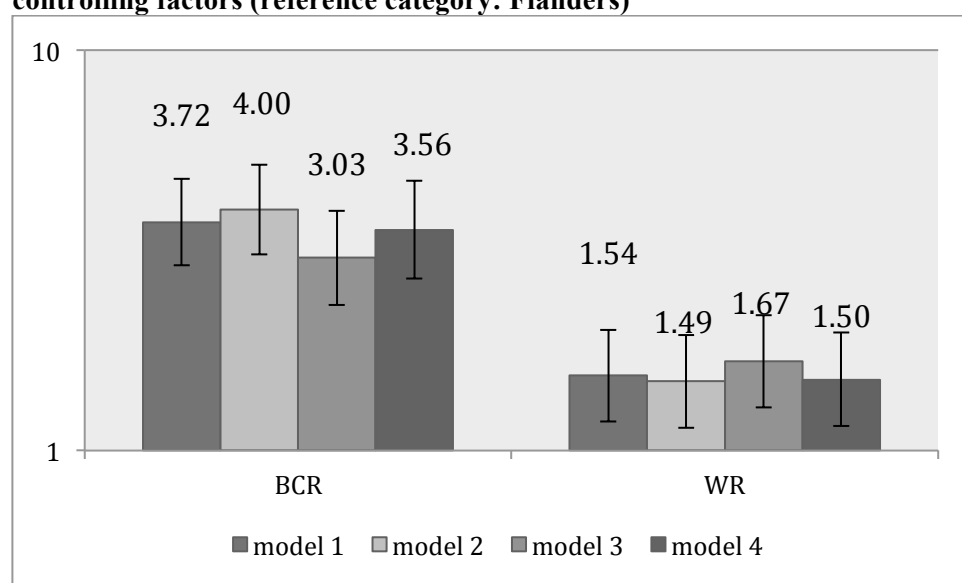|	Region			
	FR	BCR	WR	sig.
physical impairment	107	95	147	4,521
	6.0 [4.8-7.5]	8.5 [6.8-10.5]	9.1 [7.3-11.1]	**
lack of physical activity	309	287	443	4,302
	19.4 [17.1-21.9]	24.5 [21.8-27.5]	28.7 [25.8-31.7]	***
overweight	343	280	420	4,449
	22.0 [19.6-24.7]	24.2 [21.4-27.2]	27.8 [24.8-30.9]	**
obese	65	68	103	4,449
	3.8 [2.8-5.1]	6.2 [4.6-8.1]	6.8 [5.4-8.7]	**
underweight	100	67	123	4,449
	6.0 [4.8-7.5]	6.2 [4.6-8.3]	7.7 [6.1-9.7]	

* p<0.050,**p<0.010; *** p<0.001
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region

5.6.4 Risk behaviour

There are important regional differences in risk behaviour of young persons (Table 11). The most explicit differences are found in abstinence of alcohol use: while one in three (33.3% [30.1-36.7] young persons in Brussels abstain from alcohol, this is only one in ten (11.9% [10.0-14.0]) in the FR and 16.8% [14.6-19.4] in the WR. The odds of abstinence in the last year is almost four times higher among the Brussels youth compared to Flemish young persons (OR=3.72 [2.90-4.77] – Figure 13). In the WR, it is also higher (OR=1.54 [1.18-2.00]), but not so clear-cut as between the BCR and FR. On the one hand, these differences are even underestimated, as singles are less often abstainers, but are overrepresented in the BCR: the odds of abstaining in the BCR increases towards 4.00 [3.09-5.17] in model 2. On the other hand, this relation is mediated by nationality of origin, leading to smaller, but still substantial differences (Model 3 – Figure 13). We observe that these differences are quite robust, both in the BCR (OR= 3.56 [2.72-4.69]) and in the WR (1.50 [1.13-5-1.92-7]) after inclusion of household position, nationality of origin, plus gender, education and postponement of medical expenses,

Figure 13: Odds ratios of regional differences in abstinence levels according to different controlling factors (reference category: Flanders)

Model 1: Controlled for age
Model 2: Controlled for age, household position
Model 3: Controlled for region, nationality of origin
Model 4: Controlled for region, nationality of origin, household position, educational level, sex, postponement of medical expenses
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region

Although the prevalence of problematic drinkers of the total study population is similar in all three regions (Table 11), there are more problematic drinkers in the BCR when only alcohol consumers of the last year are taken into account (15.0% [11.7-19.1] compared to 7.8% [6.0-

9.9] in the FR). These differences remain significant after controlling for all socio-demographic indicators mentioned in Figure 14. The odds for problematic drinking among alcohol consumers is 68% (OR=1.68 [1.08-2.61] higher in the BCR and 72% (OR=1.72 [1.16-2.54] higher in the WR compared to the FR after all these controls.

Concerning cannabis use, there are significant regional differences in using it at least once, and using it the last month (Table 10): e.g. while 11.2% [9.3-13.5] of Brussels' youth used cannabis in the last month, this was only 6.7% [5.3-8.5] in the FR and 7.4% [5.8-9.5] in the WR. This is largely due to the higher percentage of singles in the BCR, as the odds of cannabis use significantly decreases after controlling for household position: from a 76% [1.26-2.50] higher odds to a 28% [0.91-1.81] higher odds. It increases again after including nationality of origin (OR=1.93 [1.32-2.82]). After inclusion of both socio-demographic indicators and sex, postponement and education, the odds is still elevated but not statistically significant (OR=1.39 [0.95-2.05]).

Smoking prevalence is rather similar in the Belgian regions, except for heavy smoking: we observe less heavy smokers in the BCR (7.2% [5.8-9.1]) and in the FR (6.7% [5.4-8.3]) compared to the WR (11.1% [9.1-13.4]). This is largely due to higher deprivation and a different household composition in the WR: after controlling for education, postponement of medical expenses, household composition, sex and nationality of origin, the differences are no longer significant. The BCR even shows lower heavy smoking, but this is not significant (OR=0.87 [0.59-1.27]).

To conclude this section, HIV knowledge is compared. There are no significant differences in both identifying non-contaminating contacts and protective sex. The differences in having been tested for HIV are however substantial: while almost half of the Brussels youth (45.6% [41.6-49.6]) has been tested at least once, this is one third in the WR (33.4% [29.5-37.6]) and one in five in the FR (21.5% [18.2-25.1]). After inclusion of all socio-demographic indicators, there is still an increased odds both in the BCR (OR= 2.61 [1.97-3.45]) as in the WR (1.83 [1.37-2.43]) compared to the FR.

Table 11: Prevalence of risk behaviour and HIV knowledge according to region

		Flemish Region		Brussels-Capital Region		Walloon Region		Total	95% sig
		N	%	N	%	N	%	N	
alcohol	abstaining	196	11.9 [10.0-14.0]	403	33.3 [30.1-36.7]	263	16.8 [14.6-19.4]	4,550	***
	more than average drinkers	360	21.9 [19.5-24.4]	175	14.8 [12.6-17.4]	286	15.4 [13.2-17.9]	4,550	***
	problematic drinking	84	5.2 [4.0-6.7]	82	7.0 [5.4-9.1]	112	7.0 [5.6-8.9]	4,515	
	% of drinkers that are problematic drinkers	84	7.8 [6.0-9.9]	82	15.0 [11.7-19.1]	112	13.4 [10.6-16.7]	2,619	***
cannabis use	ever user	456	27.7 [24.9-30.7]	379	32.1 [28.9-35.5]	434	25.0 [22.2-28.1]	4,506	*
	last month user	117	6.7 [5.3-8.5]	135	11.2 [9.3-13.5]	127	7.4 [5.8-9.5]	4,506	*
smoking	ever smoker	778	45.9 [42.7-49.1]	579	47.4 [44.1-50.8]	886	48.2 [44.9-51.6]	4,520	
	heavy smoker	115	6.7 [5.4-8.3]	86	7.2 [5.8-9.1]	192	11.1 [9.1-13.4]	4,499	***
HIV-knowlegde	non-contaminating contact	549	55.1 [51.1-59.0]	428	53.6 [49.4-57.7]	512	51.8 [47.4-56.2]	2,821	
	protective sex	611	60.4 [56.5-64.2]	477	57.4 [53.2-61.5]	605	59.4 [55.2-63.6]	2,830	
	HIV-test	770	21.5 [18.2-25.1]	441	45.6 [41.6-49.6]	654	33.4 [29.5-37.6]	2,809	***

* p<0.050,**p<0.010; *** p<0.001
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region

5.6.5 Medical consumption

There are quite distinct regional differences in medical consumption (Table 12). While more than 90% of the Flemish and Walloon young persons have a regular GP practice, this is only 77.5% [74.5-80.3%] in the BCR. Also, less young persons from Brussels went to the GP last year (65.9% [62.7-69.0%] than in the FR (74.4% [71.6-77.0%]) or the WR (71.2% [67.8-74.4%]), while a higher percentage of the Brussels' youth paid a visit to a specialist (55.5% [49-54%]) than the Flemish youth (41.7% [38.6-44.8%]).

A higher percentage of young persons in the BCR are living in households wherein the perception lives that it is quite hard to pay the personal contribution to the medical expenses (40.9% [37.3-44.5%] versus 20.3% [17.5-23.4%] in the FR and 30.8% [27.4-32.3] in the WR). These differences become somewhat less pronounced after inclusion of nationality of origin: after inclusion of these variables the odds of hardship to pay medical expenses decreases from a three times higher odds (OR=3.02 [1.38-3.83]) to a 2.5 times higher odds (OR=2.48 [1.92-3.20] compared to the FR. The odds to perceive the payment of medical expenses as hard thus remain significantly higher in the BCR compared to the other regions.

Table 12: Medical consumption according to region

	Region			Total
	FR	BCR	WR	sig.
regular GP practise	1,522	939	1,594	4,560
	93.5 [91.8-94.9]	77.5 [74.5-80.3]	94.4 [92.5-95.8]	**
contact with GP	1,158	733	1,147	4,255
	74.4 [71.6-77.0]	65.9 [62.7-69.0]	71.2 [67.8-74.4]	***
contact with specialist	623	628	783	4,187
	41.7 [38.6-44.8]	55.5 [52.4-58.8]	48.3 [44.9-51.8]	**
perception of medical expenses	312	477	478	4,449
	20.3 [17.5-23.4]	40.9 [37.3-44.5]	30.8 [27.4-34.3]	**

* p<0.050,**p<0.010; *** p<0.001
BCR= Brussels-Capital Region, FR=Flemish Region, WR=Walloon Region

6   Summary

In this paper we draw a detailed picture of the health situation of the Brussels' young persons, differentiating where possible between late adolescents (18-24-year-olds) and young adults (25-30-year-olds). Using the data of HIS 2001, 2004 and 2008 we identify the magnitude of the health risks they encounter and examine if these risks are socially determined. We also briefly point to differences between the Brussels' youth and those of other Belgian regions.

6.1   Social inequalities in health in early adulthood in the BCR: what lessons can be learned?

The results clearly show that there are strong social inequalities in the health status of young adults. Risk factors and determinants are however quite different depending on the kind of health measure studied. In this report we used the level of education, the postponement of medical care in the household and the activity status as three proxies for socio-economic position. Being higher educated might be beneficial for a number of health outcomes, but this does not mean that higher educated young persons always live the healthiest life or behave in a healthy way. In the same way, growing up in a deprived family might hinder making healthy choices, but it does not mean that it is hampering health in each and every respect.

What were the most important social inequalities found in the Health Interview Data? An overview of the associations between the three SEP indicators presented in this paper and health dimensions is listed in Table 13. All significant relations are shaded in grey.
Let us start with educational differences. We found an educational gradient in ***self-rated health***, similar to but a bit less pronounced than the results found in the census data by De Grande et al. (2013): the higher educated a young person is, the better (s)he assesses his/her own health status. Self-rated health can be related to both mental and physical health.

Among the **mental health** indicators, four of these present a significant relationship with education: lower secondary educated young persons showed a higher vulnerability to suicide attempts, self-reported depression and the likelihood of presenting symptoms of somatisation or anxiety disorders. For the remaining mental health indicators no link with education was found. Miech and colleagues (1999) found that the relation between SEP and mental health is different for each psychological disorder at young ages: anxiety is inversely related with SEP, while there is no relation between depression and SEP in early adulthood. Verger et al. (2009) found that subgroups of young adults, such as college students, have an increased risk of psychological problems, which indicates a U-shaped relation between education and psychological problems rather than a reversed gradient with lower risks of mental health for

the higher educated. Studying mental health problems in young persons therefore requires both a disease-specific and subgroup-specific approach. It cannot be fitted in a one-size-fits-all approach.

What is striking in our results, is the fact that the mental problems with the highest prevalence (psychological distress or disorder, sleeping disorder and suicidal ideation) show little or no educational differences. Possibly, these health indicators measure a normal disturbance in a young life, as emotional extremes are more common in these life stages and are reflected in mood swings, sadness, emotional outburst and behaviours intended to distract from uncomfortable feelings (McNeely & Blanchard, 2009). More severe mental problems, such as suicide attempts, are of a very different nature and call for professional help. That inequalities are thus only apparent for the more severe mental health indicators, is an important point that should be kept in mind when prioritizing prevention and intervention policies.

In line with other studies, we found that high-educated young adults are often experimenting with various **substances (alcohol, illicit drugs)**, while more problematic use exists among the lower educated (Berten et al., 2012; Legleye et al., 2011; Legleye et al., 2013).

With regard to **physical health**, we observe less physical activity and more overweight among low-educated young women. Nationality of origin also plays a role, as we discussed supra in section 6.3. Since the relation between overweight and many chronic diseases, such as diabetes and cardiovascular diseases, is beyond dispute, efforts should be made to improve healthy living habits among this group, such as changing dietary patterns and physical activity.

Correct HIV knowledge is clearly related to educational level: more general higher secondary educated and higher educated persons are more knowledgeable about which contacts are (non-)contaminating and how to protect during sex than lower secondary educated and vocational higher secondary educated young persons. Those who have better knowledge also have a higher likelihood of being tested for HIV. Programs on sexual behaviour and mediating factors among youth under 25 clearly improve one or more sexual behaviours (Kirby et al., 2007). These results underscore the importance of timely sensitisation in schools. As better treatment is now available compared to ten years ago, young people might be less aware of the severity of the disease and its related STIs. Therefore, existing programmes to reach adolescents have to be reinforced or rebuild, within and outside schools.

Concerning medical consumption, we observe that higher educated persons find their way to a physician more easily. There is also a clear reverse gradient between the perception of hardship to pay medical expenses and education.

Beside education, we also tested the relation between deprivation and health outcomes. The postponement of medical care at the household level has been used as a proxy for deprivation. It is worrying that a substantial proportion of the BCR young population lives in households where there is a need to postpone medical expenses. An association between deprivation and most of the health dimensions is robustly found. This holds for all indicators concerning mental health, bad self-rated health, physical impairment, (heavy) smoking among young adults and knowledge on HIV.

The third indicator of social status is activity status. This indicator is far less significantly related to the different health dimensions than the other two measures of social status. Still, unemployment is associated with bad self-rated health, physical impairment, lack of knowledge on HIV, and perception of problems to pay medical expenses in both sexes; and lack of physical activity and overweight among women.

Table 13: Associations between socio-economic position and the different health indicators

Health indicator	socio-economic position		
	own educational level	postponement	unemployment
Bad self-reported health	-	+	+
Mental health			
Self-reported depression	+ low	+	=
psychological distress (GHQ 2+)	=	+	=
psychological disorder (GHQ 4+)	=	+	=
lifetime suicidal ideation	=	+	=
lifetime suicidal attempt	- high	+	=
somatisation disorder (SCL-90-R)	+ low	+	+
depressive disorder (SCL-90-R)	- high	+	=
anxiety disorder (SCL-90-R)	+ low	+	+
sleeping disorder (SCL-90-R)	+ low	+	+
Physical health			
Physical impairment	+ low	+	+
Lack of physical activity	+ low women	=	+ women
Overweight	+ low [a]	=	+ women
Obesity	=	=	=
Underweight	=	=	=
Risk behaviour & Health knowledge			
Alcohol consumption in the last year	+	-	-
Problematic drinking	+ high	+	+
Lifetime cannabis use	+ high	=	-
Last month cannabis use	+ low	+	+
Ever smoking	+ low adolescents	+ young adults	-
Heavy smoking	+ low	+ young adults	- adolescents, + young adults
HIV knowledge on non-contaminating contact	+	-	-
HIV knowledge concerning protective sex	+	-	-
HIV-test	+	-	- students
Medical consumption			
Regular GP	- low	=	-
Contact with GP	- low adolescents	+	-
Contact with specialist	+ high young adults	=	+
Problems with paying health expenses	-	+	+

Shaded in grey: statistically significant at least on 95% level

! Caveat: 'positive/negative' in this context does not necessarily equals 'good/bad'. It needs to be interpreted in relation to the proxy for socioeconomic position (SEP):

Interpretation '=': no SEP relation; e.g. between lifetime cannabis use and postponement: lifetime cannabis use is similar for young persons who have to postpone medical expenses and those who don't have to postpone them

Interpretation '-': reverse/negative SEP relation; e.g. problems with paying health expenses and educational level: the higher the educational level of the young person, the lower the likelihood that one has problems with paying health expenses

Interpretation '+': positive SEP relation; e.g. physical impairment and unemployment: more unemployed persons have a physical impairment limiting their daily activities than employed or studying persons

If a specification is added, like 'low', 'women', 'young adults', this means that the relation is only found in that specific group. E.g. lack of physical activity is more common among low-educated women; while there are no significant educational differences among men.

6.2 Regional differences

In this report we identified important regional differences. In general, we observe a worse health situation in the BCR and the WR compared to the FR. For example, most mental health problems are more common in the BCR and the WR compared to the FR. Recent research on the latest HIS data (implemented in 2013) even found more mental health problems in the BCR than in the WR in the total population (Gisle, 2014). Only under- and overweight and knowledge on HIV are similar in the BCR and the FR. There are also more abstainers from alcohol in the BCR than in the FR or WR, a finding that is similar in the total adult population in the BCR (Gisle 2010a) and can partly be explained by the large Muslim population in the BCR of which most abstain from alcohol as part of their belief (see 6.2). A recent study of Mimilidis et al. (2014) also found more non-users of medical care in the BCR compared to the other regions, mainly accounted for by socio-demographic factors (nationality of origin, age, household situation, income).

Compositional effects are thus playing an important part in these differences. The BCR does not only have a different socio-demographic profile in terms of nationality of origin, but also in terms of deprivation, educational level, activity status and household composition. For example, while more mental health problems are found in the BCR than in the FR, a lot of these differences are accounted for by a higher deprivation and a different household composition.

Some mental health problems, such as sleeping and somatisation disorder and psychological distress/impairment, are still higher after these controls. This is in line with research in the Netherlands, finding more psychiatric morbidity in large cities than rural areas (Peen et al., 2010). Social cohesion is put forward as an important contributor to these differences. Negative life events, social isolation and crime are features more widespread in cities than rural areas. We must however take into account that a comparison between the BCR and the other regions does not fully boil down to an urban-rural comparison, as both other regions also have a few large urban agglomerations such as Antwerp, Ghent, Charleroi and Liège.

For other health indicators as well, we observe ***robust regional differences***, after controlling for compositional effects, meaning that these health indicators need special attention. A substantial part of the young women lack physical activity, problematic drinking is more common, and most of the measures concerning (the lack of) medical consumption are quite pronounced in the BCR. Mimilidis et al. (2014) also indicate that structural factors might

explain some of the regional differences, such as the functioning and the organisation of medical care.

7 Discussion

7.1 Challenges in measuring and analysing socioeconomic position of a young adult in transition

When analysing social inequalities in health among the young, a discussion point is often how the social position of these young persons is measured, as it is often not crystallised yet. In this report, we made use of different components of social status: education, postponement of medical expenses and activity status.

Education was measured either through own educational level obtained or, when still studying, current educational level enrolled in and further divided into study orientation for those in higher secondary education. This can possibly obscure some of our results, as 18-year-olds can still be in general secondary education but aim for higher studies, while those who started higher education might not end it altogether. Other studies however showed that using study orientation (general, technical or vocational) can already give a good prediction of further studies (Hagquist 2007; Havas et al., 2010). Using the highest educational level within the household would have been conceptually unclear as some young persons are still living with their parents and others live alone or with a partner.

Measuring *deprivation* of young adults is also challenging. Income is a less valid proxy for socioeconomic position in young adults than in middle-aged persons, as income can fluctuate or change much in the beginning of one's career. Whether the household had to postpone medical expenses (medical visits, dental care, operations…) or not can be considered as a proxy for economic and social deprivation, as it better captures the unfavourable financial situation of the household.

Lastly, *activity status* sorts young persons in three groups: students, employed and unemployed persons. Again, in this life stage this status is subject to (frequent) changes and therefore difficult to interpret. However, there are some strong relations between health/ health-behaviour and activity status in this life stage, which will be elaborated on in section 7.1.

Another concern of this report is the **selective attrition** in the self-administered questionnaire. As we have background information on these dropouts from the face-to-face questionnaire, we can deduce their profile, which is obviously not at random. Attrition is more common in deprived households: more among the low-educated, non-Belgian, not-working population. The question then remains if these dropouts are substantially different from the deprived persons who did fill out the whole questionnaire. Earlier research performed by Demarest and colleagues (2012) identified a generally higher reluctance in lower-educated persons to participate in HIS, possibly pointing at a conservative bias, meaning that the differences we found are even more pronounced in the total population.

One should keep in mind that the most deprived young adults are not included in the health survey either because of the attrition described above or because they are not registered as residents in Belgium - a condition to take part in the survey. Persons without a permanent address, illegal immigrants or those recently moved are thus excluded from the survey. Socio-economic gradients are therefore probably also underestimated.

Because of the **small number** of young persons interviewed in each HIS and the relative lower frequency of health problems at this age, we had to merge three subsequent health surveys to achieve a sufficient number of persons interviewed. Obviously some patterns might have evolved over the years. These are not the focus of this paper.

7.2   Nationality of origin

An influential factor in the observed health situation of Brussels' youth is nationality of origin. The BCR is a multicultural society, with a persistent influx of immigrants from all over the world (Deboosere et al., 2009). More than 50% of the youngest age groups consist of persons with a foreign origin (Elchardus, Roggemans & Siongers, 2011), and 71,2% of the children born in the BCR in 201 had a mother with a foreign nationality (Brussels-Capital Health and Social Observatory, 2014). Taking first- and second-generation migrants into account, the largest non-Belgian nationality group are Moroccans, followed by Western and Southern Europeans (Lodewijckx, 2014).

Migration is associated with **both better and worse health** for migrants (and their descendants) compared to the native population, depending on the problem studied. For example, we observed that persons from Turkish or Moroccan origin are more abstaining from alcohol than Belgians. *A contrario*, young women of Moroccan origin are more at risk

of being overweight and physically inactive even when we correct for socio-economic position.

Identifying persons with a foreign background is a ***methodological challenge***. Most of the young persons of Moroccan or Turkish descent are born in Belgium and have the Belgian nationality, while one or both of their parents are born in Morocco or Turkey. The number of young persons of foreign nationality at birth interviewed in HIS is too limited to produce robust analyses. In this report, young persons with a Belgian nationality at birth who still live at their parents' home have been assigned the nationality of origin of their parents. Those who do not live with their parents cannot be distinguished from native Belgians. This sometimes can explain differing results for Belgians in Brussels compared to Belgians in other regions. For instance we find that one out of four Belgian young persons in the BCR did not drink any alcoholic beverage in the past year, which is markedly higher than in the other regions and is partly due to a substantial share of second-generation migrants included as Belgians in our sample.

Despite our effort to identify the nationality of origin of the parents, for some questions in HIS ***a representative sample*** of non-Belgians could ***not*** be obtained. In this respect, the results for rare health outcomes, such as certain mental health problems (suicide attempts, somatisation disorders, self-reported depression) and risk behaviour (problematic drinking, cannabis use) need to be dealt with cautiously.

7.3 Health selection versus causation

A recurrent theme within this discussion on social inequalities in health is the question what the direction of the relation between social status and health is. In other words: does a lower diploma lead to a worse health situation (health causation) or does illness leads to a lower SEP (health selection)? There is convincing evidence in favour of both hypotheses, identifying special needs for the lower educated. We can assume that a certain number of persons with maximum a degree of lower secondary education ***did not finish their educational track due to health reasons***: a longstanding illness or a physical or mental impairment.

Not all early school leavers are however in bad health when they quit school. This is often due to various reasons: poor school performance, problem behaviour or a deprived family background are all influential factors (Lyche 2010), leading to few or unstable job opportunities and even more risk behaviour (Byrne & Smith, 2010).

Only part of the health inequalities we presented here can be considered as social selection. The remaining share can be seen as **social causation** and is in fact the consequence of the educational level the young person has achieved. First of all, a diploma stands for the knowledge and insights that one has acquired and can adopt in different circumstances. Applied to health, one can exert its insights to understand medical messages and anticipate on health risks through timely consulting a physician or adjusting one's behaviour. Second, education also works indirectly through occupation and income. The higher your educational level, the better your economic prospects. In young adulthood, one is still in search of a good position, and of which type of job one is best fitted for, and the economic returns are not always proportional to one's educational level. Third, a diploma also strengthens what Putnam (2000) calls 'social capital': networks and norms which enable people to contribute effectively to common goals, or put differently, friends, family and acquaintances that can render support, both instrumental and emotional, and trust.

As we are dealing with cross-sectional data however, it is not possible to make a definite statement on this discussion. It is however important to understand and consider both directions of the relationship between SEP and health.

8   Where do we go from here?

The results show the need for **further in-depth analysis** to understand the underlying mechanisms of the health risks of the young population in the BCR, as they are underrepresented in HIS. For example, students enrolled in higher education were often not present when the survey took place, and the only available information is then provided by a proxy (in most cases another family member), leaving us with no information on risk behaviour, mental and physical health. As De Grande et al. (2014) already recommended in their data inventory of health inequalities in the BCR, interviewers should try to contact these households in the weekends, when there is a higher chance of finding these young persons at home. HIS also lacks some crucial information to fully understand the health situation of adolescents and young adults, for example concerning sexual health, influence of peers or family, etc. A number of questions could be added to fill these gaps. An earlier report of HIS however mentions the restraints of Statistics Belgium to collect information on sexual behaviour, religion and political views (Hesse, 2010).

As the sample size and the questions of HIS do not target young adults specifically, another strategy could be to **expand the Health and Behaviour of School-Aged Children (HBSC)**

survey's sample size, to achieve a representative sample of Brussels' school-aged youth. Up till now, HBSC only included one Dutch-speaking school in the BCR and only a limited number of French-speaking schools, which makes it hard to use these data to sketch a profile of Brussels' youth. Although many health risks are similar in the different regions, we also identified specific health risks that are more common in the BCR. To interpret these differences more carefully, comparable information needs to be available for all three regions.

As we also mentioned in the discussion section (7.1), precarious young persons are often not present in traditional surveys, meaning that another approach is needed to monitor and tackle their specific health needs. A tailored research approach combining both qualitative and quantitative research methods is preferable. Qualitative research methods could be used to get to the roots of the health problems faced by young persons in general and more precarious young persons in particular and complement information from the two surveys (HIS & HBSC) mentioned earlier.

These results support the evidence that in order to improve the health status of young adults we need policies that are universal, benefitting all. This is easier to achieve in adolescence as policies can be implemented in schools, while other channels have to be used to reach the total population at older ages, which are less broad in scope. This universal response should however be differentiated to respond adequately to the challenges of some specific socio-economic groups facing particular difficulties (WHO, 2013). A differentiated approach aims at compensating for socio-economic or cultural inequalities in health. Let us use one example from our results on knowledge concerning HIV. As we suggested in 7.1, a measure that could improve their knowledge on HIV would be to rebuild existing programmes on sexual health within and outside schools. We however also know that the effectiveness of interventions differs between ethnic groups (Albarracin et al., 2005). Attention should be paid to adapt and develop programmes to reach the expected effectiveness for those target groups who are least likely to respond to current education programs. Hendrickx, Lodewijckx, Van Royen & Denekens (2002) concluded from their focus groups with second-generation Moroccan boys and girls that new programs could be developed based on the beliefs and behaviours of young Islamic immigrants. These programs could then be introduced in schools and/or community centres.

To conclude: improving the health of young adults and reducing health inequalities in young adults needs an integrative approach, not strictly limited to health policies but also including broader social and economic policies. High-quality education for all, an inclusive labour market and poverty elimination strategies should be put high on the agenda.

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